

# ADL Bionatur Solutions

Financial update

Q1 off to a good start, raising margin expectations

ADL Bionatur Solutions (ADL-BS) recently reported Q119 results, showing positive €0.11m EBITDA, and over 134% year-on-year revenue growth to €10m, driven by 180% growth in contract manufacturing (CMO). After increasing our margin assumptions and rolling forward our estimates, we now obtain an NPV of €163.1m, translating into an equity valuation of €3.02 per share (from €2.37 previously) after adjusting for net debt.

Year end	Revenue (€m)	PBT* (€m)	EPS* (€)	DPS (€)	P/E (x)	Yield (%)
12/17	12.8	(12.7)	(2.52)	0.0	N/A	N/A
12/18	25.3	(16.3)	(0.43)	0.0	N/A	N/A
12/19e	60.8	1.8	0.05	0.0	50.8	N/A
12/20e	73.5	6.2	0.16	0.0	14.5	N/A

Note: \*PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

## CMO drives near-term growth

CMO contributed over 80% of Q119 revenue (and over 60% of 2018 revenue) and the robust growth validates management's strategy in recent years to orient the firm's industrial fermentation facilities increasingly towards CMO production for third parties. Much of the revenue visibility for ADL-BS' CMO business has been contractually committed through multi-year (or renewable) contracts. ADL-BS will have 2,400m<sup>3</sup> of total fermentation capacity available in H219 by bringing its two remaining 225m<sup>3</sup> fermenters online (six are currently operating). Management expects contractually committed capacity at its eight 225m<sup>3</sup> fermenters to rise to 100% by YE19, which underpins the company's margin growth expectations.

## Guiding for a doubling of revenues in 2018

ADL-BS also provided 2019 revenue guidance of between €50m and €55m, and positive EBITDA (targeting 15% margin in 2019, and potentially over 30% long term). We believe this revenue guidance is somewhat conservative and although we have lowered our 2019 revenue forecast to €60.8m, our forecasts in future years is little changed. Offsetting the change in our revenue assumptions are increases in our margin expectations, which are still below management's targets. If the company reaches its profitability targets, there can be further upside to our estimates.

## Valuation: Raising rNPV to €159.5m

The firm's gross margins in 2018 exceeded our prior estimates and its 2019 EBITDA margin target is well above our prior 8.9% forecast. We have raised our margin forecasts, resulting in higher operating profit and EBITDA estimates for coming years. After rolling forward our estimates, we now derive an enterprise value (EV) of €159.5m, versus €138.8m previously. After removing €40.6m in Q418 net debt, we now determine an equity valuation of €118.8m, or €3.02 per share (vs €2.37, previously).

Pharma & biotech

23 May 2019

Price €2.30

Market cap €91m

Net debt (€m) at 31 December 2018 40.6

Shares in issue 39.4m

Free float 22%

Code ADL

Primary exchange MAB (Spain)

Secondary exchange N/A

### Share price performance



% 1m 3m 12m

Abs 19.9 12.3 7.0

Rel (local) 24.9 12.0 17.6

52-week high/low €2.60 €1.61

### Business description

Based in Spain, ADL Bionatur Solutions provides contract manufacturing (CMO) of fermentation-based products and services focused on the health, beauty and wellness sectors. It has established CMO/API business lines and its own proprietary development line of novel or innovative products.

### Next events

All eight 225m<sup>3</sup> fermenters are active or ready for production Mid-2019

H119 results August 2019

### Analysts

Pooya Hemami, CFA +1 646 653 7026

Maxim Jacobs, CFA +1 646 653 7027

[healthcare@edisongroup.com](mailto:healthcare@edisongroup.com)

[Edison profile page](#)

**ADL Bionatur Solutions**  
ADL Bionatur Solutions is a  
research client of Edison  
Investment Research Limited

## Growth trajectory in full swing

ADL-BS reported 2018 financials in mid-April, with revenue mildly below our forecast, but still indicative of substantial growth in its contract manufacturing (CMO) business. Following the completion of the merger between ADL Biopharma and Bionaturis (BNT) in April 2018, the firm has revised its unit reporting structure and it now classifies its operations under three primary business lines (CMO, Pharmaceutical, and R&D and Licensing Services), along with other operating income, which we assume is largely driven by the firm's agreement with Wacker Biosolutions León (Wacker) whereby Wacker pays operating, usage and maintenance-related costs to ADL-BS. We estimate the BNT's prior product lines (CRO division/Biobide, Division of Animal health, and ZIP Solutions/CDMO) are now all combined under the "R&D and Licensing services" reporting unit. We note that due to the timing of the BNT/ADL merger, BNT's operations prior to May 2018 were not included in the reported financials.

