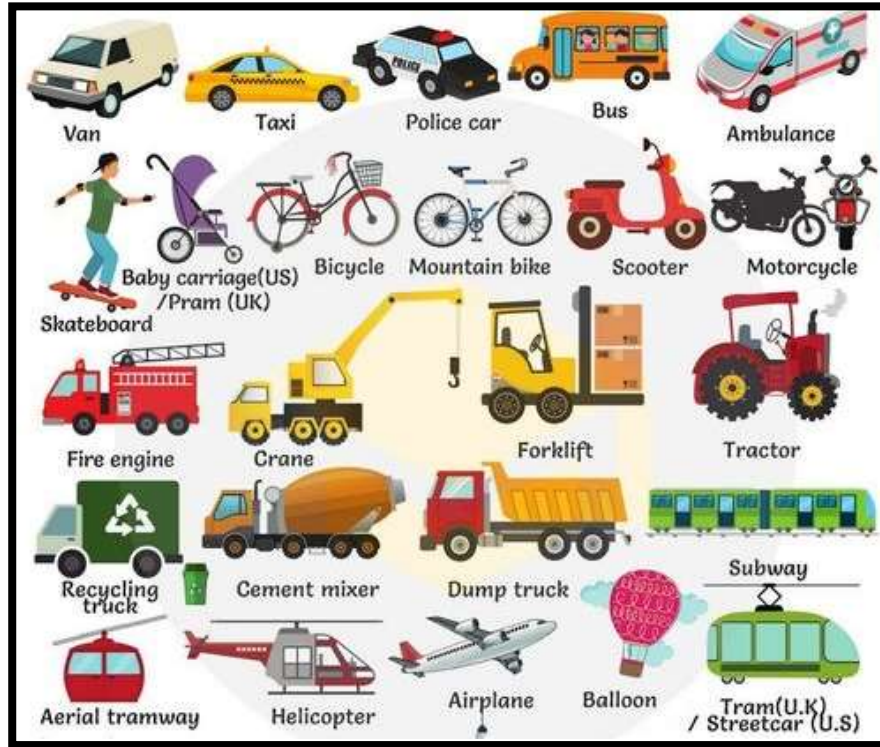


PRESENTATION ON NEW OPPORTUNITY IN AUTO MOTIVE SECTOR AND ASSOCIATED CHALLENGES

BY BERJINDER SINGH

VEHICLES – WHY REQUIRED



- To meet Various Needs
- Movement to large distance
- Load Transport beyond Human capacity
- Movement to Short Distance
- Fast Movement to a distant location

TYPES OF ENGINES IN VEHICLE



DIESEL / C.I. Engine



PETROL / S.I. ENGINE

VEHICLES – SOURCES OF ENERGY

Sources of Energy/FUEL in Vehicle

- Manual
- Petrol
- Diesel
- Bio-diesel
- LPG
- CNG
- LNG
- Charged Battery
- Hydrogen
- Ethanol etc .

Primary Fuel
Alternate Fuel

Petrol & Diesel are the primary Fuel and rest fuel comes as Optional or Alternate fuel

