VivoPower International

Initiation of coverage

EV platform for growth

General industrials

VivoPower is building a sustainability orientated business focused on decarbonisation of the economy, through electric transportation and renewable energy generation services. The move into electric vehicles through the acquisition of Tembo is a step-change. It brings significant growth potential in a niche market while VivoPower's scale and presence has already delivered a transformational deal to this new activity. This will be augmented by the existing Critical Power division and development of an additional suite of energy management services.

Year end	Revenue ($m)	PBT* ($m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
06/20	48.7	(1.0)	(12.0)	0.0	N/A	N/A
06/21e	41.6	0.1	0.4	0.0	N/A	N/A
06/22e	52.3	(0.9)	(4.1)	0.0	N/A	N/A
06/23e	133.1	(1.4)	(6.2)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles and exceptional items.

Electric vehicle specialist

VivoPower bought Tembo, a specialist electric vehicle (EV) business, in 2020. The business is focused on the conversion of utility and other specialist vehicles to an EV powertrain. Key commercial markets being targeted include mining, utilities, infrastructure and government. Since acquisition VivoPower has announced a four-year deal in Australia with GB Auto for the supply of 2,000 vehicles with an estimated value (vehicle including full EV powertrain) of $250m. This is a landmark deal that would make Tembo the clear market leader in its field and provides the volume to permit scaling up operations. VivoPower has already committed to over $10m of additional funding for the business.

Auxiliary services provide key role

The group's Critical Power business is based in Australia and provides commercial electrical services with key markets including mining, data centres, solar energy and healthcare. The business is growing and solidly profitable. Important is the leverage it provides with the Tembo operations from EV infrastructure installations to customer leads. Building further additional services around the EV platform such as battery leasing and battery second-life applications provides a key part of the strategy and growth opportunity going forward. Indeed, it has already announced its first agreement managing zero carbon energy solutions for Tottenham Hotspur football club in the UK.

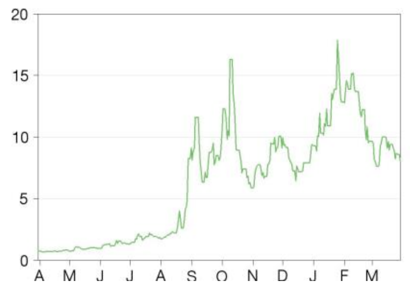
Valuation and sensitivities

Our DCF valuation stands at $19 a share (13% WACC). The key delta is inevitably the fortunes of Tembo. The primary variable is the growth rate. Our DCF assumes sales of 5,000 vehicles in 2025 but a change of 1,000 vehicles has an impact on our valuation of c $5 a share, highlighting the high level of sensitivity at this early stage in Tembo's development. Further risks/sensitivities come from the ramp-up of production including manufacturing, supply chain and logistics.

29 March 2021

Price	**US$8.6**
Market cap	**US$145m**
	$1.40/£
Net debt ($m) at 31 December 2020	8.3
Shares in issue	16.9m
Free float	42.4%
Code	VVPR
Primary exchange	US Nasdaq
Secondary exchange	N/A

Share price performance



%	1m	3m	12m
Abs	12.2	14.2	595
Rel (local)	8.8	5.1	496
52-week high/low	US$16.3	US$0.6	

Business description

VivoPower International's strategy is to provide sustainable energy solutions on an international scale. Key activities at present are electric vehicles, critical power and solar development. Its primary operations are in Australia, Europe and North America.

Next events

Final results	TBC

Analyst

David Larkam +44 (0)20 3077 5700

industrials@edisongroup.com

Edison profile page

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Investment summary

Sustainability attractions

VivoPower is building a portfolio of related activities serving the decarbonisation and electrification of the economy. At the heart is the specialist EVs business, which will be complemented by additional services along with the existing activities in Critical Power (electrification infrastructure) and solar development. In addition, the group has strong internal sustainability credentials having been B Corp certified since April 2018 and recent debut at number 47 globally in the annual Real Leaders Impact Awards. In recognition, the stock was recently admitted to the MSCI World Sustainability Index. These attributes should endear VivoPower to both environmental, social & governance (ESG) focused funds and environmental thematic funds.

An accelerating growth strategy

VivoPower's acquisition of Tembo is transformational. While still small in financial terms, it offers proven technology in a fast-growing market for specialist EVs. Since acquisition, Tembo has announced a four-year agreement with GB Auto of Australia for at least 2,000 units valued at over $250m, evidencing the potential as well as the synergies with VivoPower, including the benefit of a financially stronger parent. The agreement underpins our FY23 forecasts for 600 vehicles and for group revenues to rise to $133m from $49m in FY20. The Sustainable Energy Solutions business should provide further operational leverage, further growth and, as a service, high return on capital.

Catalysts for performance

VivoPower is in the development stage hence news will drive investor thinking and the share price in the short term. For Tembo this is likely to include news on trials with potential customers, particularly in the mining sector, and expansion of the global distribution network as the sales channel builds. Additional contracts will also add confidence in the anticipated growth profile as seen with the recent Tottenham Hotspur announcement for the nascent Sustainable Energy Solutions business. In the medium term, Tembo deliveries and hence revenues should start to build rapidly.

Valuation: EV volumes and margin are the key

Our DCF valuation for the group comes in at c $19 a share (WACC 13%). Our key assumptions are 5,000 EVs in 2025 (every change of 1,000 vehicles has an impact of c $5 a share on our valuation) and EBITDA steady state margin of 13% (each 100bps impacts our DCF by c $4 a share). Hence, there is a significant range of potential outcomes as might be expected in the current early stage of the business. As the group develops so the risk premium and cost of capital will decline improving the valuation further. We also note that the well-established Critical Power and Solar operations equate to c $4 a share using peer/asset values (ie nearly half the current share price). As the company progresses so the risk profile and cost of capital will reduce which will support the valuation further.