<b>Exhibit 1: ADL Bionatur 2018 financial results</b>					
	2018	2018 Edison estimate	Difference	2017**	Difference y-o-y
<b>Revenues</b>					
Contract manufacturing/fermentation (€000)	15,671	17,324	-9.5%	6,946	126%
Active pharmaceutical ingredients (€000)	5,591	5,714	-2.2%	5,143	9%
*R&D and Licensing services (€000)	1,715	2,090	-17.9%	0	N/A
Other revenue (€000)	340	866	-60.7%	141	141%
Wacker and other operating income (€000)	1,944	1,792	8.5%	561	247%
<b>Total revenue</b>	<b>25,261</b>	<b>27,786</b>	<b>-9.1%</b>	<b>12,791</b>	<b>97%</b>
<b>Total gross profit (€000)</b>	<b>14,644</b>	<b>13,561</b>	<b>8.0%</b>	<b>7,981</b>	<b>83%</b>
Gross margin (%)	58.0	48.8	917 bps	62.4	-443 bps
G&A and other operating expenses (€000)	(27,171)	(22,809)	19.1%	(18,389)	48%
<b>EBITDA (€000)</b>	<b>(12,527)</b>	<b>(9,248)</b>	<b>35.5%</b>	<b>(10,408)</b>	<b>20%</b>
Depreciation/Amortization (€000)	(2,732)	(2,283)	19.7%	(877)	212%
<b>EBIT (Operating income) (€000)</b>	<b>(15,259)</b>	<b>(11,531)</b>	<b>32.3%</b>	<b>(11,285)</b>	<b>35%</b>
Financial and other expenses (€000)	(1,547)	(1,804)	-14.3%	(794)	95%
Income tax (€000)	90	0	N/A	(82)	-210%
Net results (€000)	(16,716)	(13,335)	25.4%	(12,161)	37%

Source: ADL Bionatur reports, Edison Investment Research. \*Note: Only includes May through YE18 for BNT division. \*\*Note: 2017 financials were restated when the firm reported 2018 financial results.

CMO growth was up 126% year-on-year to €15.7m, and is indicative of continued success in management's strategy (since 2015) to orient the firm's industrial fermentation facilities increasingly towards CMO production for third parties, with a focus on higher-value end-products (which can be more complex and carry higher margins than simpler or more commoditised products produced by fermentation, such as alcohols). Gross profit of €14.6m was above our estimate of €13.6m, with gross margins over 9% higher than our prior estimate. The EBITDA loss of €12.5m was higher than our estimate of a €9.2m loss, but of the firm's operating expenses there were €3.5m of non-recurring expenses, which the firm specifies as:

- expenses associated with trading on the Alternative Stock Market (MAB),
- extraordinary provisions not linked to operations,
- compensation arising from the reorganisation and optimisation of structures after the merger,
- expenses associated with the capital increase of July 2018, and
- other non-ordinary and non-recurring expenses.

Excluding such expenses, the 2018 EBITDA loss would have been c €9m. Please note that our calculations of EBITDA and operating income differ slightly from those reported by the company because we remove items such as capital grants and impairment/disposal gains or losses from these calculations.

## **Contractually committed revenue underpins future CMO expectations**

Much of the revenue visibility for ADL-BS's CMO business has been contractually committed through multi-year (or renewable) contracts; we estimate the two largest of these are a six-year €146m flucosil-lactose deal (signed in H217), and a renewable two-year contract signed with Amyris (AMRS, Nasdaq) in early 2018 and then expanded twice in under a year, to produce fermentation-derived products for the health & wellness, beauty and flavours and fragrances markets. The sequential growth trend in CMO revenue growth is particularly robust, as we estimate H218 CMO revenue was €10.85m, up from €4.82m in H118, driven by sharply increased capacity utilisation.

As a reminder, ADL-BS will have 2,400m<sup>3</sup> of total fermentation capacity available in H219. Much of this will be provided through eight 225m<sup>3</sup> fermenters, six of which are currently online and in production (we estimate c 85% capacity utilisation at YE18, up from c 40% in H118, for these six fermenters). The two remaining 225m<sup>3</sup> fermenters are expected to be available for commercial production in H219 following recent upgrades and reconditioning.

