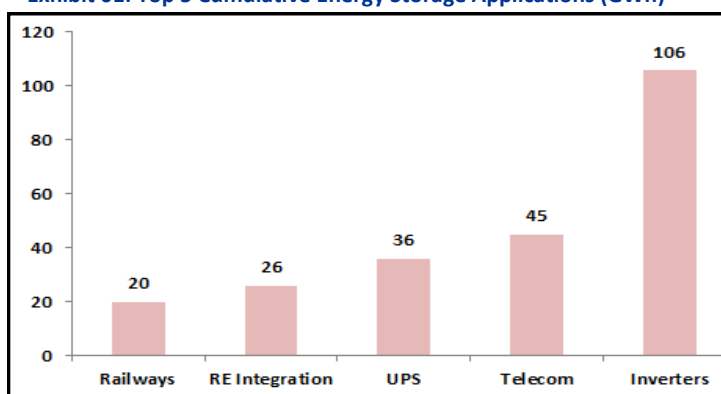


**About the Industry:** The increasing reliance on renewable energy on the domestic front would support net-zero ambitions and also help meet the target of achieving 50% of the country's electricity requirements through renewable sources by 2030. **Energy storage**, with its grid balancing and renewable power optimizing services would provide businesses with the right opportunity to unlock India's clean energy potential. The system architecture is also expected to change with deeper penetration of renewable power and changes in the operational dynamics of the power system. Energy storage is going to be a quintessential part of the new power system architecture as it not only helps to balance out the variability in generation but could also enable consumption of a higher proportion of self-generated renewable power by consumers and reduce the need to feed excess electricity back into the grid. India's energy storage market is in a growing phase. As per Indian Energy Storage Alliance (IESA), India possesses the potential to integrate over 300GWh (current size of over 15GWh, anticipated to grow 12-15% y-o-y) of energy storage during 2018-25E (inclusive of existing applications such as backup power along with newer applications like wind and solar integration, frequency regulation, transmission and distribution deferral, diesel replacement and electric vehicles). India having attained the 3.9% electricity generation growth rate anticipates the country transcending towards becoming the fastest growing energy economy globally, emphasizing on the need for incorporation of a zero-emission renewable energy source which would be of paramount importance towards a sustainable growth target.

**Exhibit 01: Top 5 Cumulative Energy Storage Applications (GWh)**



Source: India ESS Report, Progressive Research

India is regarded as one of the few countries with a Nationally Determined Commitment (NDC); consistent with the 2-degree Celsius emission goal which has been set under 2015 Paris Agreement (Climate Action Tracker). The major milestone set under India's NDC includes setting the renewable energy target as 40% of installed power generation capacity by 2030. However, the inflexible and variable nature of renewable generation; poses a requirement of various flexible technologies that would assist in achieving the targets set; one such technology which has been gaining momentum off late is the **battery storage**. In order to aggressively shift towards the renewable energy, energy storage and EVs, the GOI has announced a target of 500GW of non-fossil fuel energy deployment by 2030 and to reduce the total projected carbon emissions by 1 billion tonnes by 2030 (as per the recent concluded COP26 conference). To attain these targets, India needs a significant amount of grid storage and a bulk increase in the number of EVs. India needs to add ~30-35GW of renewable capacity annually over the next decade, a bulk of which would come from solar energy. However, this requires setting up local manufacturing, exploring new avenues and allowing global competition in sunrise sectors such as energy storage.

SNAPSHOT				
52 week H / L		Mcap (INR mn)		
122/48		31,420		
Face value: 1				
BSE Code		NSE CODE		
517271		HBLPOWER		
Annual Performance				
(Rs mn)	FY20	FY21	FY22	FY23E
Total Revenue	10,918	9,120	12,362	14,014
EBITDA	805	674	1,390	1,570
EBITDA (%)	7.4	7.4	11.2	11.2
Other Income	166	96	144	147
Interest	222	147	75	74
Depreciation	407	388	351	344
PBT	342	235	1,108	1,299
PAT*	262	137	939	973
Equity (Rs mn)	277	277	277	277
EPS (INR)	0.5	0.5	3.4	3.5
Quarterly Performance				
Parameters (Rs mn)	Sept-21	Dec-21	Mar-22	Jun-22
Sales (Net)	2,830	3,487	3,739	3,197
EBITDA	250	455	533	350
EBITDA (%)	8.8	13.0	14.3	10.9
Other Income	37	29	47	33
Interest	11	20	23	9
Depreciation	89	87	84	83
PAT	147	246	333	200
Equity (Rs mn)	277	277	277	277
Ratio Analysis				
Parameters (Rs mn)	FY20	FY21	FY22	FY23E
EV/EBITDA (x)	40.3	47.1	22.6	20.0
EV/Net Sales (x)	3.0	3.5	2.5	2.2
M Cap/Sales (x)	2.9	3.4	2.5	2.2
M Cap/EBITDA (x)	39.0	46.6	22.6	20.0
Debt/Equity (x)	0.3	0.2	0.1	0.1
ROCE (%)	7.1	4.7	13.7	14.3
Price/Book Value (x)	7.4	4.0	3.6	3.3
P/E (x) (TTM)	16.2	-	59.6	32.7
Shareholding Pattern as on 30th June, 2022				
Parameters	No of Shares	%		
Promoters	163,464,094	58.97		
Institutions	39,099,355	14.11		
Public	74,631,497	26.92		
TOTAL	277,194,946	100.00		

