

We attended Auto Expo-2023 in Greater Noida (NCR). We have noticed EVs and Hybrid is a standard launch products many companies have developed. After a gap of three years due to the Pandemic, India's flagship automobile show come back with more exciting concepts and future technologies.

### Passenger Vehicle

**Maruti has unveiled the most awaited Jimny at the Auto Expo 2023.** Making its global debut in the five-door avatar with four-wheel-drive as standard, it aims to be more practical than its three-door self while still being a small and lightweight delight. The bookings have already begun via the Nexa chain, and Maruti could price it from INR 10 lakh (ex-showroom) onwards. Also, kicked off with the global premiere of the eVX, an electric SUV concept. Maruti has stated that it would have a dual motor powertrain system for 4WD and promises a range of up to 550km. It may very well be the first iteration of Maruti's first EV for India, slated to arrive in 2025. Clearly, Maruti is a late entrant in the EV market but as per the company, product cost and features will help the company to compete with other competitor in the market.

**Tata Motors unveiled its concept EV - Avinya for the first time and** sierra was one of the highlights of the last Auto Expo in 2020, and this year, too, it grabbed all the attention with its all-new, near-production concept. The Sierra has a throwback design and will be offered with both ICE (petro/diesel) and EV powertrains in the country. The production version of Tata Sierra EV could be ready in the next two year. Also launched an ICE version of the Curvv concept, the highly anticipated Harrier electric SUV alongside Punch EV and Altroz racer.

**Other than Domestic player, Chinese and Korean OEMs** also showed their upcoming model and EV product too like **Hyundai charging** up the Indian PV space. Hyundai showcased its much-awaited Ioniq series EVs, along with various fuel-option vehicles. **Toyota expanding** its portfolio. Toyota showcased the Innova Hycross in MUVs alongside its Land Cruiser series. **KIA beefing** up its presence. KIA showcased the Carnival KA4, along with its all-electric concept, EV9. **MG back with refreshes.** MG refreshed its Hector and Hector Plus brands with a much-needed refresh and latest features. Other interesting launches. Makers such as **BYD, Lexus** and others showcased a few models.

### Commercial Vehicle

**Ashok Leyland** has showcased several products including Battery Electric Vehicle, Fuel Cell Electric Vehicle, Hydrogen Internal Combustion Engine Vehicle, Liquefied Natural Gas Vehicle, Intercity CNG Bus and Mini Passenger Bus.

**JBM Auto** has introduced a new range of buses which includes city-intercity and luxury Galaxy coaches. JBM Auto has launched its range of e-buses which include JBM Ecolife Electric City Bus, JBM Ebiz Life Electric Bus and JBM E-School Life Electric Bus. One bus each has been provided for city travel, corporate travel and school transit. **Coming to the Galaxy Coach, it comes with an advanced Lithium-Ion battery with high energy density that provides up to 1000 km per day.**

Apart from this, **Volvo and Eicher Motors** introduced India's longest electric bus Volvo and Eicher Motors have introduced India's longest electric bus i.e. 13.5 meters. Along with this, the Eicher Pro 2049 Electric 4.9T GVW truck has also been introduced. Volvo 9600 Premium Electric Coach showcased to support green tourism. The Eicher Pro 8055 LNG/CNG Truck has also been introduced during this period.

### Two Wheelers

Greaves cotton, Vida (HeroMotoCorp), Chetak (Bajaj Auto) & other start-ups/smaller players such as Matter Energy, Ultra Violette Automotive, Tork Motors, LML Emotion, Liger Motor, Benelli & Keeway launched/showcased its upcoming products.

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**Tata Motors launch**

**Tata Motors unveiled its concept EV - Avinya for the first time. It also introduced Tata Harrier EV and Tata Sierra EV along with CNG models of Tata Punch and Tata Altroz.**