Risks and sensitivities

The key delta is likely to come from the EV business rather than the more stable and established Critical Power operations. The market for EVs is increasingly certain as the decarbonisation agenda accelerates. Hence the sensitivity is over Tembo's success and market share and how this translates into volumes and profitability. Scaling-up production brings challenges and execution risks (supply chain, logistics, production etc) but these are likely to be shorter-term headwinds that can be overcome. Further financing is also likely to be required to deliver the plan, including capex requirements, with any equity element bringing dilution. The 2020 over-subscribed equity issue provides confidence for any further financial needs.

Company description: Positioned for electrification

Group strategy overview

The group's strategy encompasses sustainable energy solutions for the commercial sector. Operations currently include specialist EVs, electrical power services and solar development. The company is UK based but its primary operations are based in Australia and the aim is to leverage the group's presence, particularly in the mining sector, to establish and grow the EV business in the broader commercial utility vehicle market. The intention is then to wrap further service offerings around this platform. Key markets are expected to include Australia and Canada as well as broader geographic expansion. For management's view on strategy see Exhibit 1.

Exhibit 1: The VivoPower mission

Source: VivoPower International

Activity profile: From electric vehicles to electrification

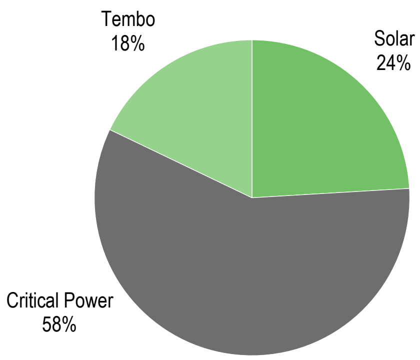
The group is constructing an interconnected set of operations around the electrification of the economy. Key activities include:

- EVs: Tembo is a specialist EV conversion business that was acquired in 2020. The business converts existing internal combustion engine (ICE) platforms to an EV powertrain. It is focused on the light commercial vehicle market, in particular Toyota Hilux and Land Cruisers, which are the vehicle of choice in key markets such as Australia. VivoPower has committed a further $10.9m investment in the business to assist growth. Tembo has already announced a proposed four-year deal for 2,000 vehicles worth over $250m.
- Critical Power: electrical services and installations for the commercial sector through two well-established businesses: Kenshaw and JA Martin. Key end markets include data centres, mining, solar energy, health and general commercial.
- Solar: VivoPower is involved in the development of utility-scale and large commercial solar assets in the US and Australia.

- Sustainable Energy Solutions (SES): developing additional services around the EV and Critical Power activities. These will include battery leasing, battery second-life applications, installation of corporate microgrids, etc.

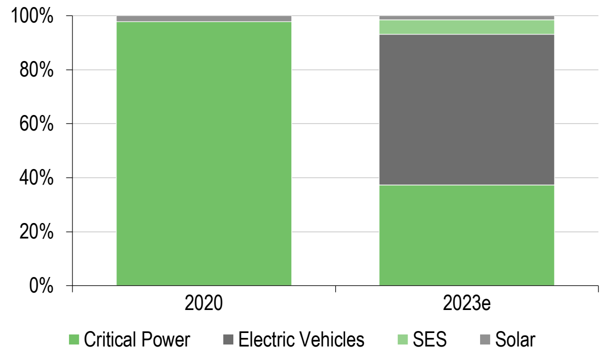
The following charts provide an indication of the importance of the operations at present and the expected shape of the group in FY23.

Exhibit 2: Estimated carrying value pre additional Tembo investment



Source: Edison Investment Research estimates

Exhibit 3: Sales contribution by activity FY20 vs FY23e



Source: Edison Investment Research estimates

B Corp certification

VivoPower's ethos and environment credentials are demonstrated by the group's B Corp certification, requiring a balance of profit and purpose along with considering its impact on workers, customers, suppliers, community and the environment. VivoPower's latest score was 85.7. Further details are available at: https://bcorporation.eu/directory/vivopower-international-plc. In addition, VivoPower debuted at number 47 globally in the annual Real Leaders Impact Awards. Other winners included Tesla and Patagonia.

Electric vehicles

Overview

VivoPower owns Tembo e-LV, a specialist vehicle business with a proven electric offering, based in Bergeijk, Netherlands and operating a global supply chain. The business focuses on customising existing platforms, converting utility vehicles, primarily Toyota Hilux and Land Cruiser. The core activity is the conversion of the ICE to full electric e-drive system including regenerative braking.

Historically, Tembo has been a niche business catering to the Australia and Canada regions within focused end markets, for example mining. VivoPower has bought the wherewithal, both financial and through management bandwidth, to expand the business. Hence the strategy to look at broader market sub-sectors including infrastructure, government, etc, as well as additional geographic markets. Early success has come from the proposed distribution agreement with GB Auto in Australia, which includes a framework purchase agreement for a minimum of 2,000 vehicles with estimated revenue (including the cost of the vehicle) to VivoPower of $250m over four years.

Market opportunity

Tembo is focused on the speciality utility vehicle sector with end markets including mining, infrastructure, utilities, government and specialist niches. Focus is on the commercial/fleet rather than the private buyer market. VivoPower estimate the total addressable market for commercial fleet EVs in the regions where Tembo currently operates (ie excluding the United States, Asia and Latin America) at $36bn.

