Inauguration of Centre of Excellence for Green Mobility, ARAI

To address the increasing need for electrification of transportation and technology development for alternate energy, ARAI has established a new Centre of Excellence (CoE) for Green Mobility at Chakan, Pune in association with the Department of Heavy Industries (DHI) and FAME India Scheme.

The CoE Green Mobility facility at ARAI’s Homologation and Technology Centre, Chakan, Pune was inaugurated by Shri. Arjun Ram Meghwal, Hon’ble Minister of State (Ministry of Heavy Industries and Public Enterprises) on 18th February 2020. On this occasion, the President of ARAI, Shri. C V Raman (Senior Executive Director-Engg, Maruti Suzuki India Limited) and Vice-President ARAI, Shri. Rajendra Petkar (Chief Technology Officer, TATA Motors Limited) were also present along with Smt. Rashmi Urdhwareshe, Director ARAI. This CoE Green Mobility focuses on Development, Validation and Certification of Electric / Hybrid Electric Vehicles and Advanced Powertrain. The project started in July 2018 and was completed within a short span of 18 months.

With the latest upgradation through Centre of Excellence (CoE) Green Mobility, all electric and hybrid vehicles – under varying operating conditions – can be tested in accredited and advanced laboratories of this CoE. The service portfolio includes,

- Type Approval testing & certification of Electric & Hybrid Electric Vehicles (xEVs)
- Developmental projects for batteries, cells, simulation tools, vehicle endurance, motors and controllers, Vehicle integration etc.
- Research projects on xEVs, alternate battery materials, recyclability
- Hydrogen Fuel engine testing
- Skill development for designers, testing/validation teams
- Knowledge dissemination about xEV and alternate fuel powertrain
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Centre of Excellence - Green Mobility, ARAI, HTC-Chakan, Pune

The CoE houses following testing facilities for EV and associated components to meet rising demand.

a. **E-motor Test Bed** of 30, 150 and 250 kW capacities, catering to all vehicle types, can test, verify and validate functionality, reliability and endurance along with cold start performance measurements in real operating conditions.

b. **Battery Emulators** with 100 kW and 250 kW capacities can emulate various battery chemistries and act as a battery pack for Electric vehicles while testing on chassis dynamometer.

c. **Battery Test System** can test the durability and performance of battery cells, modules and packs along with characterization and testing of super caps, nickel-metal hydride and lithium-ion batteries. The facility is well established to undertake development of various technologies related with battery material, battery chemistry etc.

d. **Whole vehicle semi-anechoic EMC chamber along with chassis dynamometer** is set-up to test all categories of vehicles for certification as well as development.

**Engine Facilities:**

The advanced facilities set up for **Powertrain Development** include transient test cells equipped with state-of-the-art instrumentation for engine development. The facilities herein are capable for development of engines meeting BS-VI and beyond norms for automotive, TREM IV & V for agricultural, BS-IV & V for CEV and CPCB IV & V for genset. This Facility complies with all relevant European and Indian Regulations and can simulate altitude ambient condition from sea level to 1600 meters on engine.

Transient Test Cell facility is equipped with **Transient Dynamometers**, ranging from 220 kW to 600 kW, along with all necessary peripheral equipment and will cater to the certification/development testing of alternate fuel engines running on biodiesel, CNG LPG, diesel, gasoline and blends.

In addition, a new test facility for **Hydrogen Fuel engine testing** is also being set up. The hydrogen test cell will house a 350 kW transient dynamometer for development testing and certification of Hydrogen engines and can test 4 to 6-cylinder engines for passenger cars, SUVs, LCVs and HCVs.

In sync with the sustainable framework of national energy and resource conservation programme, CoE Green Mobility infrastructure meets number of the eco-friendly parameters of green buildings – incorporation of natural light and CFC free equipment, use of solar energy and other energy intensity reduction devices, water conservation through rain water harvesting and drip irrigation etc.