Management expects contractually committed capacity at its eight 225m<sup>3</sup> fermenters to rise to 100% by YE19. We highlight that committed capacity differs somewhat from full operating utilisation. The company's arrangements with contracted customers allow certain fermentation facility allocations to be committed to a given client, without requiring the allocated capacity to be up and running 100% of the time (as there is some natural downtime needed between production batches). ADL-BS expects over time to optimise run times as efficiently as possible to augment overall utilisation at all of its fermenters while ensuring the production mix is geared as much as possible towards high-margin products. This underpins the firm's companywide EBITDA margin expansion targets; it is targeting EBITDA margins over 15% for 2019, and over 30% in the long term (ie. 2021 and beyond).

## **Q119 financials show robust growth**

ADL-BS in early May 2019 reported Q119 top-line results, with revenue of €9.97m (up 134% year-on-year), driven largely by increased capacity utilisation at its contract manufacturing (CMO) business. CMO revenues were €8.02m (up 180% vs Q118), whereas the active pharmaceutical ingredient (API) segment was down 14% yearly to €0.90m, due in part to seasonality for β-lactam antibiotics. Other revenue, which includes R&D and licensing services and other operating income, was up 205% to €1.05m. The strong CMO growth drove a swing to positive €0.11m EBITDA (up from a €2.85m loss in Q118). ADL-BS continues to expect positive overall EBITDA for 2019.

ADL-BS also provided 2019 revenue guidance of between €50m and €55m, which, while below our prior 2019 estimate (€64.8m), still represents a more than doubling of 2018 sales. As in Q119, the bulk of ADL-BS revenue growth for the year is expected to be driven by increased utilisation at the firm's CMO business. Further, we believe the firm is being conservative in its revenue guidance and could be on track to exceed the current guided range.

## **Working towards high-value new proprietary products**

While ADL-BS's near-term goal is to generate predictable positive EBITDA and cash flows from its CMO fermentation operations, one of the rationales for the merger between BNT and ADL Biopharma was to leverage BNT's R&D resources and its experience in developing differentiated proprietary products with ADL's production capabilities.

To this end, management has decided to orient its new product development resources beyond BNT's prior focus on veterinary products (such as microbiome regulators, vaccines, etc), and now towards product for human use applications, particularly in the health, beauty, and wellness sectors. In the medium to long term, ADL-BS expects to develop and market proprietary high-value products

for these sectors. In particular, the company plans to develop microbiome-related products for human health applications, which is consistent [with its recent announcement of a strategic alliance with Nutricion Center NC](#), which has launched a new line of weight-control products that help to manage the gastrointestinal microbiome. The firm is also looking at using its fermentation resources to produce cannabinoid products (such as cannabidiol (CBD) and delta-9-Tetrahydrocannabinol or their corresponding acids) for therapeutic purposes. In our model, we do not include substantial new proprietary human product lines to our forecasts, but we highlight that successful development can potentially provide upside to our estimates. Our forecasts for growth within the R&D and Licensing services line continue to be derived from existing growth avenues from BNT, including probiotics intended for cows and for companion animals and vaccines such as BNT005, and the Mupipet antibiotic product for pets (all described in our [initiation report](#)).

Within the company's Pharmaceutical line (also called Active Pharmaceutical Ingredient, or API), which historically focused on  $\beta$ -lactam antibiotics, ADL-BS plans to produce new generations of generic antibiotics (such as pristinamycin, daptomycin and fidaxomicin, which have recently gone or are soon expected to be 'off-patent'). These drugs have been shown to be more effective against multi-drug resistant strains. It is also in discussions for producing oncology or immunosuppressant APIs as well for clients.

## Financials

Given 2018 and Q119 results, we have slightly decreased our CMO revenue estimates for 2019 to €44.8m (from €47.5m, previously), but this still assumes robust 186% y-o-y growth, and have pushed forward some of our future expected growth to 2020 and later years, so our longer-term CMO forecasts are largely unchanged. We have also lowered our 2019 Pharmaceutical (API) segment forecasts given the slower than expected start to Q119 and also mildly revised lower our growth expectations for the R&D and Licensing services line (primarily due to our taking a more conservative estimate for a probiotic from this division intended for Middle East markets).