- Tata motors's aim to attain zero net carbon emissions by 2040, the company is spearheading this mission on the back of 3-Gen EV architecture strategy. Aggressive launches by Tata.
- **Tata Curvv:** ICE concept was showcased at the 2023 Auto Expo. The vehicle, Tata Motors, said will officially be launched in the markets in 2024. Tata Curvv is said to come with ‘the toughness and durability of an SUV’. It features the sleek design of a coupe.
- **Tata Avinya Concept EV:** The concept EV is based on the company's Gen 3 EV architecture.
- **Tata Harrier EV:** The company introduced the electric model of Tata Harrier SUV. Likely to be launched in 2025, Tata Harrier EV will be equipped with dual electric motor setup. It will come with a 360-degree camera and ADAS (advanced driver assistance system) for safety. The EV is to compete against the likes of Mahindra XUV.E8 (electric XUV700), MG ZS EV and BYD Atto 3 in the country.
- **Tata Sierra EV:** Tata also unveiled the Sierra EV for the first time at Auto Expo 2023. The electric vehicle draws inspiration from the original Sierra that was unveiled in 1991.
- **Tata Altroz and Punch CNG models:** Tata Motors introduced the CNG models of Tata Altroz and Tata Punch. The CNG models available with twin cylinder engines & 1.2 petrol engine and 1.5 diesel engine variants. ALTROZ design is inspired by race cars to deliver performance.
- **Outlook:** The company did aggressive launch at Auto Expo 2023. Its FY22 sales mix includes: JLR 67%, India CV 19%, India PV 11%. Domestically, the company is in sweet spot with cyclical upswing in the domestic CV space and strong customer response to new portfolio in the PV domain. It is even leading the electrification drive domestically with dominant 80%+ market share in the electric PV space with the Top selling model. We believe that the recent launch will be a big re-rating for the stock.

**Exhibit 3: Launched By TATA**

Tata Motors Models showcased at Auto Expo			
OEM	Model	Powertrain	Expected by
Compact SUV			
Tata	Punch EV	Electric	FY23
SUV			
Tata	Sierra EV	Electric	CY25
Tata	Harrier EV	Electric	FY24
Tata	Curvv	Electric	CY24
Tata	Avinya	Electric	CY25
Hatchback			
Tata	Altroz Sport	ICE	FY23
Commercial Vehicles			
Tata	Prima H2	Hydrogen ICE	
Tata	Starbus FCEV	Hydrogen	
Tata	SIGNA G.48T	CNG/ LNG	

Source: Company, Arianth Research Auto Expo 2023

**Exhibit 4:Tata launches glimpse**



**Exhibit 5: The production of the Curvv is expected to start in 2024 while the BE.05 will make its debut in October 2025.**

Specification	Tata Curvv	Mahindra BE.05
Production	FY24	FY25
Length	4370mm	4370mm-4790 mm
Wheelbase	2775mm	2762 mm-2770 mm
Ground clearance	200 mm	200mm
Battery range	400-500km	450 Km
Fast Charging	40.2kWh	175kW, 80% in half an hour

The cabin is very similar in both EVs. They sport a rectangular two-spoke steering wheel with two displays, one is the infotainment system and the other is the instrument console. Both the Curvv and the BE.05 come with a rotary dial to choose gears and other multi-functional features. They also offer flexible interiors including several seat configurations and versatile space in the cabin, trunk and the frunk.

**Exhibit 6: Picture of Mahindra BE.05 Vs Tata Curvv**



**Exhibit7: Compare Tata Harrier vs MG ZS EV**

Specification	Tata Harrier EV (Estimated Dimensions)	MG ZS EV
Length	4598mm	4314mm
Width	1894mm	1809mm
Height	1706mm	1620mm
Wheelbase	2741mm	2585mm
Range	500Km	461Km
Ground Clearance	205mm	177mm
Tyre Size(Base)	235/70 R16	215/55R17
Tyre Size(Top)	235/65 R17	215/55R17

Source: Company, Arihant Research Auto Expo 2023

The Harrier EV come with a better range 500 km (estimated) against 461 km of MG ZS EV. Price is expected to be in the range of 20-22 lacs against (26 lac of MG ZS EV). However, Tata Harrier has better ground clearness.



Tata Motors expanded its iCNG range with the new Altroz iCNG and Punch iCNG. Both cars, however, are said to feature India's first twin-cylinder CNG technology.



Tata CURVV A new front-end styling with a thin LED light strip on top and the main headlamps positioned on the bumper below



Tata currently charge for the CNG kit in their existing cars like Tiago and Tigor



Source: Company, Arianth Research Auto Expo 2023

**Maruti Suzuki launch**

**CMP INR 8,479 | Market Cap INR 2,57,445 Cr | TP: INR 10,872 | Rating: Accumulate**

- Maruti has unveiled the most awaited Jimny at the Auto Expo 2023. The company is now accepting bookings for the SUV for INR 11,000. It will be offered in two trims: second-from-top Zeta and range-topping Alpha.
- Maruti Suzuki India having the global premiere of its Concept Electric SUV eVX. Designed and developed by Suzuki Motor Corporation, Japan, the Concept eVX is a midsize electric SUV concept which displays futuristic SUV design elements, an upright stance and high seating.
- Built on an all-new dedicated EV platform, the Concept eVX is 4300mm long, 1800mm wide and 1600mm tall. The SUV eVX will be powered by a 60kWh battery pack offering up to 550km of driving range.
- **Outlook: The company believe in exploring a full spectrum of technologies like hybrids, CNG, bio-CNG, ethanol and electric to support the government of India’s twin objective of reducing oil-import bill and Carbon Net Zero by 2070. The company approach towards electric vehicles is holistic with scale and localization. The Concept eVX is Suzuki’s first global strategic Electric Vehicle. It brings exciting urban SUV styling through its sharp design language and as a Battery Electric Vehicle it purposefully reinforces commitment to environment friendliness and sustainability. Space with the Top selling model. We believe that the recent launch will be a big re-rating for the stock.**