Source: Annual Report, Progressive Research

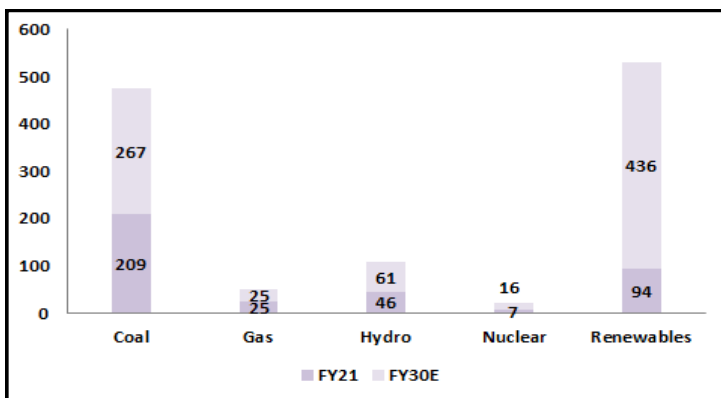
Note: Data calculated as on 12th Oct, 2022, \*PAT is post exceptional items

**About the Industry (contd.):**

**Prerequisites for Energy Storage:**

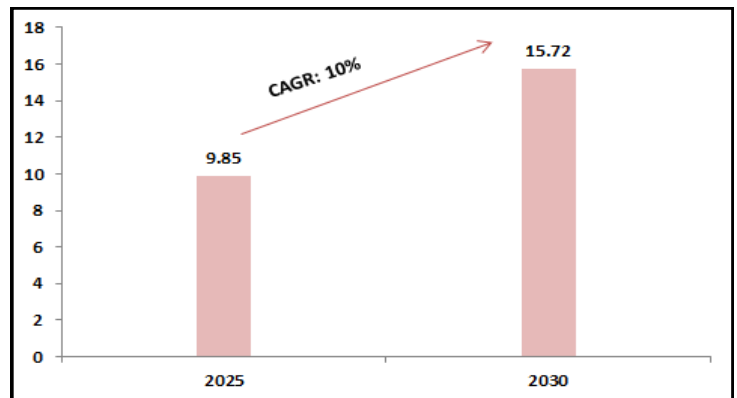
As a matter of fact, the two major components that dominate the Indian energy market are (i) coal that is needed for electricity generation and (ii) crude oil for the industrial sector and mobility. Despite using its own large coal reserves, India's import dependency on Petroleum, Oil and Lubricants (POL) stands at as high as ~80%. Renewables could be the solution for a sustainable electricity generation and electric vehicles invariably could form the basis to reduce the crude oil import dependency. With a lot of emphasis being driven towards the renewable energy and electric mobility; energy storage solutions are set to play an important role to serve the economic transformation in the country. As per FICCI Report, the global demand for energy storage would account for ~16TWh by 2030; though the Indian story is currently running at a nascent stage, it is expected to grow upwards of 2TWh by 2030.

**Exhibit 02: Renewable Energy Capacity**



Source: Market Reports, Progressive Research

**Exhibit 03: Global Battery Demand**



Source: FICCI Report, Progressive Research

**Energy Storage Applications in India:**

- Energy arbitrage/frequency regulation and voltage support,
- Integration of renewable energy with distribution and transmission grids, and balancing variable renewable energy,
- Setting micro grids in rural and hilly regions with diversified loads or stand-alone systems,
- Development of the storage component of electric mobility plans,
- Telecoms, automotive, power backups (industrial and commercial), Renewable Integration (RE)

**Road Ahead:**

Renewable energy resources are anticipated to be the future driver for the energy sector. Hydrogen fuel cells, energy from plastics and advance lithium ion appear as the strongest contenders to fill the gap in energy transition. Besides enabling a smooth transition right from the internal combustion engines to EVs along with the integration of renewable energy opens up opportunities for a country like India to emerge as the leading battery manufacturer. Apart from this, constant government support and policies that would spur the industry growth would be looked forward in assisting the industry fundamentally to improve the market sentiments. Overall, this approach would help accelerate the de-carbonisation plans and also assist in building a resilient renewable industry supply chain.

**About the Company:**

HBL Power Systems Limited (HBL) is engaged in the business of manufacturing batteries and electronics power systems and products. It has more than 30 years of experience in the field of specialized batteries and Data Centre (DC) power systems. The first product selected and successfully developed by the company were aircraft batteries which eventually made it offer the world's widest range of specialized batteries. The products include batteries (including lead acid batteries, Nickel-Cadmium (Ni-Cd) batteries) and specialized defence batteries, power electronics, renewable energy and engineering solutions. HBL provides battery and engineering solutions and services to many of the world's leading system integrators, EPC's, railway, aviation and defence companies, Indian Airforce, Indian Navy and MOD labs. The company has gradually moved into new businesses and markets utilizing its batteries offerings, such as industrial electronics, defence electronics, and railway electronic signaling. The recent diversification, leveraging the company's engineering strengths has added precision manufacturing, spun reinforced concrete and green technology products to the offerings. Dr. A.J Prasad is the Chairman and Managing Director of the company.

**Investment Rationale:**

**(A) Business Dynamics:**

HBL has established itself as one of the leading players engaged in the development of manufacturing of batteries, electronics and engineered products based on in-house developed technologies. The company's product portfolio mainly caters to niche sectors namely telecom, UPS, solar, defence and railways in India. It primarily operates in three business verticals, namely **batteries, defence and electronics**.