The mining market is expected to be important, particularly in the short term, given the presence of both Tembo and VivoPower in the sector. Our analysis focuses on the Australian market and read across to Canada as these are currently Tembo's main operating regions.

The primary source of power in a mine is currently diesel. However, there are a range of pressures driving the move towards electrification. These include:

- Health. Diesel fumes and carcinogenic particulates are an issue, particularly in underground mining where ventilation is required.
- Costs. EVs have lower operational costs, in particular lower maintenance/repair requirements, which also incur downtime costs. A reduction in associated areas such as ventilation also has a financial benefit.
- Customers. Companies are increasingly looking at the performance of their supply chain, particularly the environmental performance as the reporting of Scope 3 emissions increases.
- Investors. ESG/sustainability has become a significant issue for investors, increasing pressure on companies, including miners, to achieve 'best in class' environmental performance and to set targets for carbon neutrality.

This shift is starting to gain traction. The International Council of Mining and Metals (ICMM) set up the Innovation for Cleaner Safer Vehicles (ICSV) with 28 leading mining companies to work collaboratively with the stated aim to 'minimise the operational impact of diesel exhaust by 2025'. Commitments from the miners include:

- Anglo American – reduce emissions by 30% and improve energy efficiency by 30% by 2030.
- BHP – achieve a 30% reduction in emissions by 2030
- Glencore – net zero emissions by 2050
- Rio Tinto – reduce emissions intensity by 30% by 2030

Exhibit 4 looks at the potential for utility vehicles of the key Australian mining market. BHP has 26 mines with an average of 250 utility vehicles, Fortescue has 1,400 utility vehicles and operates four mines suggesting an average of over 300 vehicles per mine. Using a more conservative number of 150 units per mine still suggests an annual replacement market of 17,500 units, assisted by the short life span in such a harsh environment. The Canadian mining market is a similar scale to Australia and hence is likely to provide a similar opportunity. This suggests a significant market for VivoPower; the key is likely to be the speed of conversion to EVs and Tembo's market share.

Exhibit 4: Australian mining utility vehicle market

Number of mines	Utility vehicles/mine	Number of utility vehicles	Utility vehicle life (years)	Annual replacement market
350	150	52,500	3	17,500

Source: Edison Investment Research

Competition

The specialist utility vehicle market is nascent as demonstrated by the main competitors, all specialist mining suppliers or vehicle suppliers. None have announced any significant contracts to date.

- Volta (Perth, Western Australia). Linked with Autoline, a supplier of light vehicle spare parts for mining sector. Announced that trials were due to start with BHP in July 2018 at its Olympic Dam project but no further update.
- Zero Automotive (Adelaide, Australia). EV systems and batteries from another Australian company, SEA Electric, focused on electric delivery vehicles.

- Safescape (Golden Square, Victoria, Australia). Private Australian company supplying the mining industry with safety equipment and ruggedised vehicles. Developed an EV, the Bortana off-road vehicle from specialist Brazilian company Agrale. Claimed to have 10–20 on field trails across Australia in 2020 including Kirkland Lake Gold's Fosterville mine.
- LDO Group. Private Australian group founded in 2005. Provides services and rental equipment to the mining sector. Importer of Canadian-made Rokion EVs for the mining sector. Currently on trials with BHP at its Broadmeadow project in Australia.
- Miller technology. Supplies Run E-Drive electric conversion kits for Toyota conversions from Huber Automotive, a Germany vehicle electrification and battery specialist.

Overall

There is clearly significant market potential in the company's key Australian and Canadian markets before looking further afield. The rate of conversion from ICE is unclear although the protestations from the markets are positive. Hence Tembo's success will depend on gaining its share of the market with the GB Auto deal providing confidence and an early market leading position.

Sustainable energy solutions

VivoPower's strategy is to provide a range of integrated services to assist in the adoption and benefits of EVs for customers. These services include:

- Infrastructure. VivoPower's experience and operational footprint in Australia position the group to scope and install the required upgraded infrastructure. This includes microgrids and charging infrastructure to support increased electrical loading and greater integrity infrastructure becomes more critical.
- EV batteries. Batteries are an expensive part of the vehicle (currently 25–40% of the total cost) and degenerate over time impacting performance and requiring expensive replacements. VivoPower plans to offer battery leasing to spread the cost and ensure guaranteed levels of performance, thereby overcoming a major concern of switching to electric.
- Second-life batteries. Batteries degrade over time but generally have an operational life of around eight years. At the end of the vehicle life batteries may well be within their operating window. This is particularly the case in harsh operating environments such as mines where vehicles may only last three years. These batteries can be used for alternative applications, such as stationary battery storage, at significantly lower cost.

We expect additional services to be added over time. We note that VivoPower's agreement with GB Auto provided for VivoPower to maintain and own all operating data from the Tembo vehicles. This could provide the basis for further product offerings in the future.

We note EPIROC, the global mining equipment group, recently signed an agreement with Vale for the supply of 10 EVs (large loaders, trucks etc) along with a 'batteries as a service' contract, suggesting these types of activities are gaining traction in the market.

VivoPower's business may be in its infancy, but it has already won its first significant partnership. VivoPower is working with Tottenham Hotspur, the UK Premier League football club, to develop a sustainable energy solution for the stadium and training grounds as the club looks to become a zero carbon business. The solution is expected to include rooftop solar, where VivoPower has significant experience in Australia, solid state battery capacity of up to 3MW, customised microgrid and associated electricals.