**Exhibit 8: Maruti Suzuki has taken the cover off the door Jimny in Auto Expo 2023**

Maruti Suzuki Models showcased at Auto Expo			
Model	Powertrain	Expected by	Competitor
Compact SUV			
Jimny	ICE	FY23	M&M THAR
Fronx	ICE	FY23	M&M THAR
SUV			
EVS	Electric	CY25	-
Compact hatchback			
WagonR Flex Fuel	Ethanol	CY23-Mid	

Source: Company, Arihant Research Auto Expo 2023

**Exhibit 9: Jimny 5 door launched in auto expo and EV concept which is expected to launch in 2025**



As for dimensions, Mahindra Thar is 3,985 mm long, 1,855 mm wide, and 1,844 mm tall. The SUV has a ground clearance of 226 mm and the wheelbase stands at 2,450 mm. All these figures are more than the comparable numbers for the Jimny, making the Thar significantly larger than the new Maruti 4x4. And this means the Thar looks a lot more substantial than the Jimny on the road.

**Exhibit 10: Maruti Jimny 5-door vs Mahindra Thar: Off-road specs**

Specification	Jimny 5-door	Thar 3-door
Chassis type	Ladder frame	Ladder frame
Approach angle	36 degree	41.2 degree
Departure angle	50 degree	36 degree
Ramp break-over angle	24 degree	26.2 degree
Wheelbase	2590 mm	2450 mm
Ground clearance	210 mm	226 mm
Tyre size	R15	R16 / R18
Water wading depth	5-door Jimny hasn't been revealed yet. 300 mm (3-door)	650 mm

Source: Company, Arihant Research Auto Expo 2023

**Exhibit 11: Maruti Jimny 5-door vs Mahindra Thar: Powertrains**

Specification	Jimny 5-door	Petrol Thar
Engine	1.5-litre NA petrol	2.0-litre turbo petrol
Power	103 bhp	150 bhp
Torque	134 Nm	Up to 320 Nm
Gearbox	5-speed MT / 4-speed AT	6-speed MT / 6-speed AT
Drivetrain	4X4	4X2 / 4X4

Maruti Jimny is offered with a 1.5-litre K15B petrol engine that churns out 103 bhp and 134 Nm, paired with a 5-speed MT and a 4-speed AT. Mahindra Thar, however, gets two diesel mills and a petrol motor. Its 2.0-litre turbo petrol engine develops 150 bhp and up to 320 Nm of peak torque, paired with a 6-speed MT/AT. Both these SUVs get 4X4 capabilities and the Thar is now offered with 4X2 as well.

**India Price-Maruti Jimny 5-door vs Mahindra Thar**

The prices of the Maruti Suzuki Jimny 5-door SUV are yet to be revealed. It is expected to be launched in May FY23 and is likely to be priced from INR 10 lacs to INR 14 lacs, ex-showroom. On the other hand, the Mahindra Thar is currently priced from INR 9.99 lacs to INR 16.29 lacs, ex-showroom.

**Exhibit 12: Maruti Jimny 5-door****Mahindra Thar**



Grand Vitara Black: Just ahead of the motor show, Maruti introduced new Black Editions of the Nexa lineup and this is the first to be displayed in the metal



A Maruti Swift in red with black decals looks aggressive and sporty.



Development Mule Of The Flex-Fuel Wagon R



Source: Company, Arihant Research Auto Expo 2023

**Ashok Leyland****CMP INR 147 | Market Cap INR 43,352 Cr | TP: INR 172 | Rating: Accumulate**

- Ashok Leyland, a company which is among the top in the country's commercial vehicle segment, is in attendance at the 2023 Auto Expo currently being held at Greater Noida. The company has on display a total of 7 advanced mobility solutions.
- These are Battery Electric vehicle, Fuel Cell Electric vehicle, Hydrogen Internal Combustion Engine (ICE) Vehicle, a Liquefied Natural Gas Vehicle along with an Intercity CNG bus, Bada Dost Xpress mini passenger bus and an ambulance. Each of these display units portray the company's futuristic range with electric, CNG and hydrogen powertrain options.