**Exhibit 04: Divisional Bifurcation**

Batteries		Electronics	Defence
Lead Acid	Ni-Cd		
Telecom	Oil & Gas	Industrial electronics	Batteries
Railways	Power	Rail Signaling	Ammunition
UPS	Railways	Defence electronics	
Power & Industries	Aviation	Permanent Magnet Machines	

Source: HBL AR 2021, Progressive Research

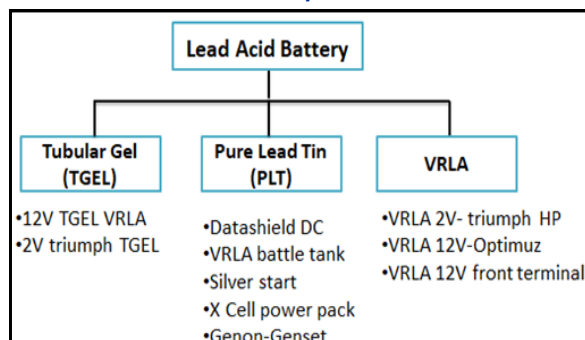
**(a) Key Business Offerings:** For HBL, the batteries division contributed a lion's share to the overall topline of the company (~64%) in FY22 with revenues of Rs7,912mn; 14% higher as compared to FY21. **Industrial Batteries** are designed to last far longer as compared to the consumer batteries. They are specifically designed for performance, reliability and longevity. Few of the prominent type of industrial batteries:

**(i) Lithium-ion Batteries:** Since these batteries are appropriate for storing high-capacity power, they are put to use in a wide range of applications such as consumer electronics, industrial robots, production equipment and automobiles. HBL offerings include Li-ion phosphate-Cylindrical (LiFePO4 which lasts significantly longer than the standard Li-ion variety), Li-ion phosphate-Prismatic and Li-ion phosphate-Pouch

**(ii) Lead Acid Batteries (LAB):** take longer duration to charge and are even bulkier as compared to Li-ion. However, in terms of unit economics, LAB are affordable thus being considered in a popular category for many business owners

**(iii) Nickel Cadmium (Ni-Cd):** are rechargeable batteries used for portable computers, drills, camcorders and aircrafts. Ni-Cd is considered reliable but at the same time is more difficult to maintain and are more expensive than the lead acid alternatives

**Exhibit 05: Lead Acid Battery Bifurcation**



Source: Company Website, Progressive Research

**LAB Offerings:**

**TGEL Batteries:** HBL is the preferred vendor for tubular gel batteries for solar and micro and mini grid Energy Storage Systems (ESS). The company has specifically developed Tubular Gel Valve Regulated Lead Acid (VRLA) batteries (2V and 12V) in order to meet the Solar Photovoltaic and Battery Energy Storage Systems (BESS) requirements. These batteries find applications in rural electrification, street/home lighting, telecommunications, hybrid power systems, oil & gas, power, to mention a few. The company has bagged repeat battery orders in larger quantities for solar based telecom towers in the Northern Eastern States from the same customer even in FY22. Additionally, HBL bagged an order for Tubular Gel batteries for electrifying 312 villages under a Govt program.

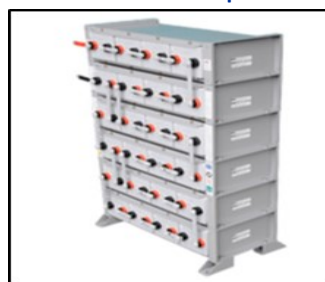
**PLT Batteries:** are an advanced technology ideally suited for high-rate discharge applications which demand total reliability. PLT batteries are resistant to high levels of shock & vibration, has excellent discharge recovery characteristics, maintenance free and spill-proof. HBL designs, tests and manufactures batteries specifically designed for UPS applications thereby ensuring total reliability and a longer shelf life. PLT batteries are used for UPS and Data Centres (DC).

**Exhibit 06: 12V TGEL VRLA**



Source: Company Website

**Exhibit 07: 2V Triumph TGEL**



Source: Company Website

**Investment Rationale (contd.):**

**PLT Batteries Offerings:**

(i) **Datashield Data Center (DC):** Datashield batteries are designed using Absorbent Glass Mat (AGM) separators that render the batteries spill-proof. The sealed construction ensures that the battery does not leak and is safe in any position. The battery is specifically designed for short-run (1-15 minutes) UPS applications. The products are customised as per the backup requirements. For instance, if the backup requirement time is more than 15 minutes, the company offers Underwriters Laboratories (UL) Recognized 2V Triumph HP VRLA products and if the requirement is for less than 15 minutes, the company offers a full range of thin grade, pure lead 12V Monobloc batteries which are specifically designed for high discharge rates. HBL has remained an exclusive partner to ST Telemedia (a global investor in communications, media and data centers. The company has established major facilities across India and has chosen HBL's PLT battery applications to underpin the power supplies at their facilities) for the supply of PLT batteries for existing as well as the upcoming DCs. In addition to this, the company has also bagged an order from COLT-Data Centre and Reliance.

(ii) **VRLA Battle Tank Battery:** HBL batteries are used for defence applications such as silver oxide zinc (used for torpedo propulsion), sealed lead acid (used for battle tanks), lithium thermal (used for missiles and torpedoes), lithium reserve (used for fuzes, defence aircrafts, helicopters). The company has supplied PLT batteries for battle tank engine cranking application to the Indian Army and is also fortifying its position for diesel generator cranking applications.

(iii) **Silver Start-Aviation:** these on-board aircraft batteries are delivered fully charged and are ready for immediate use.

(iv) **X Cell Power Pack-Genset:** this is a sealed maintenance free battery with no additional topping required for life. The sophisticated in-built charger ensures optimum charging of the batteries on a constant basis.

