

**Auto Sector Monthly Update**  
**“Good End to Q1: Auto on the Go”**

**June 2018**

Monthly Sales (Domestic & Export in no of units)			
Company	June 2018	June 2017	YOY (%)
Passenger Vehicles			
Maruti Suzuki	144981	106394	36.3%
Hyundai	60779	50853	19.5%
Mahindra & Mahindra*	18137	16212	11.9%
Honda Cars India*	17602	12801	37.5%
Toyota Kirloskar	14102	3628	288.7%
Tata Motors*	18213	11174	63.0%
Commercial Vehicles			
Bajaj Auto Ltd	66677	40211	65.8%
Tata Motors *	38560	25660	50.3%
Mahindra & Mahindra*	19229	15132	27.1%
Ashok Leyland	15791	12333	28.0%
Two Wheelers			
Bajaj Auto	337752	204667	65.0%
TVS Motors	301201	268638	12.1%
Eicher Motors (Royal Enfield)	74477	63160	17.9%
Three Wheelers			
TVS Motors	12413	5153	140.9%
Mahindra & Mahindra*	4323	2560	68.9%
Atul Auto	3847	3288	17.0%
Tractors			
Escorts	9983	5776	72.8%
M&M	40529	33093	22.5%

**Outlook:**

Fluctuations in fuel prices, trade war tensions across countries were factors expected to make new launches difficult for the Indian automakers. However, in spite of the market volatility, June 2018 reported strong sales across different segments. This has to be kept in mind with the low base effect of June 2017 due to BS-IV impact.

In the passenger vehicles space, Maruti reported 36.3% jump in its total sales volumes, when compared to the same period last year. This was mainly due to the growth of 45.5% across the domestic space while the Exports saw a drop of 29%. Tata Motors reported growth of 63% in the passenger vehicle space. M&M reported 12% growth in the PV segment while a 50% in the CV segment. The noteworthy improvement in M&M is the exports which grew by 87% for the month. Hyundai reported sales growth of 19.5% crossing the 8 million units mark in a time frame faster than any other automaker in the industry.

The commercial vehicle space has been witnessing good growth backed by free flowing goods movement under GST. Tata Motors continues with its strong reporting for this month as well with growth of 50%. Overall, Tata Motors has reported sales growth of 54% one of the strongest performances in recent times.

In the two wheelers space, Hero Motocorp has bagged the top spot with the best-selling motorcycle, Hero Splendor. Royal Enfield reported 18% growth for the month under reference. Eicher Motors clocked strong growth of 62.5% for the month majorly through the domestic segment. Bajaj Auto recorded 65% growth led by domestic segment that shot up by 85%. It had the highest ever three wheeler sales, clocking growth of 66% compared to June 2017.

For the tractors, Escorts reported 72.8% led by 72.1% growth in the domestic segment while the exports grew by 110.3%. M&M reported growth of 22.5% for the month of June 2018.

Overall the Auto sales have been on the upward growth trajectory led by the increase in demand across the different domains. Although there is a caution to maintain with respect to the commodity prices, but overall the sentiment remains positive backed by economy showing an uptick led by improved industrial activity, robust demand in private consumption and government spending on infrastructure.

Source: Company Reports: Note : \* Marked represents only Domestic Sales.

Company	Reco Price	Target Price	Comments
Alicon Castalloys Ltd	288	750	Manufacturer of aluminium castings for automotive & non-automotive
Harita Seating Systems Ltd	266	1150	Manufacturer of seating solutions for driver and cabin seating
The Hi-Tech Gears Ltd	298	600	Manufacturer of gears and transmission components
Munjal Showa Ltd	191	350	Manufacturer of shock absorbers and struts

In the current scenario the need of the hour is that all cars need to be capable of being zero-emission driving; moving without emitting any pollution from the tailpipe. That includes both battery-electric and hybrid cars.

### What are Electric Vehicles or EV?

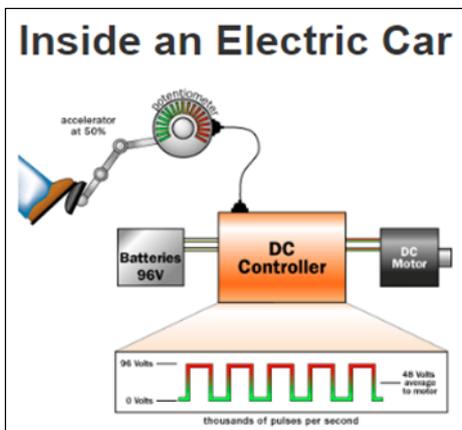
Electric vehicle (EV) is propelled by an electric motor, powered by rechargeable battery packs, rather than a gasoline engine. From the outside, the vehicle does not appear to be electric. Often, the only thing that clues the vehicle is electric, the fact that it is nearly silent. Vehicles powered by fuel cells are electric cars.

Under the hood, the electric car consists of:

- Electric motor
- Controller
- Rechargeable batteries

Electric motor gets power from a controller and the controller in turn gets its power from a rechargeable battery. The motor then uses the power to rotate a transmission and the transmission turns the wheels.