Critical Power Services

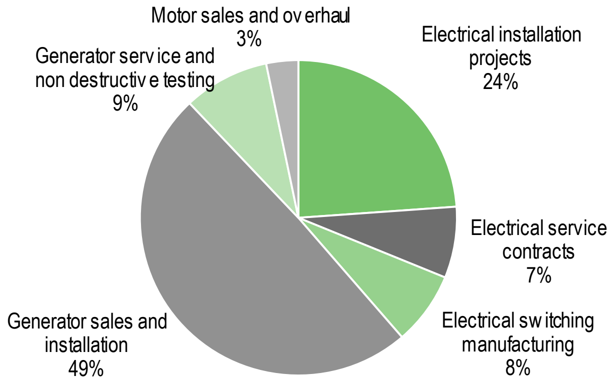
Profile

The Critical Power Services division comprises two complementary businesses operating in the commercial electrical equipment and service market:

- J A Martin. The business operates in the lighter end of the market (it supplies wiring, control room, controllers and switchgear etc that enable a facility to operate). Services include design, installation and maintenance. The business has been particularly busy in the solar segment.
- Kenshaw. The business operates at the heavier end of the electrical engineering sector (ie it supplies critical electrical power (motors and generators), critical mechanical power and non-destructive testing services). Activities encompass the full life cycle requirements from design to installation to service, asset management and spares. Of particular note has been the growth in data centre business in recent years.

The businesses have over 700 customers limiting both individual customer and sector exposure.

Exhibit 5: Activity profile

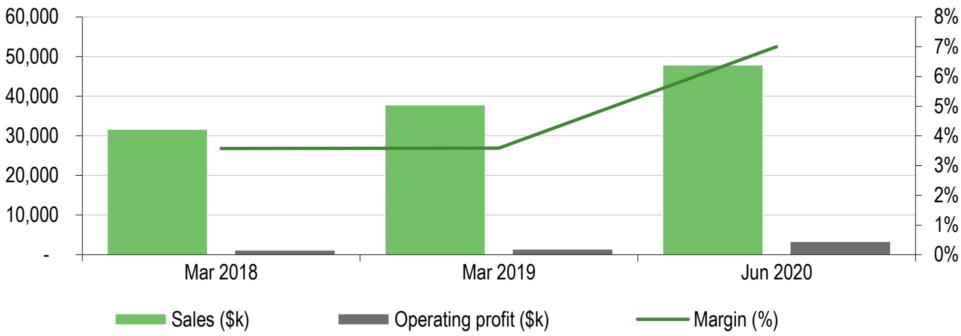


Source: VivoPower, Edison Investment Research

Performance

Following restructuring, the businesses have made good progress, despite some impact from COVID-19, posting strong top line growth (26% in 2020) and positive margin improvement (up 340bp to 7.0% in 2020). H121 proved more difficult due to the pandemic although the division still posted a resilient profit performance (EBIT $2.6m down from $3.4m). We also note the recent contract for all electric works for the 200MW Blue Grass Solar Farm in Queensland, which brings total solar contract wins to over 350MW.

Exhibit 6: Operational performance



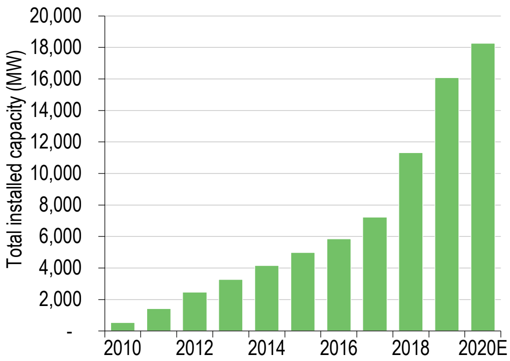
Source: VivoPower, Edison Investment Research

Opportunities and outlook

The businesses are linked to the state of the Australian economy and the investment cycle. They are exposed to three particular market sectors offering growth:

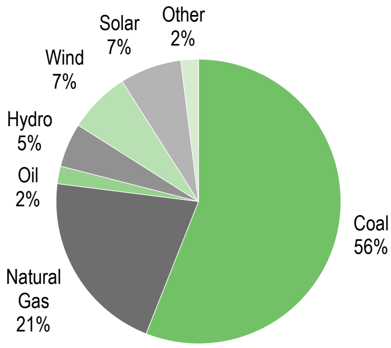
- Solar. 79% of electricity generation in 2019 was from fossil fuels including 56% from coal. Renewables accounted for only 21%, of which 7% was solar. Australia has signed the Paris Accord on climate change which provides a strong driver for renewables, including solar. This suggests that the recent strong growth in capacity looks set to continue.

Exhibit 7: Australia's installed solar capacity



Source: Australia PV Institute

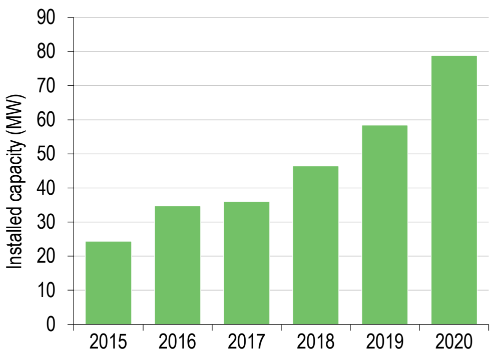
Exhibit 8: Australia's electricity mix (2019)



Source: Australian Department for Industry, Science, Energy & Resources

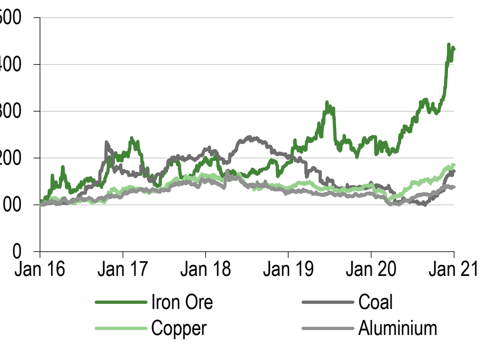
- Data centres. The shift to cloud computing continues apace driving demand for computer centres. Exhibit 9 highlights the recent growth in capacity from NEXT DC a key Australian-based supplier. NEXT DC has a target of 246MW capacity versus the current 78MW, further growth would be expected.
- Mining. Activity depends on global activity and commodity prices. These have generally recovered from the pandemic-affected levels in H120 with iron ore particularly strong as shown in Exhibit 10. This would suggest a positive market for 2021.