**Ashok Leyland Bada Dost Xpress**

- The mini passenger bus called Bada Dost Xpress is designed for city and highway travel. It consists of 12 seats with special emphasis on passenger comforts and is spacious enough for easy ingress and egress. It is powered by a P15 BS6 CNG engine. Max power output is 58 hp, max torque is 158 Nm while max speed is 80 kmph. Wheelbase is 2800 mm. Safety is highlighted via grab rails, safety handles and anti-skid flooring material. Features include air conditioning and vehicle tracking system.

**Exhibit 15 :Bada Dost Express Van****Exhibit 2:BOSS Battery Electric Vehicle (BEV)**

Source: Company, Arianth Research Auto Expo 2023

Ashok Leyland's FCEV truck is based on the AVTR modular platform. It measures 11.9 meters in length, and its wheelbase is 6.6 meters. The gross vehicle weight (GVW) is 28,000 kg. The zero-emissions powertrain produces 335 BHP and 1,600 Nm torque. It consists of an 80 kW fuel cell that powers a permanent magnet synchronous motor paired with a 2-speed automatic gearbox. The truck is equipped with a 55 kWh battery pack and four hydrogen fuel tanks of 8.4 kg each.

**Outlook: We expect domestic volume to witness growth in H2FY23 due to better demand in the urban market and the expectation of improvement in rural demand. Also, new launches will drive major volume and market share growth. We have Accumulate rating on the stock with the target price of INR 172.**



Ashok Leyland has been a pioneer in introducing state-of-the-art technologies in the CV space.



JBM Auto, launched India's first completely designed and manufactured 100% electric luxury coach



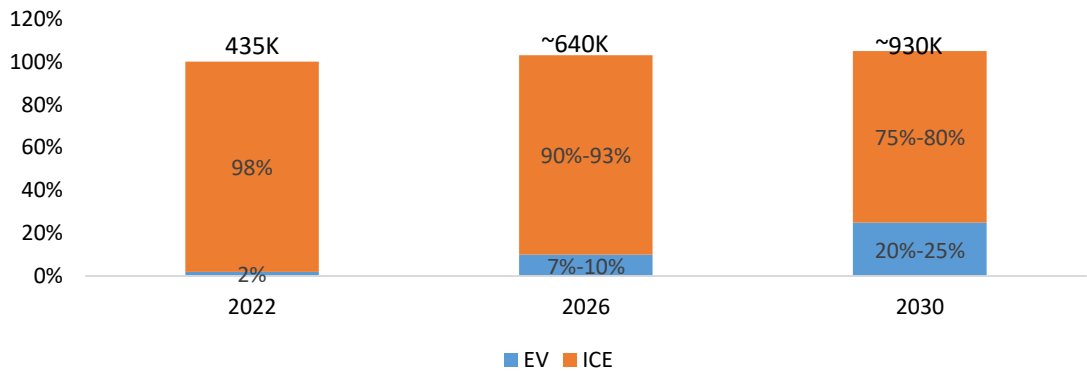
Source: Company, Arihant Research Auto Expo 2023

**Industry view:**

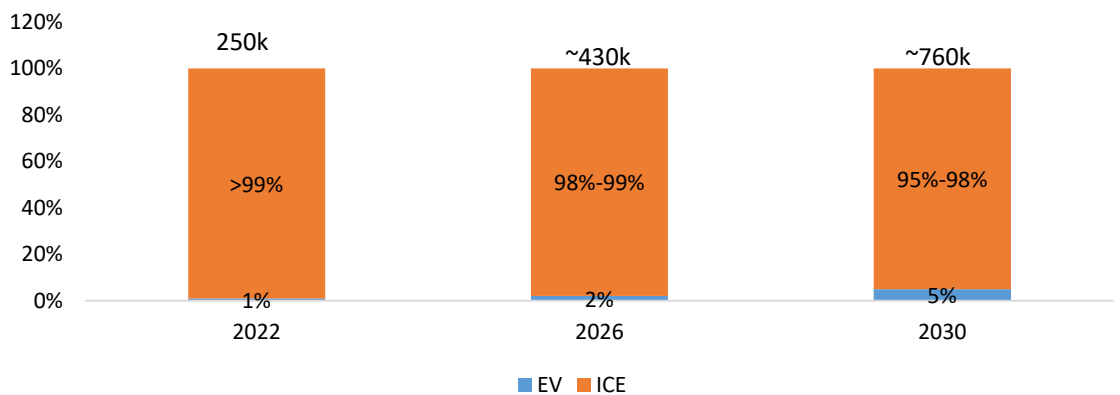
Electric buses and three-wheeler cargo vehicles are seeing increasing acceptance. In FY22, electric buses accounted for ~7% of the overall new bus registrations, albeit on a small base. The e-bus market is largely driven by government tenders right now. They also attributed the pick-up in demand to support from large e-commerce companies and predictable routes that provide fixed charging locations.

