



# Minister of Railways Shri Suresh Prabhakar Prabhu inducts First DEMU Train with Solar powered Coaches into service of the Nation

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Minister of Railways Shri Suresh Prabhakar Prabhu today (14 July 2017) dedicated to the nation the first 1600 HP DEMU train with Solar Powered Coaches with a unique facility of Battery Bank here today. The entire electrical need of the coaches for Lighting, Fans and Information Display System will be met from the Solar Energy produced from the solar panels fitted in the roofs of coaches. While this train has been manufactured by the Coach Factory of Indian Railways namely Integral Coach Factory (ICF), Chennai, its Solar panels and Solar systems have been developed and fitted by Indian Railways Organisation of Alternative Fuel (IROAF) Delhi. This first rake has been commissioned and based at Shakurbasti DEMU shed in Delhi of Northern Railway. Twenty-four more coaches will be fitted with this system within the next 6 months. The first rake will be put in the commercial service over the suburban railway system of Delhi division of Northern Railway.

On this occasion, Member Rolling Stock, Railway Board Shri Ravindra Gupta, General Manager Northern Railway Shri R.K Kulshreshtha, CAO of IROAF Shri Ravinder Gupta, CME Northern Railway Shri Arun Arora, CME IROAF Shri G.K Gupta, DRM Delhi Shri R.N Singh were among those present.

Speaking on the occasion, Minister of Railways Shri Suresh Prabhakar Prabhu said that "Indian Railways has taken a path breaking leap towards making Indian Railways' trains greener and more environment friendly. Hon'ble Prime Minister Shri Narendra Modi has also been emphasising on use of green energy and Environment friendly measures. Indian Railways is committed for environment conservation & use of cleaner fuels. Indian Railways is trying to increase use of non-conventional sources of energy. More solar powered trains may be inducted in future." Indian Railways has already made a target of 1000 MW Solar Plants in next five-years. Indian Railways is also taking several others environment friendly measures like Tea Plantation, Bio-toilet, Water-Recycling, Waste Disposal, using Bio-fuel CNG and LNG, Wind Energy etc.

Normally, DEMU trains provide power for its passenger comfort systems - lights and fans - from a diesel driven generator fitted on its Driving Power Car (DPC). IROAF has developed this system with a smart MPPT inverter which optimises power generation on a moving train to cater to full load even during the night. The unique feature of Battery Bank through storage battery ensures sufficient electricity when the sunlight is not available. The system helps in reducing Diesel consumption of the DPC and hence reduces carbon signature of these commuter trains by reducing CO2 generation by 9 Tonnes per coach per year.

A solar power DEMU train with six trailer coaches will save about 21,000 Litres of Diesel and thereby bring cost saving of Rs.12 Lac every year. Savings for a 10 coach rake with 8 trailer coaches will increase proportionately. These benefits will continue for entire 25 years life time of the rake. This will help in making DEMU commuter services better, more economical and environment friendly.

Solar hotel load (Lighting and Fan) system fitted on each coach is of 4.5 KWp capacity consisting of 16 Solar Panels of 300Wp each. This is adequate to power the fans and lights of the coach. The system is capable of developing up to 20 kWh per day (average) throughout the year. Surplus power generated during peak hours is stored in a 120 AH battery system. The system uses a data acquisition system and interfaces with existing hotel load power system of DEMU train. It will help in generating useful data for research for adapting the system for future rollout on all trains of IR. The system costs about Rs. 9 lakhs per coach at prototype stage.

Northern Railway launched the first DEMU service on Indian Railways in 1994. Today, NR has 3 DEMU sheds having highest DEMU holding on Indian Railways. Shakurbasti DEMU shed of Northern Railway has been a pioneer in the field of green powered DEMUs - CNG & Solar powered. The very first CNG fitted DEMUs were run by Shakurbasti. Now the first Solar panel powered DEMU train will also be maintained and operated by DEMU shed, Shakurbasti of Northern Railway. This pioneering effort makes a transition towards clean energy and reduction in the carbon emission.

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