(v) **Genon-Genset:** an engine requires immense power while cranking/starting, thus the batteries that are put to use is of high discharge performance, reduced space and weight.

**Exhibit 08: PLT Products Portfolio**

Datashield DC



VRLA Battle Tank-Defence



Silver Start- Aviation



Genset



Genon



Source: Company Website

**VRLA:** these are further classified into VRLA 2V-Triumph HP, VRLA 12V-Optimiz, VRLA 12V Front terminal, 2V Triumph Plus advanced VRLA.

(i) **VRLA 2V-Triumph HP:** this battery requires no topping up, saves space, possesses longer life expectancy and is cost effective.

(ii) **VRLA 12V-Optimiz:** these find its applications in UPS systems (banking, financial services & insurance IT/ITES), power backups (railway emergency light, solar power equipments, medical instruments), and telecom (optical network terminal).

(iii) **VRLA 12V Front terminal:** such batteries are used in telecom and data networks, the front terminal designs ensure that the inspection time is reduced.

**Ni-Cd Batteries:** a rechargeable battery used for portable computers, drills, camcorders and other small battery-operated devices. These batteries possess properties of sustenance over a longer life span and being able to retain the physical reliability and thus are often regarded as a choice for solar applications. HBL manufactures widest range of Ni-Cd batteries including pocket plate, sintered plate, hybrid and fibre plate technologies and is recognized as one of the best Ni-Cd battery production facilities in the world. It has been in a position to deliver Ni-Cd batteries for large overseas contracts for diverse applications. Additionally, the company has also bagged a large order from a PSU (a power major) for installation at its thermal power projects. The company is trying to enhance the overseas network, increase volumes and gain reasonable market share.



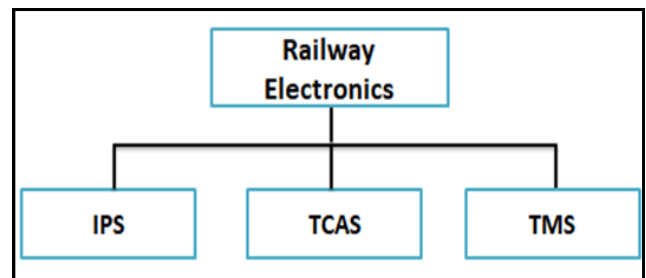
**Investment Rationale (contd.):**

**(b) Defence:** This division contributed ~24% of the overall revenues in FY22. Under the defence segment, HBL offers its products for Army, Navy, Air Force and Civil Aviation requirements. It supplies specialised batteries which are deployed in fighter aircrafts, unmanned aerial vehicles, submarine propulsion systems, torpedoes, battle tanks, missiles and artillery fuses. The company has completed the technology absorption for the manufacture of Li-ion batteries for defence related applications under the Transfer of Technology (ToT) agreement with Naval Science and Technological Laboratory (NSTL). Post this completion, the company is in a position to set up a pilot plant for production of lithium-ion cells and has also received orders from NSTL to manufacture and supply Li-ion batteries over the next two years. This paves way for HBL to develop specific energy solutions using Li-ion batteries for defence applications. Apart from this, the company has already commenced the supplies of Type-I (Kilo-class submarine and Varunasthra torpedo batteries) and Type IV batteries (Scorpene class submarines) for the Indian Navy. As far as the product approvals meant for development of light and heavy weight torpedo batteries are concerned; the company envisions the sanctions to be received in the current year and plans to execute the development orders in FY24E.

**(c) Electronics:** This business vertical contributed about 10% of the total revenues in FY22. Electronics business vertical provides technology-based solutions developed in-house which gives HBL an edge to customize the products as per market/customer requirements. The electronics division further caters to **railway electronics, industrial electronics, electric mobility and solar electronics.**

**Railways Electronics:** The railway industry possesses expensive capital assets which demands for solutions that can be in a position to manage the rail traffic in an otherwise congested environment with high level of safety in order to averse from accidents and disruptions. This calls for automated systems (also known as Automatic Train Protection-ATP) that can anticipate potential hazards and thus prevent its occurrence.

**Exhibit 09: Railway Business Portfolio**



Source: Company Website, Progressive Research

**Railway Electronics Offering:**

**(i) Integrated Power Supplies (IPS):** for a reliable Signaling and Telecommunications (S&T) operation installation, proper and consistent power supply mechanism is of utmost importance. The voltages and currents for each equipment are different from others, which call for a much more comprehensive power supply known as the IPS that provides complete power solutions from a single system to all signaling circuits. HBL introduced the IPS system in 1999 to meet these requirements at an optimum capital & maintenance cost. Enabling a backup functionality with the assistance of a single battery; IPS ensures reliable and uninterrupted power of all voltages, AC/DC for all the S&T telecom loads in railway stations, obviating the need for independent UPS for different loads in each station.

**Exhibit 10: Integrated Power Supplies**



Source: Company Website

**(ii) Train Collision Avoidance System (TCAS):** HBL's ATP system which is developed indigenously for the Indian Railways offers train protection along with collision avoidance functionality. HBL's TCAS system is certified for Safety Integrity Level (SIL-4) by ItalCertifer, a European safety assessment agency.