**Exhibit 16:** For commercial vehicles in India, BEV market penetration will be more modest, with LCVs up to 25% and buses up to 20% by FY30.

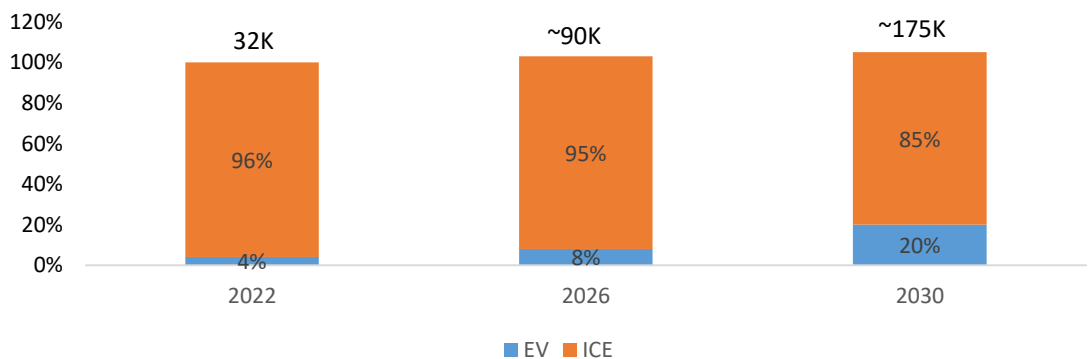
**LCVs (Electric LCV sales -number of units, 2022–30)**



**M&HCVs (Electric M&HCV sales -number of units, 2022–30)**



**Buses (Electric buses sales-number of units, 2022–30)**



Source: SIAM data; literature search; analyst reports—CRISIL

The electric bus segment is seeing a fair bit of action. Players like Olectra Greentech, Pinnacle & JBM Auto are doing well and could give Tata Motors a run for its money, though Ashok Leyland has been slow off the block.

**Greaves Cotton launch****Greaves Cotton-Meeting KTAs****CMP INR 144 | Market Cap INR 3,306 Cr | TP: INR 189 | Rating: Buy**

- In a strong showing at the Auto Expo 2023, Greaves Electric Mobility (GEM), Greaves Cotton's EV arm, has showcased three e-scooters that the new Primus and two concepts – along with three e-three-wheelers.
- The new Primus, equipped with a new 3kWh lithium-iron-phosphate battery, has a claimed range of 120km on a single charge. Looking similar to the existing Magnus, has a claimed top speed of 75kph. A full charge takes 4 hours when plugged into a regular 5A socket, which drops to two hours when plugged into a fast-charging 30A socket.
- The Ampere Primus has three riding modes, 1) Power, 2) City and 3) Eco as well as a Reverse mode. It gets features such as Bluetooth connectivity enabling turn-by-turn navigation and notification alerts on the digital dash via the proprietary Ampere app.
- The Primus gets keyless operation as standard, like the Bajaj Chetak. Underseat storage capacity stands at 22 litres and the Primus weighs 110kg. Its load-carrying capacity is rated at 150kg and it has a ground clearance figure of 160mm. Bookings have opened for the Ampere Primus, whose pricing is to be revealed soon.
- Ampere Vehicles also revealed the new NXG and NXU e-scooter concepts, both of which will be launched this year. The company claims these two new e-scooters will have a claimed range of 120km on a single charge.
- Both are based on a new modular platform and feature the same mid-mounted motor as the Primus. The NXG will be available to private buyers and will be a more premium offering from the Greaves-owned subsidiary, compared to its existing portfolio.
- The styling is much more in line with some premium e-scooters on the market rather than Ampere's own products with elements like foot-pegs that sit flush with the bodywork, all-LED lighting, a TFT dash, fast-charging and it even gets a front disc brake. Ampere claims the NXG will be launched by the first half of the year. Considering the premium positioning of the Ampere NXG, expect its price to hover around the INR 100,000 mark.
- The Ampere NXU, while based on the same platform as the NXG, is targeted at B2B and last-mile deliveries and features a luggage system in the form of a large top box and side panniers. The NXU's payload capacity is rated at 200kg. The Ampere NXU gets a revised front apron with a circular headlight, a beefier front fork and chunkier tyres to cope with the additional weight its intended usage will most likely entail. The company says that the NXU will be available to private buyers as well. Ampere plans to launch the NXU by end-2023.
- Along with two-wheelers, the electric three-wheeler segment has been the other big growth driver for the Indian EV industry. At 337,335 units retailed in CY2022, they account for 34% of total EV sales of over a million units last year. It is this speedy segment growth which GEM is aiming to benefit from.
- Three's Company: 1) ELP: A passenger-transporting three-wheeler that will benefit auto drivers with disruptive cost savings. 2) ELC: A cargo three-wheeler targeted at operators looking for lower TCO. 3) Aero Vision: A futuristic cargo concept. All three products will have a high degree of localization with domestically sourced components.
- The company aims to be preferred partner 2- and 3W OEMs: Greaves Electric Mobility, which aims to be the preferred partner for electrification for OEMs in the 2w and 3w segments, has also unveiled a strategic plan to develop an electric powertrain for the mainstream India market. Also, it will have a European partner bring in expertise in design, development, testing and vehicle integration.