SHIFTING OF FUEL TOWARDS GREEN

CLEAN & GREEN FUEL

- Petrol
- Diesel
- CNG



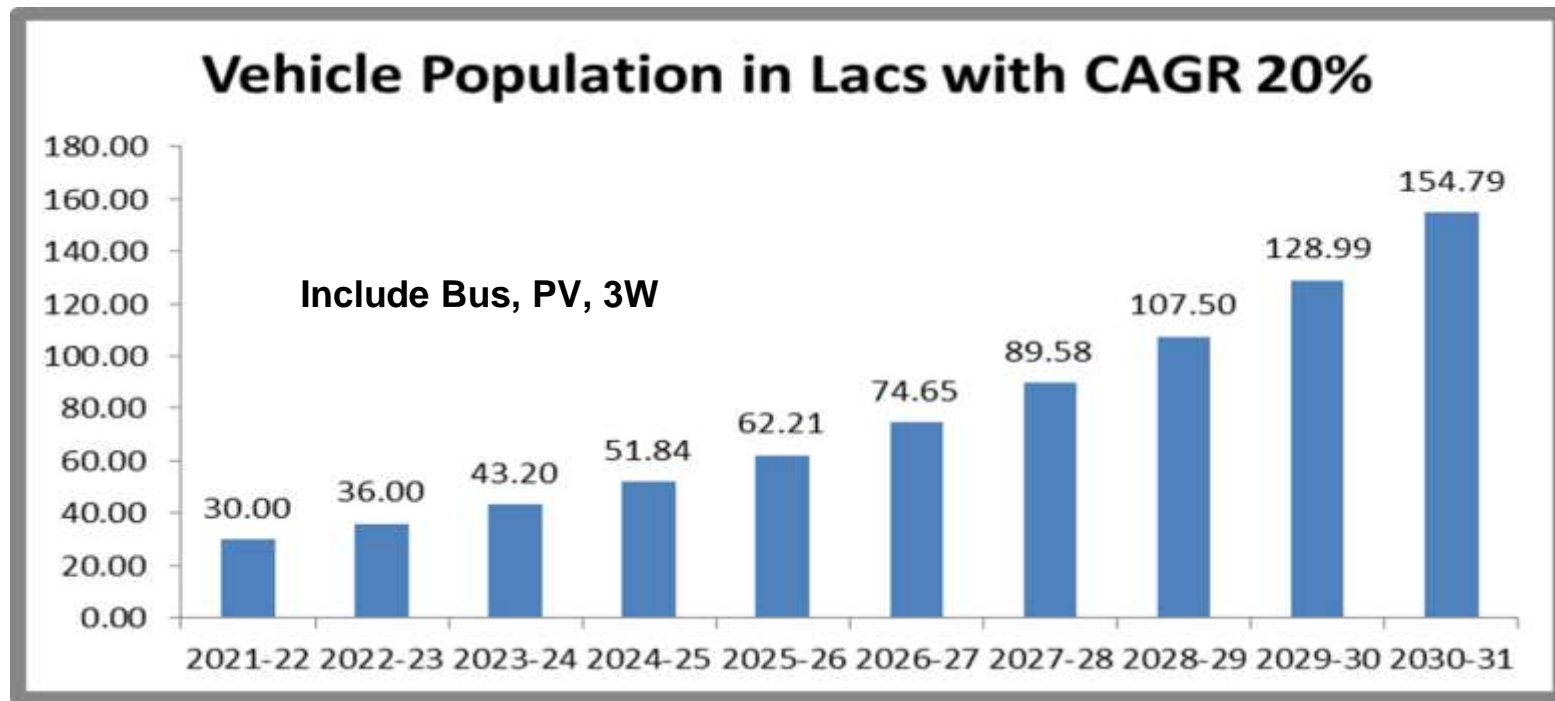
- Flex Fuel
- LNG
- Hydrogen
- FCV
- EV
- DUAL FUEL

Engine – C.I. & S.I.