**Exhibit 11: Order Wins**

Year	Order Wins
FY20	Received an order for installing TCAS over 347km of track and 30 locomotives from the SCR
FY21	Installation of TCAS across 84km in North Central Railway in the Mathura-Palwal section
FY22	(i) First contract (Rs2866mn) under Mission Raftar project with eastern railway for deploying Kavach over 260kms of track and 120 locomotives from Howrah to Pradhankhanta (ii) PO of Rs316mn for supply of 46 sets of Kavach to be installed at manufacture of train sets (deliveries are to begin in Nov, 2022 and to be completed by July 2023) (iii) For a consortium with Shivakriti International, HBL declared as the L1 bidder in two other tenders in West Central Railway (for deployment of Kavach over 549kms of track and 87 locomotives, for a bid price of Rs3538mn) and Western Railway (for deployment of Kavach over 96kms of track, for a bid price of Rs816mn) as well as on the Delhi-Mumbai route

Source: Annual Report, Progressive Research Website

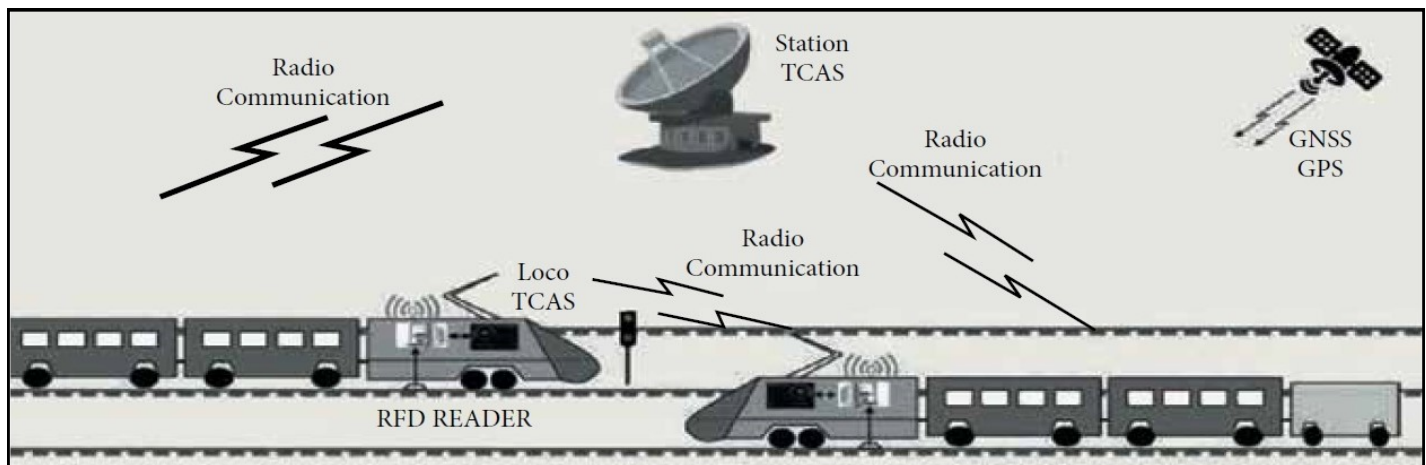
**Investment Rationale (contd.):**

**Kavach Opportunity:** It is termed as India's own ATP which was in development since 2012 by Research Design and Standards Organisation (RDSO) in association with **three** Indian vendors (Kernex-Micro Systems, Medha Servo and HBL Power Systems) under the name of TCAS which was later renamed as **Kavach or armour**. It is a set of electronic devices and Radio Frequency Identification (RFID) devices installed in locomotives, in the signaling systems as well as in tracks. With the assistance of ultra-high radio frequencies, in-built logic programme, Kavach ensures to control train brakes and send alert to drivers in order to achieve the goal of zero accidents. Around 2000km of rail network is planned to be brought under the indigenous system in order to ensure safety and capacity augmentation by 2023.

**How Does it Work?**

- *Signal is Passed At Danger (SPAD) when a train passes a stop-signal, when not allowed to do so*
- *Kavach controls the speed of the train by an automatic application of brakes in case the loco pilot fails to do so. It works on the principle of continuous update of movement by using high frequency radio communication. It also conforms to SIL-4 certifications regarded as the highest level of safety certification (the higher SIL the better)*
- *RFID tags are provided on the tracks and at station yard for each track and signals for track identification, location of trains and identification of train direction. The On Board Display of Signal Aspect (OBDSA) is to help loco pilots check signals on board consoles even when the visibility is low. Also, once the system is activated, all trains within a 5-km range will halt to provide protection for trains on adjacent tracks*

**Exhibit 12: TCAS Working Mechanism**



Source: HBL AR2021

**Installations So Far:** During the development phase, Kavach has been implemented for a length of 264kms covering 25 stations across Wadi-Vikrabad-Santhnagar and Vikarabad-Bidar sections over South Central Railway (SCR). Later during FY21, Kavach has been commissioned over 321 route km (rkm) covering 32 stations across Nanded, Secunderabad and Hyderabad division. In FY22, it has been planned to complete the installation at 79 stations and 13 LC gates covering 879rkm. So far, Kavach has been deployed on over 1,098rkm and 65 locos in ongoing projects of the SCR. Further Kavach has been planned to be implemented on Delhi-Mumbai and Delhi Howrah corridors covering the distance of around 3,000 km. This will be a part of the Mission Raftar project for raising of speeds to 160 kmph.