Exhibit 9: NEXT DC capacity (MW)



Source: NEXT DC

Exhibit 10: Raw material prices (indexed)



Source: Bloomberg

Overall

Key sector drivers and the positive state of the Australian economy (GDP forecast 2021 +5%, 2022 +4% source: Australian government) suggest that further growth can be expected. Lumpiness can be expected due to contract timing and any additional COVID-19 disruption.

Solar development

The group develops utility and larger commercial projects. Projects are sold prior to construction to limit the capital requirement. Operations are undertaken through partnerships with established management companies to circumvent the requirement to invest in a significant development team and associated costs.

- Australia. VivoPower has partnered with ITP targeting 50MW of capacity with two projects and a total capacity of 20MW currently under development. The company announced the disposal of a 5MW project in 2020. There are synergy benefits to be leveraged with the group's Critical Power Services businesses.
- North America. VivoPower's activities have historically been through a 50% joint venture with Innovative Solar Systems (ISS); the venture has a 882MW portfolio of projects at various stages of development. Progress has been disappointing and VivoPower has taken action for compensation from its partner. The current expectation is that the key North American activities will be exited (note these have a book value of $12.3m). The new Biden administration could change the market dynamics of the sector.

Management

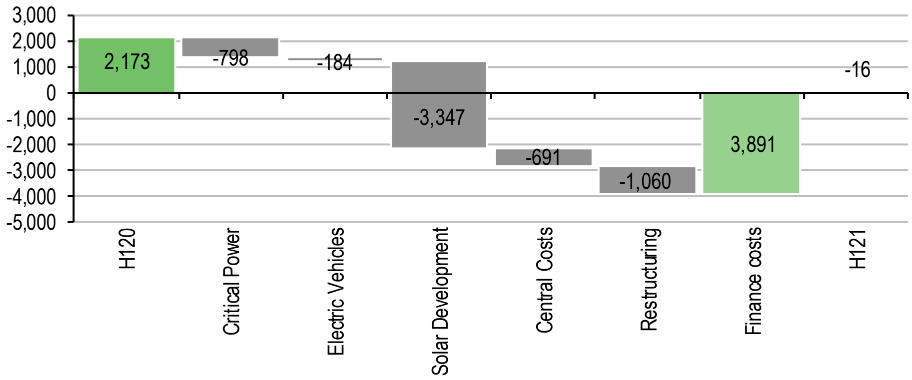
Kevin Chin became chief executive in March 2020 alongside the chairmanship role that he has held since before the group listed in 2017. Mr Chin is an experienced entrepreneur and turnaround specialist with experience in solar energy, software, traffic management, education and fund management. His most notable achievement was at AI software company RuleBurst Haley. The Australian-centric RuleBurst was acquired in 2004, operations were turned around and growth accelerated by over 100% in 2005 and 2006 (source: Arowana) largely through international expansion, including the acquisition of US-based Haley. The business was sold to Oracle in 2009 for A$150m generating 13.8x the original equity and an internal rate of return (IRR) of 93% (source: Arowana). Mr Chin is also chief executive of Arowana, a B Corp certified development group and VivoPower's largest shareholder (49.6%). James Tindal-Robertson is finance director having spent six years as director of finance at PetroSaudi Oil Services with previous roles at Chicago Bridge & Iron Corporation, Paladin Resources, Crew Gold Corporation and Smiths Group. The board also includes four experienced non-executive directors. This includes Matt Cahir who was a key member of the RuleBurst management team. He also ran Mincom's North American operations and has extensive experience in the mining sector.

Financials: H121 results

Trading highlights

Overall sales declined 28% in H121, EBITDA was down from $5.5m to $1.2m and PBT declined from $2.2m to break-even, primarily due to the effects of COVID-19 and one-off/exceptional events. Critical Power revenues declined 29% as COVID restrictions affected the ability to deliver contracts. The focus on efficiency boosted gross margins from 17.7% to 20.8% while G&A cost actions also assisted in limiting the overall impact on profit to a 24% decline. The solar business was affected by the lack of development gains in the period reflecting the lumpy nature of such events. Central cost increases were due to the company investing for growth, higher restructuring charges relating to resolution of outstanding litigation in the US and financing costs associated with the equity raise and other refinancing which took place in 2020.

Exhibit 11: VivoPower H1 PBT reconciliation ($k)



Source: Company information

Operational highlights

H121 saw a significant period of activity with completion of the equity raise, finalisation of the Tembo investment and consummation of the GB Auto partnership. Post the period end, the group announced the acquisition of the remaining minority in Tembo, the first contract for SES with Tottenham Hotspur in the UK and a major solar farm electrical installation contract for Critical Power.

Financial position

The $28.8m equity raise was completed in the first half of 2020. As a consequence, net debt reduced from $23.1m at June 2020 to $8.3m at 31 December and cash increased from $2.8m to $17.4m providing liquidity to fund growth investment plans.

Trading outlook

Management commented that 'the outlook remains strong, with a noticeable uptick in activity coming though since the start of calendar year 2021'. This suggests a more positive second half albeit the degree of improvement will inevitably depend on the level of COVID-19 restrictions impacting the Critical Power operations.