**Exhibit 2: Changes in ADI Bionatur forecasts**

	2019e (prior)	2019e (new)	Difference	2020e (prior)	2020e (new)	Difference
Contract manufacturing/fermentation (€000)	47,500	44,800	-5.7%	54,015	53,210	-1.5%
Active pharmaceutical ingredients (€000)	7,350	6,700	-8.8%	9,959	9,444	-5.2%
R&D and Licensing services €000	7,705	7,105	-7.8%	9,179	8,519	-7.2%
Other revenue (€000)	500	500	0.0%	575	575	0.0%
Wacker and other operating income (€000)	1,740	1,740	0.0%	1,775	1,775	0.0%
Total Revenue (€000)	64,795	60,845	-6.1%	75,503	73,523	-2.6%
Total Gross profit (€000)	25,242	29,063	15.1%	29,738	35,168	18.3%
Gross margin (%)	39.0	47.8	881 bps	39.4	47.8	845 bps
G&A and other operating expenses	(19,500)	(23,000)	17.9%	(19,626)	(23,960)	22.1%
EBITDA (€000)	5,742	6,063	5.6%	10,112	11,208	10.8%
EBITDA margin (%)	8.9	10.0	110 bps	13.4	15.2	185 bps
Depreciation/Amortization (€000)	(3,240)	(3,042)	-6.1%	(3,775)	(3,676)	-2.6%
EBIT (Operating income) (€000)	2,502	3,021	20.7%	6,337	7,532	18.9%
Financial and other expenses (€000)	(1,295)	(1,238)	-4.4%	(1,358)	(1,301)	-4.2%
Income tax (€000)	0	0	N/A	0	0	N/A
Net results (€000)	1,207	1,783	47.7%	4,979	6,231	25.2%

Source: Edison Investment Research

However, we have raised our gross margin expectations by 8–9% given the higher than expected levels reported in 2018. We also increased our G&A and other operating expense forecasts by 5–7% due to the recent trends shown in the 2018 results, even after removing some of the one-time items that occurred in 2018 relating to the ADL/BNT combination and listing and financing costs. We believe these new estimates are better aligned with ADL-BS's current overall operating cost structure. Altogether these changes result in higher EBITDA and operating income forecasts for

coming years than previously assumed. We note that our EBITDA margin forecasts are still somewhat lower and more conservative than management's most recent target (for >15% EBITDA margin in 2019). If the firm's H119 results (which we expect to be reported in August 2019) confirm management guidance, we may further review our margin forecasts with an upside bias for H219 and future years. We have also increased our near-term capex expectations mildly, rising from €5.0m in 2019 and €4.0m in 2020, respectively, to €7.5m and €5.0m, respectively.

**Exhibit 3: ADL Bionatur Solutions forecasts**

Year	2017	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Contract manufacturing/fermentation	6,946	15,671	44,800	53,210	60,677	71,986	80,359	82,840	84,478
Active pharmaceutical ingredients	5,143	5,591	6,700	9,444	10,554	11,840	13,182	13,709	14,257
R&D and Licensing services	0	1,715	7,105	8,519	9,238	9,915	10,668	11,087	11,202
Wacker and other operating income	561	1,944	1,740	1,775	1,810	1,847	1,883	1,940	1,998
Other revenue	141	340	500	575	661	760	875	901	928
Total revenue (€000)	12,791	25,261	60,845	73,523	82,940	96,348	106,967	110,477	112,864
Growth y-o-y (%)	N/A	97.5	140.9	20.8	12.8	16.2	11.0	3.3	2.2
Gross profit (€000)	7,981	14,644	29,063	35,168	39,855	46,705	52,085	53,731	54,732
Gross margin (%)	62.4	58.0	47.8	47.8	48.1	48.5	48.7	48.6	48.5
EBITDA (€000)	(10,408)	(12,527)	6,063	11,208	14,816	20,540	24,742	25,159	24,873
EBITDA margin (%)	(81.4)	(49.6)	10.0	15.2	17.9	21.3	23.1	22.8	22.0
Net debt/EBITDA (x)	N/A	N/A	8.3	4.2	2.6	1.2	0.4	(0.2)	(0.8)
Adjusted net debt*/EBITDA (x)	N/A	N/A	7.1	3.5	2.1	0.8	0.1	(0.5)	(1.1)

Source: Edison Investment Research. Note: \*Net debt adjusted to exclude €7.0m shareholder loan from Black Toro Capital.