**What Next?** In order to make Kavach a world class ATP system, Indian Railways is constantly engaged in improving the system by incorporating additional features like:

- Direct interface with interlocking
- Functionality of temporary speed restrictions
- Interface with other ATP systems
- Development of Kavach on LTE
- More Indian firms are in process of developing Kavach

**Investment Rationale (contd.):**

**(iii) Train Management System (TMS):** HBL's TMS is an integrated real time traffic management system that assists in monitoring and control of train movements. TMS possesses the capability of gathering the signal status and track circuits on a real time basis. Apart from this, TMS also obtains the train/rake identification details from the originating point of the TMS zone/territory. The information obtained is processed and used to monitor the movement of trains and enable in taking timely decisions. TMS can also regulate the train movement/diversion/ induction/withdrawal/and planning reversal of trains in the TMS zone/territory defined in the scheme. As far as the installation for TMS on the eastern dedicated freight corridor is concerned; HBL anticipates completing the same during the current financial year. Additionally, the company has successfully completed the execution of the TMS project for the eastern railway in the Sealdah division.

**Industrial Electronics:** HBL is known for manufacturing and supplying in-house developed battery chargers that have critical industrial applications in railways (on-board battery monitoring), data centres (back-up batteries) and electric vehicles (traction batteries). The company is a leading supplier of DC power systems (batteries are ready to deliver the requisite energy), DC distribution panels (integrated DC distribution boards with chargers or standalone DC distribution boards), battery monitoring systems (monitors cell voltages, battery voltage and current temperatures), battery isolation switches (facilitates ease of maintenance and battery protection against short circuits), earth leakage monitors (monitors unwanted earth faults and thus minimize the outages) and cell boosters (portable simple charger to selectively revive low voltage cells). The company in the past had secured order from the New York City Transit Authority for installation of batteries in their metro trains. This depicts the company's agility to provide higher efficiency and efforts, trigger to generate higher volumes going forward as well. As a part of this project, is a robust battery monitoring system that continuously monitors the battery and stores the data onboard, reads and records voltage, current, battery usage, temperatures. HBL provides the necessary software for data analysis or as an alternative permits the user to offload data to excel files for trending and fault findings.

**Electric Mobility:** The growing demand for higher operating efficiency in EVs, would likely fuel the requirement of Permanent Magnet Synchronous Motors (PSMs) in the coming years. PSM, Induction Motor (IM) and Electrically Excited Synchronous Motor (EESM) are few of the traction motors used in the EV space. PSM magnets enable the electric motors to transform the electricity into motion, thus powering the vehicles. These rare magnets that are mostly made of neodymium iron boron (NdFeB) are exclusively mined and processed in China (almost more than 90% of the world's reserves available in Chinese territories) enforced the automakers to find a local and non-disrupted resources for a sustainable EV solution.

**HBL designs and builds three main components for an EV- the drive motor, motor controller and the battery modules.** Additionally, the company offers a range of compact and high-power density drive train solutions for large commercial vehicles and bus applications. In order to make the electric vehicles a sustainable solution and to overcome the raw material sourcing requirement; the company developed an alternate technology for high-efficiency motors used for traction motor applications. In FY22, after complying with regulatory approvals from International Centre for Automotive Technology (ICAT), Manesar (for battery pack and traction motors), HBL has developed the Electric Drive Train Kits for retrofitting light commercial vehicles and passenger buses. The kit comprises of a high efficiency traction motor, power electronics controller, high-power lithium battery packs and other associated electronics. Additionally, the company would develop more parts to be put up for approval in the current year. This will be followed by offering the entire prototype for approval in the next 12-18 months.

**Solar Electronics:** Considering the deviation needed from fossil fuels towards renewables, HBL has developed a range of power conversion solutions which ensures utilisation of energy generated by solar panels/wind. Two such products under this division are **Sujala-Water Pump Inverter** (which ensures a reliable energy supply especially in the rural areas that serves the agricultural requirements) and **Grid Tie Inverters** (these are equipped with reliable and smart control mechanism that combines the functionality of the solar water pump inverter and meets the requirement of excess solar power in the grid).

**(B) End-user Industries:**

As countries are progressing more towards a clean and sustainable future; ESS plays an integral role in serving the needs of the end-user industries. In the developed countries (UK, Europe, Australia and Japan) with the assistance of regulatory interventions viz; Federal Energy Regulatory Commission in the US and the Australian Energy Market Commission (AEMC) have aided in developing the battery storage industry. While at the same time, for India, the government is progressing towards creating a localized value chain coupled with the initiatives to decarbonize the power sector which would drive momentum for battery manufacturing in India. Batteries cater to end user industries such as telecom, railways, power, solar, oil & gas, and aviation to mention a few.

**Investment Rationale (contd.):**

**Telecom:** quite often, power outages are one of the most common barriers that the telecom operators experience leading to revenue loss and customer crunch. Considering the rise in the global demand for every day internet usage and high-speed data transfer; telecom operators need a proper battery backup mechanism at its disposal. Most common type of batteries used in the telecom industry is lead acid.

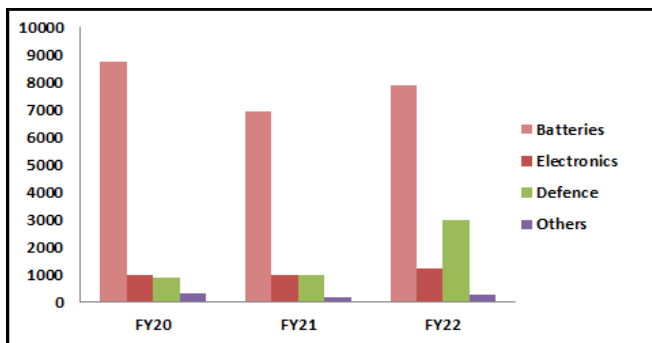
**Railways:** batteries here find applications for train lighting, train air conditioning, engine starting in diesel engines, emergency braking, and railway S&T.