### Greaves Cotton launch

- Growth strategy revealed: The medium-term growth strategy envisages investing INR 800 Cr over the next 5 years, which will help Greaves double its EV 2w manufacturing capacity. It also plans to move from mechatronics to an electronics design for which INR 200 crore capex has been earmarked till end- FY2024.
- Sales: In 2016, 80% of profits came from a single customer selling engines to Piaggio. Today, 65% of revenue comes from the B2C side.
- Battery: Battery chemistries may change from LFP to NMC or even sodium ion in the future for which the company is looking to brace up. But the company is not investing in cells. Battery is 30% of the cost.
- Amara Raja is supplying battery for the 3 wheelers.
- ICE: On the diesel engines, the company was a majority player for all small 3Ws through to the 4Ws segment and it is one segment which will stay as ICE despite the transition to EV.
- Subsidy: With significant subsidy revision in FAME II policy, the scheme makes EV affordable as more and more customers can now go for it.
- Outlook: **We believe strong traction rival in e-mobility, reviving traditional business and a sound balance sheet makes Greaves Cotton well-focused on a faster ramp-up and gaining the first-mover advantage in the EV space. New-initiatives business share to drive long-term growth and help transform and risk-free its business. Consolidation of manufacturing operations into Megasites to bring higher operational efficiencies and reduced fixed costs in the long run, EV and new initiatives businesses will provide upside going ahead.**

### Exhibit 17: Launched By Greaves Cotton



Source: Company, Aриhant Research Auto Expo 2023

### SUN Mobility presents future-proof e-mobility solutions SwapX and S2.1

SUN Mobility, the leading provider of universal energy infrastructure and services for electric vehicles (EVs), launched SwapX, a sleek and compact, fully automated battery-swapping solution that will reimagine the future of urban electric mobility. The company also unveiled its next generation smart battery, the S2.1, which has 45% more range and higher power.

SwapX is a plug-and-play battery swapping solution that caters to a mass customer base, especially small and medium businesses like pharmacy chains and department stores that can set up and manage Swap Points from the convenience of their stores. By increasing network density and encouraging mass-scale adoption of EV, the solution offered in franchisee model will address concerns about a lack of infrastructure and long charging or waiting times.

**Exhibit 18: SwapX is a plug and play battery swapping solution that caters to a mass customer base**



Source: Company, Arihant Research Auto Expo 2023

The EV industry is rapidly innovating to cater to the user requirements of the future. SwapX and the S2.1 smart batteries have been developed indigenously and in-house by SUN Mobility, for the world. It helps us improve network density with S2.1 by addressing range anxiety. Soon, users will have access to the new generation of battery packs and SwapX stations across India

**Outlook: Sun mobility is in discussion with all the 2W and 3W companies for the swappable batteries and is the full responsibility of Sun mobility for the battery part. Also, the company is in discussion with the Hero for the upcoming launches (Ghungroo).**

Bajaj Auto

CMP INR 3,607 | Market Cap INR 1,04,304 Cr | TP: INR 4,155 | Ratng: Accumulate

Exhibit 19: Chetak: Auto Expo 2023 Coverage



Source: Company, Arihant Research Auto Expo 2023

The Bajaj Chetak is powered by 4080 watt BLDC Motor. The Bajaj Chetak takes 5 Hours to get fully charged its 50.4 V/60.4 Ah battery and has a claimed range of 80 km/charge . The Price of Bajaj Chetak starts at INR 1.60 Lakh and also government subsidy approx. INR 14500 for the Delhi. It is available in one variants, Premium.