Engine – C.I. & S.I.
+ Battery + Fuel Cell

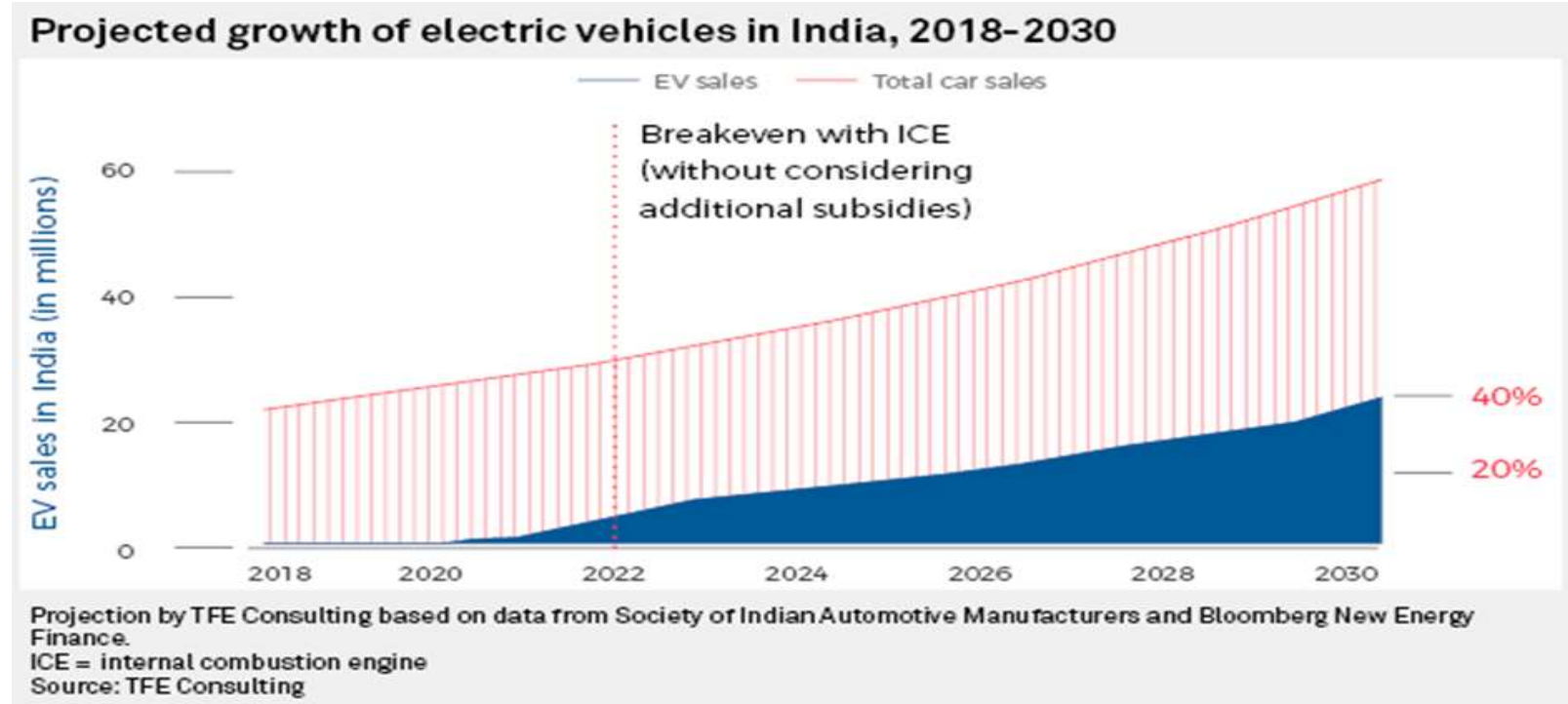
In Addition to Engine based vehicle , Battery Operated & Fuel Cell Vehicle will be in future

GROWTH OF CNG/LNG MARKET



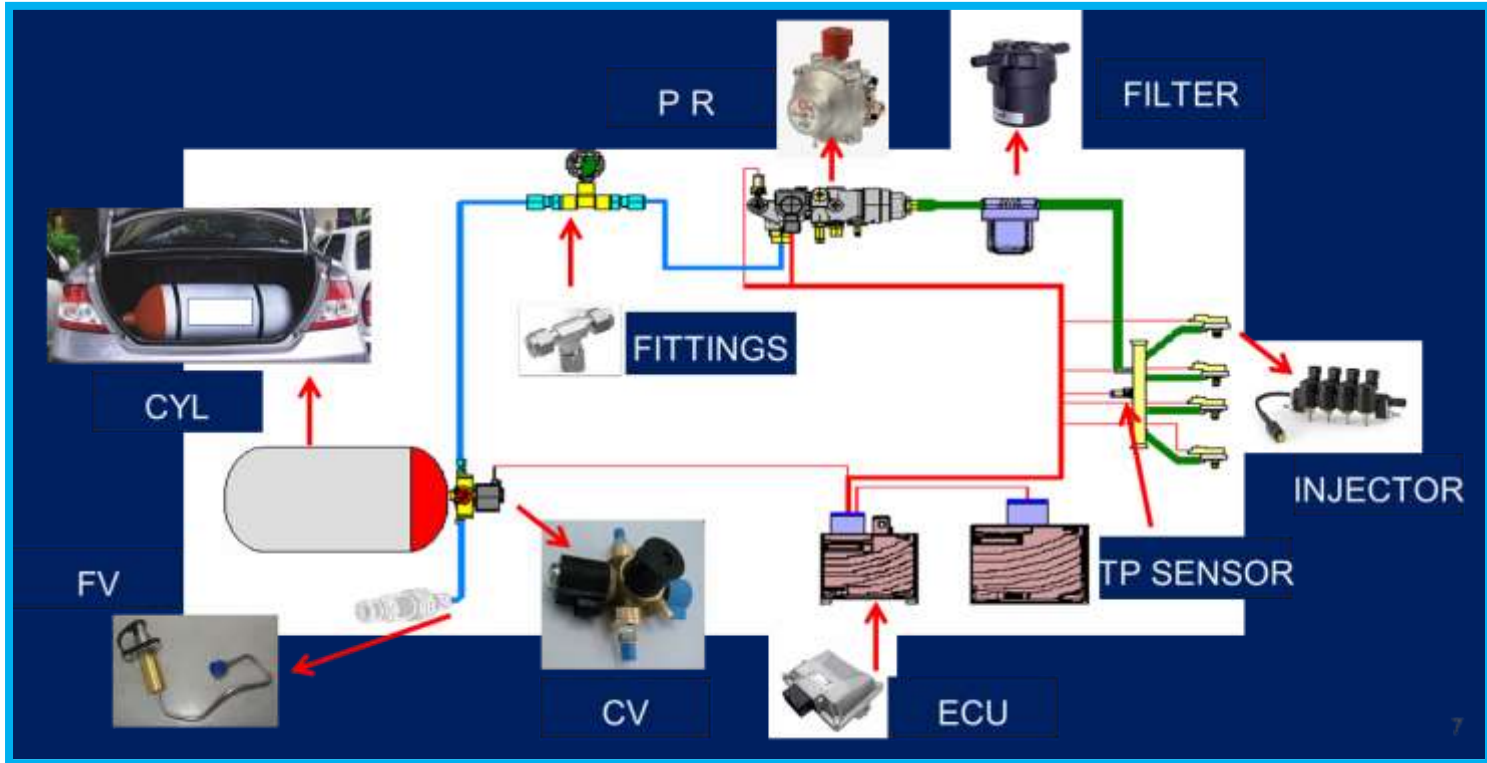
As Per Report INDIA is going to have total CNG Vehicle Population 154 Lacs on Road by 2030