**Oil & Gas:** considering the challenging, extreme and harsh weather conditions under which the industry operates, lithium-ion batteries serve as power source for many oil & gas players. By its nature, lithium-ion batteries are potentially safe especially in inflammable and explosive environments thus commanding a better reliability and long operational life for such industries.

**Financials:**

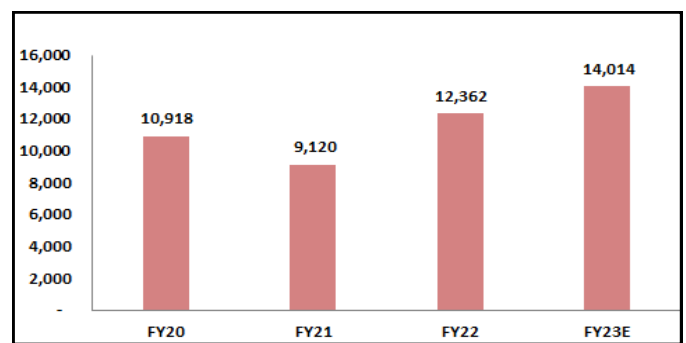
Over the past financial years, battery segment has been the major revenue contributor to the company. However, considering the competitive intensity from the telecom space, the company would be gradually reducing the battery share (which can be seen from the decreasing trend in the past financial years) to the overall revenue while increasing the **non-battery** divisions such as TCAS, TMS, defence and electronics. Lead being the primary raw material used for battery manufacturing faces a lot of price fluctuations as the price of this commodity is purely market driven. The raw material percentage contribution with regard to overall sales over the past financial years has been in the range of 60-62%; which essentially impacts the operationally efficiency.

**Exhibit 13: Business Revenue Mix (Rs in mn)**



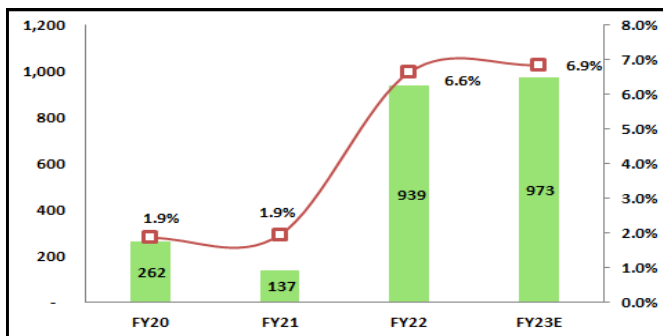
Source: Annual Reports, Progressive Research

**Exhibit 14: Revenue Trend (Rs in mn)**



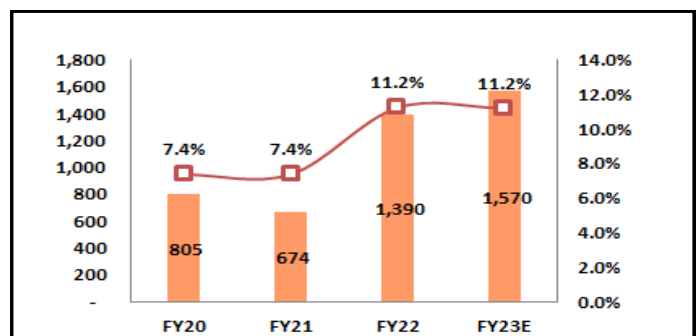
Source: Annual Reports, Progressive Research

**Exhibit 15: PAT (Rs in mn) v/s PAT Margins (%)**



Source: Annual Reports, Progressive Research

**Exhibit 16: Ebitda (Rs in mn) v/s Ebitda Margins (%)**



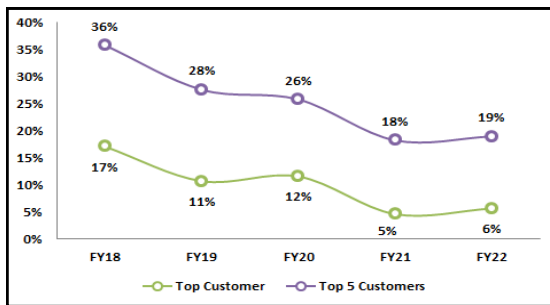
Source: Annual Reports, Progressive Research

**Order Position:** As per CARE October, 2022 report; the company had an order book of Rs5,940mn (as on 30th June, 2022). This depicts good revenue visibility generation for the company in the near term. The outstanding order book of the company is diversified with 38% for silver zinc, submarine and lithium batteries followed by 24% of the orders is for Ni-Cd and sintered batteries, 19% for lead batteries (VRLA), 8% for TCAS and TMS for railways and remaining for defence, power electronics, etc. The company also has contracts from Railways, Indian Navy and the company also expects to receive tenders in the railways segment in the present financial year. HBL has maintained a healthy relationship with its clients over the years. The company has been receiving repeat orders from the existing clientele. Indus Towers Ltd, Vertiv Energy Private Limited, and Cummins India Limited being in the top 10 largest clients over the years contributed around 36% of net sales in FY22 (29% in FY21).