**Outlook: Bajaj auto is doing decent on the Chetak front already expanded to 50 cities and targets to do PAN India. Considering the current scenario, we expect better demand improvement in the urban market as well as in rural demand.**



HeroMoto Corp Ltd

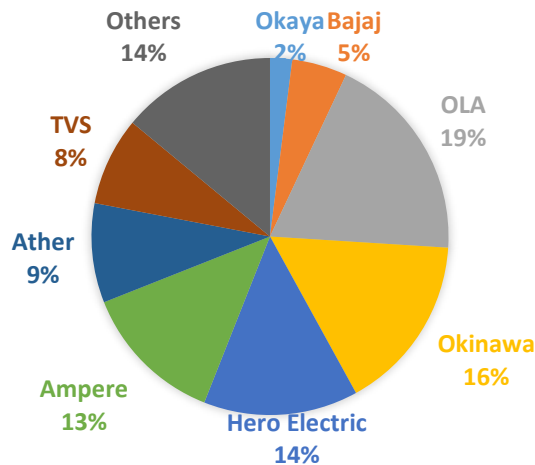
CMP INR 2,729 | Market Cap INR 54,531 Cr | TP: INR 3,437 | Ratng: Buy

Exhibit 20: VIDA: Auto Expo 2023 Coverage



- The Hero Vida V1 is powered by 6000 watt PMSM Motor. The Hero Vida V1 takes 3 Hours 15 Minutes to get fully charged its 3.44 kWh battery .
- **Outlook:** Hero MotoCorp’s electric sub-brand Vida has opened its first experience Centre in Bengaluru. The Vida V1 electric scooter was launched in India in two variants – V1 Plus at INR 1,45,000 and V1 Pro bearing a price tag of INR 1,59,000 (ex-showroom Delhi including subsidies). Vida V1 is doing decent after the launch in Bengaluru.

Exhibit 21: EV 2W market share, FY23 YTD



Source: Company, Arihant Research

Exhibit 21. Specs, features and pricing: Vida V1 Pro vs. competition

Particulars	Vida V1 Pro	Ola S1 Pro	Ather 450X	TVS iQube ST	Chetak
					
Motor peak power (kW)	6	8.5	6	4.4	4.4
Motor rated power (kW)	3.9	5.5	3.3	3	3
Range (km)	165	135	146	145	95
Top speed (kmph)	80	115	80	82	78
Battery capacity (kWh)	3.94	3.97	3.7	4.56	3.04
Fast charging (km/min)	1.2	4.1	1.5	No	No
Battery charging time (Hrs)	5 hr 55 mins	6 hrs 30 mins	5 hrs 40 mins	5 hrs	5 hr
Removable battery	Yes	NA	NA	NA	NA
Touch screen size (TFT display)	7'inch	7'inch	7'inch	7'inch	7'inch
Riding modes	3+custom	4	4	4	4
Hill assist	Yes	Yes	NA	NA	NA
Keyless entry	Yes	Yes	NA	Yes	NA
Cruise control	Yes	Yes	Yes	Yes	NA
Buy-back guarantee 70% in 16-18 months	70% in 16-18months	NA	NA	unknown	NA
Battery warranty	3 yrs / 30,000 kms	3 yrs / unlimited kms	3 yrs / unlimited kms	3 yrs / 50,000 kms	3 yrs / 50,000 kms
Ex-showroom, Delhi (INR) (post FAME subsidy)	159,000	139,999	139,005	Yet to announced	151,958

Source: Company, Arihant Research

Exhibit 2. Vida V1 pro is bigger than the V1 Plus

The battery pack of the Vida V1 pro is bigger than the V1 Plus and it helps it to get a higher range of 22 km as compare to the V1 Plus. The motor of both scooters gives same output but the Pro variant is faster by 0.2 seconds. Apart from these changes all the specifications of both the scooters is similar to each other. Apart from that, the newly-launched Hero Vida range of electric scooters can charge using the Ather Grid network of fast charging points. Using Ather Grid, the new Hero Vida V1 Plus and Hero Vida V1 Pro electric scooters can charge to 80 per cent of battery capacity in just 65 minutes.