ADL-BS reported YE18 total debt of €47.0m, offset by cash, equivalents and financial investments of €6.4m, resulting in net debt of €40.6m. The firm's gross debt includes a €7.0m shareholder loan from its majority shareholder, Black Toro Capital (BTC), which carries a variable interest rate tied to the company achieving earnings before interest and taxes (EBIT) in excess of €30m. Excluding this shareholder loan, the firm's adjusted net debt at year-end FY18 would be approximately €33.6m. While further capital raises may not be absolutely required for the firm to attain consistent profitability, ADL-BS may seek modest funding to further modernise some of its facilities. Our model continues to assume the firm will raise an additional €5m in illustrative debt in 2019.

## Valuation

We value ADL Bionatur Solutions using a discounted cash flow (DCF) approach and, as per our usual policy for operating healthcare firms with a non-insignificant amount of net debt within their capital structure, we apply a 10.0% cost of capital (CoC).

To determine the enterprise value (EV) of ADL-BS, we continue to apply a 10% CoC to three forecast periods. Our explicit forecasts cover our estimates for the period FY19–28, followed by an intermediate growth period (3% pa company-wide growth between FY29 and FY35), and finally a terminal value from FY36 (1.5% pa growth). Given the firm's €4.8m in non-current deferred tax assets and based on our discussions with management, our model does not anticipate the firm will pay income taxes until 2023.

<b>Exhibit 4: ADL Bionatur Solutions DCF valuation</b>	
<b>Component</b>	<b>Value</b>
Present-value of cash flows of explicit (2019–28) forecast period (€000)	66,064
Present-value of cash flows from intermediate-growth (3% pa from 2029–35) period (€000)	39,097
Present-value of terminal value (at 2036 and beyond) assuming 1% terminal growth rate (€000)	54,314
<b>Total enterprise value (€000)</b>	<b>159,475</b>
Net debt at Q418 (€000)	40,639
<b>Total equity value (€000)</b>	<b>118.836</b>
FD shares outstanding (000) (Q418)	39,389
<b>Implied equity value per share (€)</b>	<b>3.02</b>
Source: Edison Investment Research	

After rolling forward our estimates and largely due to revising our margin forecasts as described above, resulting in higher operating profit for forecast periods, we now derive an EV of €159.5m, versus €138.8m previously. After removing €40.7m in Q418 net debt, we now determine an equity valuation of €118.8m, or €3.02 per share (vs €2.37 previously).

ADL-BS's campus in León has land available to expand existing or build new fermentation facilities (and associated buildings/housing) if and when its fermentation/production demand exceeds current capacity. Our model and forecasts do not consider further fermentation capacity expansion (beyond the 2,400m<sup>3</sup> capacity), but if the company pursued this strategy it could add potential long-term upside to our growth and valuation forecasts.