GROWTH OF EV MARKET



As Per Report-Approx. 30% of total Vehicle Population will be EV on Road by 2030 with CAGR of 44%

CNG FUEL SYSTEM COMPONENTS



ADDITIONAL COMPONENTS IN PETROL FUEL SYSTEM

COMPONENTS FOR LNG VEHICLES



CRYOGENIC CYLINDER



LNG TANK FITTED VEHICLE

VEHICLE TRAVELLING RANGE INCREASE WITH FILLED LNG TANK

COMPONENTS FOR LNG VEHICLE



Code	Description
VS1	Primary Relief Valve
VS2	Secondary Relief Valve
VS3	Filling piping Security Relief Valve
VS4	Venting piping Security Relief Valve
V2	Vent Valve
PV	Evacuation Port
EC	Economizer
V1	Liquid Valve
EFV	Excess Flow Valve
AV	Automatic cut off valve
VUN	Check Valve
FILL	Filling Receptacle
VENT	Vent Receptacle
M	Pressure Gauge
I	Level gauge
TI	Level transmitter
PT	Pressure transmitter
MS	Magnetic sensor

COMPONENTS FOR E.V.



BMS



BATTERY



CHARGER



POWER TRAIN



DISPLAY

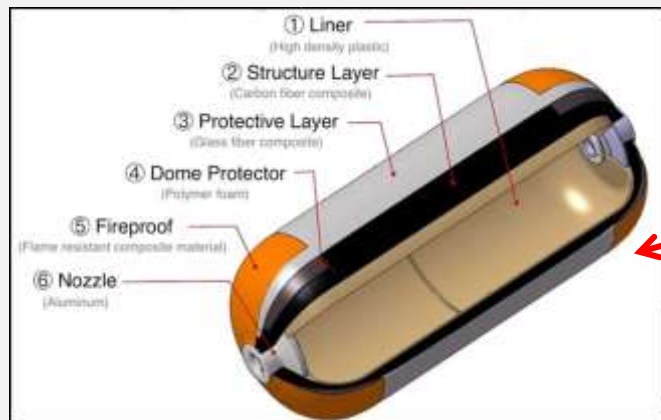


M.CONTROLLER



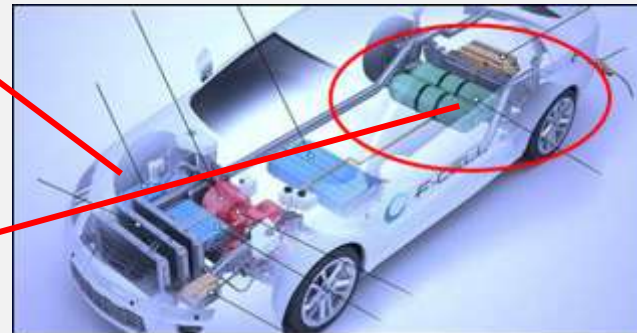
MOTOR

COMPONENTS FOR FCV



TYPE -4 CYLINDER

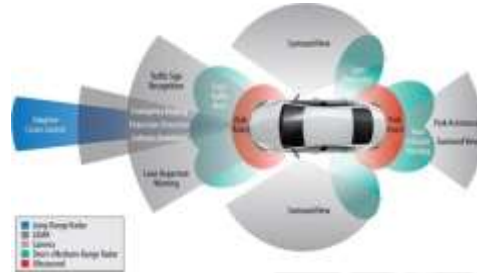
FUEL CELL



COMPONENTS WITH ADVANCE TECH.