Financial forecasts and assumptions

Exhibit 12 shows our forecasts for VivoPower's EV division, which is expected to account for over 55% of sales by 2023. The GB agreement of 2,000 vehicles over four years underpins our volume assumptions. In 2023 we expect Critical Power to account for 38% of revenues with the remainder generated by the solar and nascent services operations. We expect the EV business to be operating around break-even in 2023 as volumes permit greater discounts on purchases, including vehicles, and operational gearing benefits start to come through. The services business revenues are expected to be driven primarily by Tembo EV volumes. At present, take up levels are difficult to predict hence we are taking a conservative stance on volumes and economics, despite Tembo having won its first contract. The services operations account for only 5% of our 2025 profit forecast.

Exhibit 12: EV divisional forecasts

Year to June ($000)	2021e	2022e	2023e
Unit sales	2	50	600
Gross sales	300	7,500	90,000
Distributor commission	(50)	(1,256)	(15,075)
Sales	250	6,244	74,925
Cost of vehicle	(204)	(4,804)	(50,563)
COGS	(16)	(391)	(4,010)
Other costs	(10)	(250)	(2,997)
Gross profit	20	798	17,354
G&A costs	(500)	(1,124)	(12,363)
EBITDA	(480)	(325)	4,992
D&A	(225)	(1,750)	(5,100)
Underlying EBIT	(705)	(2,075)	(108)
Gross margin (%)	7%	11%	19%
EBITDA margin (%)	-160%	-4%	6%
EBIT margin (%)	-235%	-28%	0%

Source: Edison Investment Research

Valuation

VivoPower's assets are at very different stages of their lifecycles. Tembo (ie EVs) are in rapid growth mode, Critical Power is more in mature cyclical growth and solar investments are in realisation mode. Hence, we have looked at the potential value of these operations independently.

EVs

Tembo will be the key driver for VivoPower's growth and valuation. Exhibit 13 provides a view of key EV companies including their market capitalisation, 2023 forecast revenues and EV/Sales multiples. Our expectations are for Tembo's revenues to exceed $150m in calendar 2023 (note VivoPower has a June year end) driven by the growth in EVs, which will account for over 60% of VivoPower sales at this juncture. On a median peer EV/Sales multiple of 2.9x this would suggest a valuation of c $435m. However, we are cautious in placing too much emphasis on such a valuation noting the wide range in valuations being ascribed in the sector and the early stage of Tembo's growth – our forecast sales in the financial year to June 2023 of $75m suggests a significantly lower valuation. In addition, Tembo's activity profile specialises in powertrain conversion rather than as an integrated EV original equipment manufacturer (OEM) which may be lower margin albeit it also enjoys a lower capital requirement and risk from complete vehicle manufacture.

Exhibit 13: Electric vehicle manufacturer valuations

Company	Main activity	Market cap ($bn)	2023e revenues ($bn)	EV/sales (2023e)
Arcimoto	City cars/hoppers	0.8	0.16	21.0
Canoo	Passenger cars	3.5	0.85	4.1
Electrameccanica	City cars	0.6	0.15	3.8
Fisker	Passenger cars	6.4	2.3	2.8
Li Auto	Passenger cars	23.2	53	0.4
Lordstown	Light trucks	2.4	3.0	0.8
Nikola	Trucks	6.7	3.0	3.0
Nio	Passenger cars	71.5	78	0.9
Niu	Electric scooter	3.1	7.9	0.4
Tesla	Passenger cars	666	78	8.6
Workhorse Group	Light trucks	2.1	0.45	4.7
Xpeng	Passenger cars	28.0	45	0.6
Average				4.3
Median				2.9

Source: Refinitiv (as at 10 March 2021)

Critical Power

In Australia, 2020 saw the listing of Mayfield, a similar electrical services provider of similar scale (both companies reported sales of c $48m with Mayfield's margin 7.3% versus VivoPower's Critical Power 6.9%). The following provides an indication of the read-across in valuation using the last reported financials.

Exhibit 14: Critical Power implied indicative valuation

	Mayfield	VivoPower	$k	Implied valuation ($k)
EV/sales	0.7x	Sales	48,638	32,153
EV/EBIT	9.1x	EBIT	3,358	30,558

Source: Edison Investment Research, Refinitiv

Solar activities

VivoPower's main business in the division has been in the US business. The Innovative Solar Ventures I assets are held under 'investments' and as 'assets held for sale' with a combined value of $12.3m.

Overall valuation

Valuing the EV business is difficult at present and the additional SES business even more so. A reverse valuation is perhaps instructive. Taking the current market cap ($145m) and adjusting for Critical Power and Solar ($43m) suggests that the EV (and SES) operations are valued at $102m.

Discounted cash flow

Given the early stage of its development our DCF uses five-year forecasts followed by a six-year fade period before applying a normal terminal value growth rate of 3%. Exhibit 15 shows DCF sensitivity relative to the weighted average cost of capital (WACC) and the number of vehicles expected to be delivered in 2025. As Tembo develops and the risk profile reduces so beta – and consequently the cost of capital – will reduce. Similarly, the key variable of number of units being delivered, and hence the growth profile, will become somewhat more evident. Our current expectation is for multiple thousands of vehicles by 2025 which the mining market alone should support, depending on the rate of conversion from ICE. Hence, we see 5,000 vehicles as achievable which, with a WACC of 13% (15% cost of equity) suggests a valuation of c $19 a share. While it is somewhat simplistic to use a single year to assess the full trajectory of the business it is worth noting that each change in the number of vehicles delivered in 2025 changes our DCF by c $5 a share (rising on lower WACC assumptions).