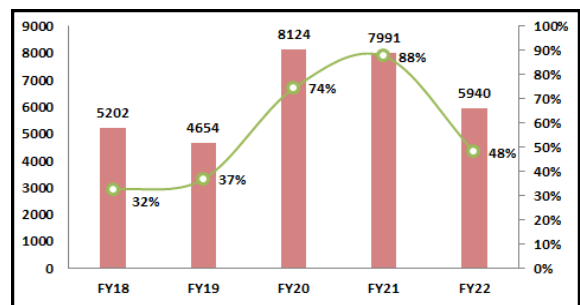
**Order Position:** Additionally, as reiterated earlier, the company has bagged multiple contracts (~Rs8000mn) for supply of Kavach (TCAS) to be delivered and executed as per different time frames. Moreover, the company has been considered as the 'preferred partner' for the BharatNet Wi-Fi project for deployment of more than 20k installations in FY22. Apart from this, under the electronics division; the company is making a steady progress on conversion of trucks into electric drive (*only company is Magna International who has done it in the US, wherein no architectural changes are required to the vehicle being converted, all the existing suspensions and brakes designs are put to use resulting in no loss of capability*). For this requirement, one motor and one battery module has already received the International centre for Automotive Technology ICAT approval.

**Exhibit 17: Customer Concentration Profile**



Source: Annual Reports, Progressive Research

**Exhibit 18: Order Book (Rs in mn)**



Source: CARE Reports, Progressive Research

**Funding Plans:** The company is planning to set up its own manufacturing facility at Mahabubnagar, Hyderabad to manufacture Li-ion cells and Electric Drive Train (EDT). The company has reduced the planned project cost to Rs1,100mn (as against Rs2,100mn that was envisaged earlier, primarily because of global economic slowdown) to be completed in two phases. The capex is proposed to be funded through term debt of Rs800mn and balance through internal accruals. The financial closure for Phase I has been achieved. The Phase-1 of the project is envisaged to achieve commercial operations by Q3FY23 and Phase II work will start after successful completion of Phase-1.

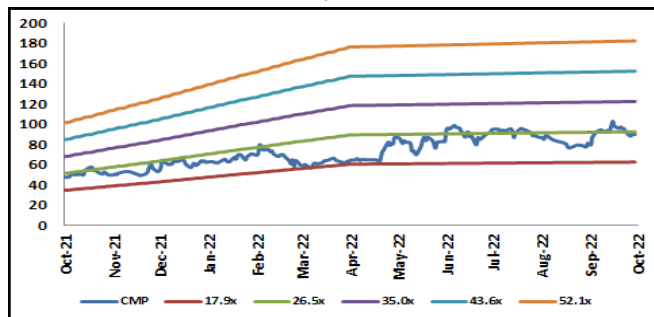
**Working Cycle:** As HBL operates in a working capital-intensive industry, the operating cycle for the company is slightly stretched on account of high inventory holding period of ~87 days in FY22. The collection period however has seen some improvement from 86 days in FY22 as against 118 days in FY21. Nevertheless, backed by adequate cash generated from operating activities, the working capital cycle of the company improved to 136 days in FY22 as against 189 days for FY21.

**Risks and Concerns:**

- Any fluctuations in commodity prices for the key raw materials such as lead and tin may hurt the operational efficiency
- Any substantial delay in orders either from the railways/defence may impact the revenue flow in the near term
- Delay in capex cycle for the industrial segment may lead to weaker performance
- Elongated inventory, stretched collections would hamper the working capital

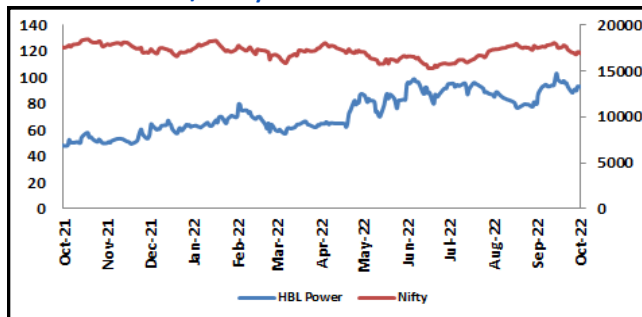
**Outlook and Recommendations:** HBL is engaged in the business of manufacturing batteries and electronics power systems and products. The company has been able to re-organize its business into strategic business units viz; batteries, electronics and defence; with batteries being the major revenue contributor over the past financial years. ESS is one of the crucial topics in today's world; a transition from fossil fuels to alternative sources of energy or rather clean energy that serves as a huge opportunity for India and thus to give the necessary green push, the government is working towards the energy storage policy for large scale integration of renewable energy with the country's power system. All of these requirements call for ESS technologies which includes battery energy storage systems. HBL provides the necessary software data analysis, sophisticated products for critical industries such as railways, defence, telecom, electronics, etc. The quality maintained across the offerings has secured trust and confidence amongst its demanding client base. Any uptick in order procurements/repeat orders from the industries served would augur well for the company in the near term. HBL's capital structure has remained at comfortable levels in the recent past. In order to reduce the concentration risk from the telecom sector; HBL is trying to increase its focus towards TCAS, TMS, wherein the management anticipates a pick up in the orders to be seen more from the TMS space from FY24E. Moreover, considering the immense demand and importance that has been shown towards Kavach, the railway segment would further add on to the numbers (considering limited competition from this space) which would be reflected as and when the execution takes place. Apart from this, considering the nature of the defence industry, each product poses a requirement for batteries and the company has a good customer base for this segment. Overall, with lot of emphasis being driven towards the renewable energy and electric mobility, energy storage solutions and players like HBL are set to play an important role to serve the economic transformation in the country. We initiate a buy on the stock for a target of Rs175 over 12 months horizon.

Exhibit 19: One Year Forward P/E



Source: Ace Equity, Progressive Research

Exhibit 20: Price v/s Nifty



Source: Ace Equity, Progressive Research

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