DPF



ADAS



AIR BAG SYSTEM

CONTROL



CRDI



SENSORS



ECU

OBD-2

RECENT ACCIDENT REPORT IN INDIA

- **Recent Accidents in EV**
- A Jodhpur man has flagged a software bug in Ola electric scooters after his father suffered a severe head injury in an accident.(11MAY2022)
- **Ola Electric** is recalling 1,441 units of its electric two-wheelers due to cases of **vehicles catching fire**, according to a corporate statement.
- The investigating committee was constituted last month in the wake of EV fires and battery blasts in e-scooters belonging to Okinawa Autotech, Boom Motor, Pure EV, Jitendra EV, and Ola Electric. In one such incident a man and his daughter died.
- 20 Jitendra EV electric scooters went up in flames in a container, making this not only the fifth fire incident in a matter of weeks, but also the biggest one in the country yet. The accident took place near the EV manufacturer's factory in Nasik on April 9, while the scooters were being transported

CHALLENGES IN INDIA

- **CONSTRAINTS FOR NEW TECHNOLOGY ADOPTION**
- LACK OF NEW INNOVATION / TECHNOLOGY IN INDIA FOR NEW PARTS
- LACK OF KNOWLEDGE RELATED TO LATEST FUEL SYSTEM IN INDIA
- LACK OF SUPPORTING INFRASTRUCTURE – CHARGING/FUEL STATION
- RISK OF BUSINESS GROWTH Y.O.Y. W.R.T INVESTMENT
- GETTING A RIGHT RELIABLE TECHNOLOGY PARTNER-AS OEM REQUIRED
- EDUCATION OF OEM , SUPPLIER & CUSTOMER TO HANDLE NEW SYSTEM

CHALLENGES IN INDIA

- **CONSTRAINTS FOR NEW TECHNOLOGY ADOPTION**
- POC / VALIDATION OF TECHNOLOGY AS PER INDIAN TEMP CONDITION
- NEW PRODUCT TESTING AS PER INDIAN ROAD CONDITION
- TRAINED SERVICE TEAM FOR HANDLING ISSUES IN NEW SYSTEM
- DO'S AND DON'T INDICATION INSTRUCTION FOR CUSTOMER & SERVICE
- 60% DOMESTIC MATERIAL CONTENT PERCENTAGE IN SUPPLY CHAIN
- SEMICONDUCTOR SUPPLY ISSUE LEADING LESS PRODUCTION

CHALLENGES IN INDIA

- **CONSTRAINTS FOR NEW TECHNOLOGY ADOPTION**
- ATTITUDE TOWARDS QUALITY ACCEPTANCE LEVEL
- QUALIFICATION UPGRDATION OF TESTING AGENCY
- KNOWLEDGE UPDATION OF CERTIFICATION AGENCY

G.O.I. – SUPPORT FOR NEW TECH.

- G.O.I. SUPPORT
- PLI SCHEME FOR ACC – LOCAL MANUFACTURING OF CELL
- PLI SCHEME FOR AAT - LOCAL MANUFACTURING OF ADVANCE AUTOMOTIVE TECH.
- PLI SCHEME FOR SEMICONDUCTOR – LOCAL MANUFACTURING OF SEMICONDUCTOR
- PLI SCHEME FOR SOLAR INFRASTRUCTURE – LOCAL MANUFACTURING OF SOLAR CELL

ENGINE TO BATTERY POWERED VEHICLE

Electric Vehicle
Technology in Automobile



Electric Vehicle

Fame –II Policy is supporting Growth of E.V.

About 30% of the new vehicle sales in India will be electric by 2030

Key Points

- Subsidy to all Vehicle Buyer (up to 30,000.00 INR on 2W to 1,50,000.00 INR on 4W) up to 2023.
- Sales of Electric Vehicle without Battery
- No Road tax and No Registration Charge of Electric Vehicle
- Easy Loan availability at low interest rate
- Government Focus on increasing charging infrastructure
- OEM readiness for 3W and 2W segment

Q & A



THANKS