Exhibit 15: VivoPower DCF valuation ($/share) relative to our estimated FY25 vehicle deliveries

		-----------------Vehicle deliveries-----------------				
		3,000	4,000	5,000	6,000	7,000
------------WACC------------	17.0%	3.2	6.9	10.0	13.1	16.4
	16.0%	4.2	8.2	11.6	15.0	18.7
	15.0%	5.4	9.8	13.5	17.3	21.4
	14.0%	6.8	11.7	15.9	20.1	24.7
	13.0%	8.5	14.0	18.7	23.5	28.6
	12.0%	10.7	16.9	22.3	27.8	33.6
	11.0%	13.5	20.6	26.9	33.2	39.9
	10.0%	17.2	25.4	32.9	40.3	48.2
	9.0%	22.3	32.1	41.0	50.0	59.4
	8.0%	29.6	41.5	52.7	63.8	75.4
	7.0%	40.7	55.9	70.4	84.8	99.6

Source: Edison Investment Research

The other key variable will inevitably be profitability. Tembo's business is far less complex than full OEM vehicle manufacture. This reduces risk and capital requirements but may also limit the margin available given the effective pass-through cost of the vehicle ex-drivetrain. The following provides a sensitivity of our DCF to EBITDA margin. A 13% margin would suggest c $19 valuation. A 100bp change in margin impacts the valuation by c $4 a share (rising with lower WACC). These are steady state longer-term margins which we would expect to be lower than more traditional OEM models; we note Tesla's 2020 EBITDA margin was 18.3% with +630bp y-o-y suggesting it is not yet at a long-term steady state.

Exhibit 16: VivoPower DCF valuation ($/share) relative to a steady state EBITDA margin

		-----------------EBITDA margin-----------------								
		10%	11%	12%	13%	14%	15%	16%	17%	18%
----------WACC----------	17.0%	3.4	5.6	7.8	10.0	12.2	14.4	16.6	18.8	15.5
	16.0%	4.3	6.7	9.2	11.6	14.1	16.5	19.0	21.4	17.1
	15.0%	5.3	8.0	10.8	13.5	16.3	19.1	21.8	24.6	19.0
	14.0%	6.5	9.6	12.7	15.9	19.0	22.1	25.3	28.4	21.1
	13.0%	8.0	11.6	15.2	18.7	22.3	25.9	29.5	33.1	23.5
	12.0%	9.9	14.0	18.2	22.3	26.5	30.6	34.8	38.9	26.4
	11.0%	12.3	17.2	22.0	26.9	31.8	36.6	41.5	46.4	29.8
	10.0%	15.5	21.3	27.1	32.9	38.7	44.5	50.3	56.1	34.0
	9.0%	19.8	26.9	34.0	41.0	48.1	55.2	62.3	69.3	39.1
	8.0%	26.0	34.9	43.8	52.7	61.5	70.4	79.3	88.2	45.6
	7.0%	15.8	23.2	30.6	38.1	45.5	52.9	60.3	67.7	68.7

Source: Edison Investment Research

Sensitivities

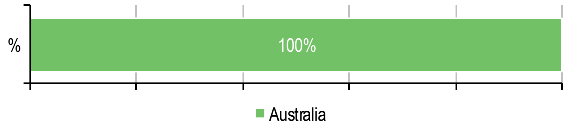
The key medium-term delta to the group's fortunes is likely to be the performance at Tembo through the rate of EV adoption and market share attained. Other sensitivities such as internal production or the state of the Australian economy are likely to have less impact and be more cyclical in nature.

- Speed of EV adoption. Expectations for rates of EV adoption have increased significantly in the last two years and are being increasingly supported by government commitments to phasing out ICE-powered vehicles. Many markets are still relatively embryonic and likely to be somewhat volatile until the EV penetration gains traction. As a niche supplier VivoPower will be dependent on conversion rates of particular segments, such as mining.
- Tembo potential growing pains. The company's EV product is relatively new and growth is expected to be very strong. This will bring challenges in terms of production scale up, supply chain, working capital and potential technical issues as more vehicles are in the field.
- Toyota relationship. This is the vehicle of choice for Tembo hence the relationship with Toyota will be important. Toyota could see this as an opportunity for itself or prefer not to commit capital and work with a partner in this relatively niche activity.
- Australian economic growth. As a key market for the group the state of the Australian economy is likely to have an impact on both Tembo and Critical Power. However, we note VivoPower's exposure to the mining sector which is more attuned to global growth rates.
- Currencies. VivoPower's sales are predominantly in A$, its new Tembo business is based in Europe (€) and the group reports in US$, which provides various currency exposures and offsets.
- Share liquidity. Management and associated companies own c 58% of group equity.