Vida V1 Swappable Battery Is IP65/67/68 Rated

Source: Company, Arihant Research



2w launch in Auto Expo 2023

New Tork Kratos X e-bike



Ultraviolette F99 Factory Racing Platform



MBP M502N, C1002V



Matter Energy Concept EXE, Concept UT



TVS Apache Ethanol



Hero Moto – Glamour Ethanol



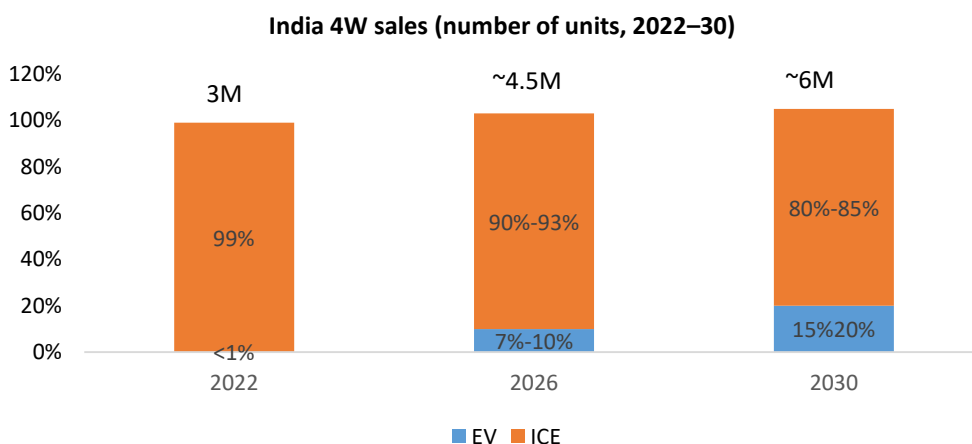
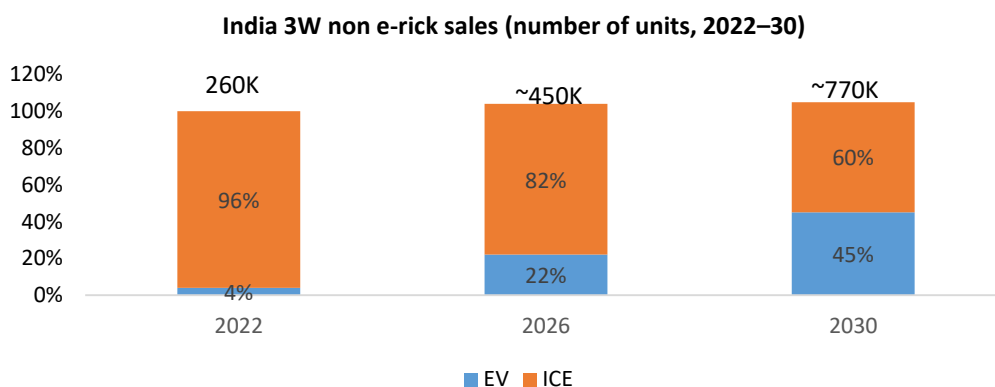
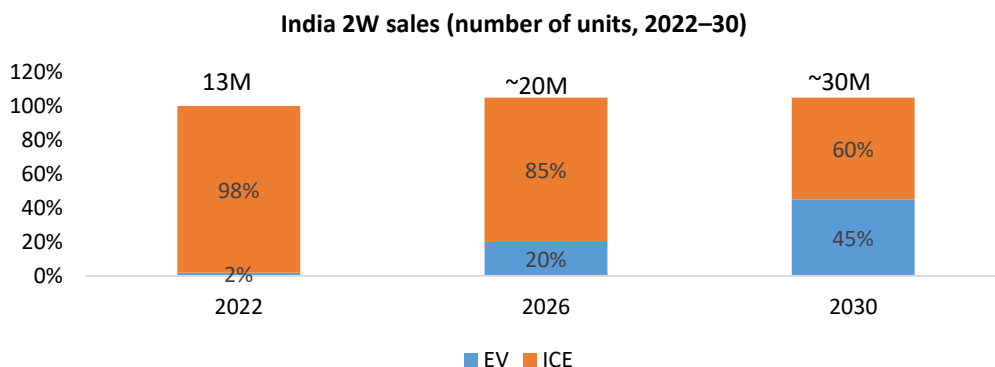
Source: Company, Arihant Research Auto Expo 2023



**Industry View:**

Citing one of the factors for the EV growth in the country, the report pointed at incentives provided by central and state governments. These incentives to consumers to adopt EVs and suppliers to propel local manufacturing and ecosystem build-out are boosting the EV market.

**Exhibit 12: BEV penetration in India for passenger vehicles is expected to reach up to 45% for 2W and 3W and 20% for 4W by fiscal year 2030 (FY30)**



Source: SIAM data; literature search; analyst reports—CRISIL

**Key areas to focus:** 1) On a longer term, the price of batteries would need to fall an additional 20–30% to drive price competitiveness with ICE vehicles in the absence of subsidies., 2) Original equipment manufacturer (OEM) will need to build new and sustainable EV-specific business models for the Indian market., 3) As the industry matures, there will need to be a sustained focus on safety (through greater localization, quality control and audits, and standardization) to quell consumer concerns., 4) The government must continue to support EV adoption via consumer and producer incentives and regulatory support and 5) India’s charging infrastructure will need to significantly expand to support the projected volume of EVs on the road.

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Stock Rating Scale	Absolute Return
BUY	>20%
ACCUMULATE	12% to 20%
HOLD	5% to 12%
NEUTRAL	-5% to 5%
REDUCE	-5% to -12%
SELL	<-12%

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