**Exhibit 5: Financial summary**

	€(000)	2017	2018	2019e	2020e	2021e	2022e
31-December		IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
<b>PROFIT &amp; LOSS</b>							
Revenue		12,791	25,261	60,845	73,523	82,940	96,348
Cost of Sales		(4,810)	(10,617)	(31,782)	(38,355)	(43,085)	(49,643)
General, administrative and other operating expenses		(18,389)	(27,171)	(23,000)	(23,960)	(25,038)	(26,165)
EBITDA		(10,408)	(12,527)	6,063	11,208	14,816	20,540
Depreciation		(877)	(2,732)	(3,042)	(3,676)	(4,147)	(4,817)
Operating Profit (before exceptionals)		(11,285)	(15,259)	3,021	7,532	10,669	15,723
Exceptionals		652	(501)	0	0	0	0
Operating Profit		(10,633)	(15,760)	3,021	7,532	10,669	15,723
Net Interest		(1,443)	(1,046)	(1,238)	(1,301)	(1,301)	(1,301)
Profit Before Tax (norm)		(12,728)	(16,305)	1,783	6,231	9,369	14,422
Profit Before Tax (FRS 3)		(12,076)	(16,806)	1,783	6,231	9,369	14,422
Tax		(82)	90	0	0	0	0
Profit After Tax and minority interests (norm)		(12,810)	(16,215)	1,783	6,231	9,369	14,422
Profit After Tax and minority interests (FRS 3)		(12,158)	(16,716)	1,783	6,231	9,369	14,422
Average Number of Shares Outstanding (m)		5.1	37.6	39.4	39.4	39.4	39.4
EPS - normalised (€)		(2.52)	(0.43)	0.05	0.16	0.24	0.37
EPS - normalised and fully diluted (€)		(2.52)	(0.43)	0.05	0.16	0.24	0.37
EPS - (IFRS) (€)		(2.39)	(0.44)	0.05	0.16	0.24	0.37
Dividend per share (€)		0.0	0.0	0.0	0.0	0.0	0.0
<b>BALANCE SHEET</b>							
Fixed Assets		30,839	58,627	63,085	64,409	63,762	61,944
Intangible Assets		1,302	14,095	14,095	14,095	14,095	14,095
Tangible Assets		27,975	43,251	47,709	49,033	48,386	46,568
Investments in long-term bonds		1,562	1,281	1,281	1,281	1,281	1,281
Current Assets		16,339	20,612	19,353	25,586	36,576	54,195
Short-term investments		2,459	1,150	150	150	150	150
Cash		2,503	3,951	300	3,999	12,413	26,315
Other		11,377	15,511	18,903	21,437	24,012	27,730
Current Liabilities		(11,113)	(19,886)	(16,302)	(17,628)	(18,601)	(19,981)
Creditors		(5,288)	(10,530)	(6,946)	(8,272)	(9,245)	(10,625)
Short term borrowings		(5,825)	(9,356)	(9,356)	(9,356)	(9,356)	(9,356)
Long Term Liabilities		(21,541)	(38,158)	(43,158)	(43,158)	(43,158)	(43,158)
Long term borrowings excluding loan from majority shareholder		(21,530)	(30,665)	(35,665)	(35,665)	(35,665)	(35,665)
Loan from majority shareholder		0	(7,000)	(7,000)	(7,000)	(7,000)	(7,000)
Other long term liabilities		(10)	(493)	(493)	(493)	(493)	(493)
Net Assets		14,524	21,195	22,978	29,209	38,578	53,000
<b>CASH FLOW</b>							
Operating Cash Flow		(7,655)	(11,978)	(913)	10,000	13,215	18,202
Net Interest		(1,443)	(1,046)	(1,238)	(1,301)	(1,301)	(1,301)
Tax		0	0	0	0	0	0
Capex		(6,054)	(11,194)	(7,500)	(5,000)	(3,500)	(3,000)
Acquisitions/disposals		0	0	0	0	0	0
Financing		0	12,000	0	0	0	0
Net Cash Flow		(15,152)	(12,218)	(9,651)	3,700	8,414	13,902
Opening net debt/(cash)		(20,850)	20,832	40,639	50,290	46,591	38,177
HP finance leases initiated		0	0	0	0	0	0
Other		(26,530)	(7,589)	(0)	(0)	0	0
Closing net debt/(cash)		20,832	40,639	50,290	46,591	38,177	24,275

Source: Edison Investment Research, company reports

---

## General disclaimer and copyright

This report has been commissioned by ADL Bionatur and prepared and issued by Edison, in consideration of a fee payable by ADL Bionatur. Edison Investment Research standard fees are £49,500 pa for the production and broad dissemination of a detailed note (Outlook) following by regular (typically quarterly) update notes. Fees are paid upfront in cash without recourse. Edison may seek additional fees for the provision of roadshows and related IR services for the client but does not get remunerated for any investment banking services. We never take payment in stock, options or warrants for any of our services.

**Accuracy of content:** All information used in the publication of this report has been compiled from publicly available sources that are believed to be reliable, however we do not guarantee the accuracy or completeness of this report and have not sought for this information to be independently verified. Opinions contained in this report represent those of the Edison analyst at the time of publication. Forward-looking information or statements in this report contain information that is based on assumptions, forecasts of future results, estimates of amounts not yet determinable, and therefore involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of their subject matter to be materially different from current expectations.

**Exclusion of Liability:** To the fullest extent allowed by law, Edison shall not be liable for any direct, indirect or consequential losses, loss of profits, damages, costs or expenses incurred or suffered by you arising out of or in connection with the access to, use of or reliance on any information contained on this note.

**No personalised advice:** The information that we provide should not be construed in any manner whatsoever as, personalised advice. Also, the information provided by us should not be construed by any subscriber or prospective subscriber as Edison's solicitation to effect, or attempt to effect, any transaction in a security. The securities described in the report may not be eligible for sale in all jurisdictions or to certain categories of investors.