Exhibit 17: Financial summary

	2018	2019	2020	2021e	2022e	2023e
Year end 30 June	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
INCOME STATEMENT						
Revenue	33,647	39,036	48,710	41,592	52,320	133,149
Cost of Sales	(28,524)	(32,726)	(40,885)	(35,963)	(47,313)	(112,438)
Gross Profit	5,123	6,310	7,825	5,629	5,007	20,711
EBITDA	(6,335)	(3,990)	3,935	4,940	5,254	11,551
Normalised operating profit	(7,595)	(5,410)	2,169	2,281	217	2,103
Amortisation of acquired intangibles	0	0	0	0	0	0
Exceptionals	(23,156)	(2,017)	(3,410)	(1,900)	0	0
Share-based payments	0	0	0	0	0	0
Reported operating profit	(30,751)	(7,427)	(1,241)	381	217	2,103
Net Interest	(3,386)	(3,239)	(3,149)	(2,194)	(1,110)	(3,474)
Profit Before Tax (norm)	(10,981)	(8,649)	(980)	86	(893)	(1,371)
Profit Before Tax (reported)	(34,137)	(10,666)	(4,390)	(1,814)	(893)	(1,371)
Reported tax	6,258	(557)	(713)	453	223	343
Profit After Tax (norm)	(10,981)	(8,649)	(1,176)	65	(670)	(1,029)
Profit After Tax (reported)	(27,879)	(11,223)	(5,103)	(1,360)	(670)	(1,029)
Basic average number of shares outstanding (m)	13,557	13,557	13,557	15,700	16,500	16,500
EPS - basic normalised (c)	(81.00)	(63.80)	(12.00)	0.41	(4.06)	(6.23)
EPS - diluted normalised (c)	(81.00)	(63.80)	(12.00)	0.41	(4.06)	(6.23)
EPS - basic reported (c)	(205.64)	(82.78)	(37.64)	(8.66)	(4.06)	(6.23)
Dividend ($)	0.00	0.00	0.00	0.00	0.00	0.00
BALANCE SHEET						
Fixed Assets	55,034	36,826	41,907	44,803	54,192	84,154
Intangible Assets	36,402	31,762	29,849	31,750	40,423	46,206
Tangible Assets	1,915	2,951	2,486	3,678	4,393	28,573
Investments & other	16,717	2,113	9,572	9,375	9,375	9,375
Current Assets	21,278	36,283	20,473	46,143	22,580	32,839
Stocks	0	0	0	1,146	1,588	5,476
Debtors	7,903	14,992	12,556	10,721	12,399	19,770
Cash & cash equivalents	1,939	7,129	2,824	29,182	5,000	5,000
Other	11,436	14,162	5,093	5,093	3,593	2,593
Current Liabilities	(20,610)	(29,133)	(19,679)	(16,472)	(19,004)	(28,704)
Creditors	(14,082)	(24,639)	(15,395)	(13,046)	(14,891)	(22,511)
Tax and social security	(103)	(449)	(75)	(528)	(305)	38
Short term borrowings	(3,955)	(2,327)	(1,312)	0	0	0
Other	(2,470)	(1,718)	(2,897)	(2,897)	(3,808)	(6,231)
Long Term Liabilities	(18,699)	(21,460)	(24,811)	(26,954)	(21,297)	(54,051)
Long term borrowings	(18,385)	(19,359)	(24,642)	(25,954)	(19,983)	(51,901)
Other long term liabilities	(314)	(2,101)	(169)	(1,000)	(1,314)	(2,151)
Net Assets	37,003	22,516	17,890	47,519	36,470	34,237
Minority interests	0	0	184	6,300	6,301	6,302
Shareholders' equity	37,003	22,516	18,074	53,819	42,771	40,539
CASH FLOW						
Op Cash Flow before WC and tax	(6,335)	(3,990)	3,935	4,940	5,254	11,551
Working capital	18,461	570	(3,145)	(829)	1,040	(584)
Exceptional & other	(3,229)	684	(4,999)	(3,843)	(500)	0
Tax	0	0	(477)	(475)	0	0
Net operating cash flow	8,897	(2,736)	(4,686)	(208)	5,793	10,967
Capex	1,196	116	(452)	(4,752)	(14,426)	(39,410)
Acquisitions/disposals	(17,823)	11,736	746	(1,500)	0	0
Net interest	(3,386)	(3,243)	(515)	(2,194)	(1,110)	(3,474)
Equity financing	0	0	0	26,358	0	0
Dividends	0	0	0	0	0	0
Other						
Net Cash Flow	(11,116)	5,873	(4,907)	17,705	(9,742)	(31,918)
Opening net debt/(cash)	(9,285)	(20,401)	(14,557)	(22,945)	(5,240)	(14,983)
FX	0	1,102	(3,100)	0	0	0
Other non-cash movements	0	(1,131)	(381)	0	0	0
Closing net debt/(cash)	(20,401)	(14,557)	(22,945)	(5,240)	(14,983)	(46,901)

Source: VivoPower International accounts, Edison Investment Research

Contact details	Revenue by geography
1st Floor, The Baltic Exchange Bevis Mark London - EC3A 7BA United Kingdom www.vivopower.com	

Management team

Co-founder and executive chairman: Kevin Chin	Group finance director: James Tindal-Robertson
Kevin Chin is an experienced entrepreneur and turnaround specialist. Most notably he was involved in the turnaround, globally scale-up and eventual sale to Oracle of AI software company RuleBurst Haley. He is also chief executive of Arowana, a B Corp certified international investment group and VivoPower's largest shareholder.	James Tindal-Robertson has been finance director for over three years. He spent six years at PetroSaudi Oil Services as director of finance and previously as group financial controller. He had previous roles at Chicago Bridge & Iron Corporation, Paladin Resources, Crew Gold Corporation and Smiths Group. He is a chartered accountant.

Principal shareholders	(%)
Arowana Holdings	49.6
Kevin Tser Fah Chin	8.0
Panaga Group	7.5
Renaissance Tech	2.1

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Frankfurt +49 (0)69 78 8076 960
Schumannstrasse 34b
60325 Frankfurt
Germany

London +44 (0)20 3077 5700
280 High Holborn
London, WC1V 7EE
United Kingdom

New York +1 646 653 7026
1185 Avenue of the Americas
3rd Floor, New York, NY 10036
United States of America

Sydney +61 (0)2 8249 8342
Level 4, Office 1205
95 Pitt Street, Sydney
NSW 2000, Australia