### Key parts in EVs:



Source: Howstuffworks

### The Key Parts:

- Potentiometer: The accelerator pedal hooks to a pair of potentiometers and these potentiometers provide the signal that tells the controller how much power it is supposed to deliver.
- DC Controller: The controller takes power from the batteries and delivers it to the motor. The controller can deliver zero power (when the car is stopped), full power (when the driver floors the accelerator pedal), or any power level in between. The controller reads the setting of the accelerator pedal from the two potentiometers and regulates the power accordingly. If the accelerator pedal is 25% of the way down, the controller pulses the power so it is on 25% of the time and off 75% of the time. If the signals of both potentiometers are not equal, the controller will not operate.
- Motor: The motor receives power from the controller and turns a transmission which then turns the wheels, causing the vehicle to run.
- Batteries: Batteries provide power to the controller

### How does it operate?

When the driver steps on the pedal the potentiometer activates and provides the signal that tells the controller how much power it is supposed to deliver. There are two potentiometers for safety. The controller reads the setting of the accelerator pedal from the potentiometers, regulates the power accordingly, takes the power from the batteries and delivers it to the motor. The motor receives the power (voltage) from the controller and uses this power to rotate the transmission. The transmission then turns the wheels and causes the car to move forward or backward. If the driver floors the accelerator pedal, the controller delivers the full battery voltage to the motor. If the driver takes his/her foot off the accelerator, the controller delivers zero volts to the motor. For any setting in between, the controller chops the battery voltage, thousands of times per second to create an average voltage somewhere between 0 and full battery pack voltage.

**What are hybrid vehicles (HV)**

A hybrid car has two different types of components performing essentially the same function; internal-combustion engine and at least one electric motor, both of which drive the wheels. Better fuel economy is the primary motivation behind hybridization. The more you can rely on electricity, the less gasoline or diesel you need to burn. Hybrids are seen as a compromise between the efficiency of an all-electric car, and the practicality of a conventional gasoline or diesel car.

**Five key parts make up the hybrid vehicle:**

- Battery
- Internal combustion engine (ICE)
- Generator
- Power split device
- Electric motor

**Battery:** The batteries in a hybrid car is the energy storage device for the electric motor. Unlike the gasoline in the fuel tank, which can only power the gasoline engine, the electric motor on a hybrid car can put energy into the batteries as well as draw energy from them.

**Internal Combustion Engine (ICE):** The hybrid car has an ICE, also known as a gasoline engine, much like the ones found on most cars. However, the engine on a hybrid is smaller and uses advanced technologies to reduce emissions and increase efficiency. It receives its energy from the fuel tank where the gasoline is stored.

**Generator:** The generator is similar to an electric motor, but it acts only to produce electrical power for the battery.

**Power Split Device:** The power-split-device resides between the two motors and together with the two motors creates a type of continuously variable transmission.

**Electric Motor:** The electric motor on a hybrid car acts as a motor as well as a generator. For example, when needed, it takes energy from the batteries to accelerate the car. But acting as a generator, it slows the car down and returns energy to the batteries.

**How Hybrid cars work?**

When the driver steps on the pedal the generator converts energy from the engine into electricity and stores it in the battery. The battery then provides power to the electric motor. The internal combustion engine and electric motor work simultaneously and each provide power to the power split device. The power split device combines both powers and uses it to turn the transmission. The transmission then turns the wheels and propels the vehicle. The energy used when braking is converted into electricity and stored in the battery. When braking, the electric motor is reversed so that, instead of using electricity to turn the wheels, the rotating wheels turn the motor and create electricity. Using energy from the wheels to turn the motor slows the vehicle down. When the vehicle is stopped, the gasoline engine and electric motor shut off automatically so that energy is not wasted in idling. The battery continues to power auxiliary systems, such as the air conditioning and dashboard displays.

**Comparison of Hybrid vehicles and Electric vehicles:**

Hybrid Vehicles vs. Electric Vehicles		
Parameter	Hybrid Vehicles	Electric vehicles
Dependence	Electric cars totally depend on electricity. They have to get charged and the car moves till the charge lasts	Hybrid cars can be called a partially electric. They make use of a mixture of gas and electric power
Source of Power	Internal combustion engine	Rechargeable battery
Recharging	Batteries get recharged while driving	Batteries get recharged when plugged to some source of energy
Category	Categorised as low emission vehicles	Categorised as zero emission vehicles

Source: Company Research

**Recent developments in the EV space (June 2018)**

Power Grid plans to set up 26 Electric Vehicle charging stations in three cities

India to focus EV subsidies on ride sharing electric cars

Government to rope in nodal agencies for electric vehicle infra

CK Birla's Avtec to invest USD88mn in EVs

Nissan Leaf Electric car confirmed for India; launch timeline revealed

Charge your Electric Vehicles at Metro stations in Hyderabad, Chennai

India's electricity demand from EVs may reach 69.6 TWh by 2030

Nissan to bring its electric car to India this fiscal year

Kia plans to produce electric vehicles, hybrids in India; targets 2021 for launch

Tata Motors to deploy 1,000 electric vehicles in Maharashtra

Audi to launch EVs in Indian cities where charging facilities are available

Mahindra signs MoU to promote electric vehicles

Taiwanese Delta Electronics to setup Electric Vehicles R&D Centre in India

Ather 340 Electric Scooter launched; priced at Rs1.09 Lakh

Electric Urban Bus with over 200 km range launched in India by Goldstone BYD

Tech Startup Ather Energy installs EV charging stations in Bengaluru

India delays plan to roll out 10,000 electric cars to 2019

**Auto Sector Monthly Update  
About Electric Vehicles (EV)**

**June 2018**

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