**Investment in securities mentioned:** Edison has a restrictive policy relating to personal dealing and conflicts of interest. Edison Group does not conduct any investment business and, accordingly, does not itself hold any positions in the securities mentioned in this report. However, the respective directors, officers, employees and contractors of Edison may have a position in any or related securities mentioned in this report, subject to Edison's policies on personal dealing and conflicts of interest.

**Copyright:** Copyright 2019 Edison Investment Research Limited (Edison). All rights reserved FTSE International Limited ("FTSE") © FTSE 2019. "FTSE®" is a trade mark of the London Stock Exchange Group companies and is used by FTSE International Limited under license. All rights in the FTSE indices and/or FTSE ratings vest in FTSE and/or its licensors. Neither FTSE nor its licensors accept any liability for any errors or omissions in the FTSE indices and/or FTSE ratings or underlying data. No further distribution of FTSE Data is permitted without FTSE's express written consent.

---

## Australia

Edison Investment Research Pty Ltd (Edison AU) is the Australian subsidiary of Edison. Edison AU is a Corporate Authorised Representative (1252501) of Myonlineadvisers Pty Ltd who holds an Australian Financial Services Licence (Number: 427484). This research is issued in Australia by Edison AU and any access to it, is intended only for "wholesale clients" within the meaning of the Corporations Act 2001 of Australia. Any advice given by Edison AU is general advice only and does not take into account your personal circumstances, needs or objectives. You should, before acting on this advice, consider the appropriateness of the advice, having regard to your objectives, financial situation and needs. If our advice relates to the acquisition, or possible acquisition, of a particular financial product you should read any relevant Product Disclosure Statement or like instrument.

---

## New Zealand

The research in this document is intended for New Zealand resident professional financial advisers or brokers (for use in their roles as financial advisers or brokers) and habitual investors who are "wholesale clients" for the purpose of the Financial Advisers Act 2008 (FAA) (as described in sections 5(c) (1)(a), (b) and (c) of the FAA). This is not a solicitation or inducement to buy, sell, subscribe, or underwrite any securities mentioned or in the topic of this document. For the purpose of the FAA, the content of this report is of a general nature, is intended as a source of general information only and is not intended to constitute a recommendation or opinion in relation to acquiring or disposing (including refraining from acquiring or disposing) of securities. The distribution of this document is not a "personalised service" and, to the extent that it contains any financial advice, is intended only as a "class service" provided by Edison within the meaning of the FAA (i.e. without taking into account the particular financial situation or goals of any person). As such, it should not be relied upon in making an investment decision.

---

## United Kingdom

This document is prepared and provided by Edison for information purposes only and should not be construed as an offer or solicitation for investment in any securities mentioned or in the topic of this document. A marketing communication under FCA Rules, this document has not been prepared in accordance with the legal requirements designed to promote the independence of investment research and is not subject to any prohibition on dealing ahead of the dissemination of investment research.

This Communication is being distributed in the United Kingdom and is directed only at (i) persons having professional experience in matters relating to investments, i.e. investment professionals within the meaning of Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the "FPO") (ii) high net-worth companies, unincorporated associations or other bodies within the meaning of Article 49 of the FPO and (iii) persons to whom it is otherwise lawful to distribute it. The investment or investment activity to which this document relates is available only to such persons. It is not intended that this document be distributed or passed on, directly or indirectly, to any other class of persons and in any event and under no circumstances should persons of any other description rely on or act upon the contents of this document.

This Communication is being supplied to you solely for your information and may not be reproduced by, further distributed to or published in whole or in part by, any other person

---

## United States

The Investment Research is a publication distributed in the United States by Edison Investment Research, Inc. Edison Investment Research, Inc. is registered as an investment adviser with the Securities and Exchange Commission. Edison relies upon the "publishers' exclusion" from the definition of investment adviser under Section 202(a) (1) of the Investment Advisers Act of 1940 and corresponding state securities laws. This report is a bona fide publication of general and regular circulation offering impersonal investment-related advice, not tailored to a specific investment portfolio or the needs of current and/or prospective subscribers. As such, Edison does not offer or provide personal advice and the research provided is for informational purposes only. No mention of a particular security in this report constitutes a recommendation to buy, sell or hold that or any security, or that any particular security, portfolio of securities, transaction or investment strategy is suitable for any specific person.