

# INDIAN RAILWAYS ON MISSION MODE OF BECOMING A "GREEN RAILWAY" BY 2030( NET ZERO CARBON EMISSION)

Relevant for: Indian Economy | Topic: Infrastructure: Railways

Ministry of Railways, with a goal of transforming Indian Railways into Green Railways by 2030 has taken a number of major initiatives towards mitigation of global warming and combating climate change. Railway Electrification, improving energy efficiency of locomotives & trains and fixed installations, green certification for installations/stations, fitting bio toilets in coaches and switching to renewable sources of energy are parts of its strategy of achieving net zero carbon emission.

Indian Railways has completed electrification of more than 40,000 Route km (RKM) (63% of BG routes) in which 18,605 km electrification work has been done during 2014-20. Previously, only 3,835 km electrification work was completed during the period 2009-14. Indian Railways has fixed a target of electrification of 7000 RKM for the year 2020-21. All routes on BG network have been planned to be electrified by December 2023. Indian Railways is focusing on electrification of last mile connectivity & missing links. With this in mind 365 km major connectivity work has been commissioned during COVID period.

Major connectivity commissioned during COVID period like Katni-Satna section (99 RKM) of Mumbai-Howrah via Allahabad route has been commissioned providing an alternate route to Howrah. Likewise, Pachore-Maksi (88 RKM) section on Indore - Guna-Bina route has also been commissioned providing an alternate route to Maksi-Bhopal-Bina. On Howrah/Sealdah-SVD Katra via Patna route, Bhagalpur-Shivnarayanpur (45 RKM) section has been commissioned. On the route connecting Kariakal port to coal, fertilizer & steel plants of Tamil Nadu & Andhra Pradesh, Thiruvavarur - Karaikal port (46 RKM) section has been commissioned providing port connectivity to Erode, Coimbatore & Palghat.

Indian Railways has also taken a number of initiatives to promote solar energy. Indian Railways is working to harness the potential of 500 Mega Watt (MW) energy through roof top Solar panels (Developer model). Till date, 100 Mega Watt (MW) of solar plants have been commissioned on roof-tops of various buildings including 900 stations. Solar plants with a combined capacity of 400 MW are under different stages of execution. Tenders are already awarded for 245 MW and target for completion of these plants is December 2022.

Besides this, Indian Railways is trying to produce power from land Based Solar installations for running trains. Indian Railway has 51,000 hectare of land potential of installing 20 GW land based solar plants. The Solar power so generated will be fed to Central / State Grid or directly to 25 kV AC traction system. Railway Energy Management Company Limited (REMCL), a Joint Venture Company of Indian Railways (49 % Equity) and RITES Limited (51 % Equity), has been mandated for proliferation of taking up land based project.

One project of 1.7 MW at Bina (Madhya Pradesh) in collaboration with Bharat Heavy Electricals Limited (BHEL) has already been installed and is presently under extensive testing. This is First of its kind of solar project in the world.

Initially for the Land Based Solar Projects, Indian Railways has taken up 3 GW Solar Project in three phases. In phase I tender has been floated under developer model on 29th April 2020 for 1.6 GW capacities in railway plots for open access states. In Phase II, 400 MW capacities in

railway plots will be developed for non open access States under ownership model of REMCL (captive use). For this tender has floated on 16th June 2020. In Phase III 1 GW capacity in railway plots along the tracks under developer model will be installed for open access States for which tender has been floated on 1st July 2020.

In the wind energy sector, 103 MW wind-based power plants have already been commissioned. Among them, 26 MW is in Rajasthan (Jaisalmer), 21 MW is in Tamil Nadu and 56.4 MW is in Maharashtra (Sangli). Indian Railways has also planned to set up 200 MW wind energy plants in next 2 years in Tamil Nadu, Gujarat, Rajasthan and Karnataka.

Realizing its role in climate change Indian Railways has started other Green Initiatives like 100 per cent LED illumination of buildings and stations. Indian Railways has also acquired Green Certification from CII to 7 Production Units (PUs), 39 Workshops, 6 Diesel sheds and 1 Stores depot. 14 Railway Stations and 21 other buildings/ campuses have also been Green certified. Other than this 215 Stations have been certified with Environment Management System (EMS)/ISO 14001.

Total 505 pairs of trains have been converted to Head on Generation(HOG), unleashing approx 70 million liter diesel/ Rs 450 crore per annum potential of saving. Energy Efficiency Studies of all 8 Production Units & 12 workshops have been completed under MOU with CII resulting in 15% improvement in energy efficiency.

In the field of Green Initiatives a total of 69,000 coaches have been fitted with more than 2,44,000 bio-toilets in Indian Railways.

\*\*\*

DJN/MKV/SK

Ministry of Railways, with a goal of transforming Indian Railways into Green Railways by 2030 has taken a number of major initiatives towards mitigation of global warming and combating climate change. Railway Electrification, improving energy efficiency of locomotives & trains and fixed installations, green certification for installations/stations, fitting bio toilets in coaches and switching to renewable sources of energy are parts of its strategy of achieving net zero carbon emission.

Indian Railways has completed electrification of more than 40,000 Route km (RKM) (63% of BG routes) in which 18,605 km electrification work has been done during 2014-20. Previously, only 3,835 km electrification work was completed during the period 2009-14. Indian Railways has fixed a target of electrification of 7000 RKM for the year 2020-21. All routes on BG network have been planned to be electrified by December 2023. Indian Railways is focusing on electrification of last mile connectivity & missing links. With this in mind 365 km major connectivity work has been commissioned during COVID period.

Major connectivity commissioned during COVID period like Katni-Satna section (99 RKM) of Mumbai-Howrah via Allahabad route has been commissioned providing an alternate route to Howrah. Likewise, Pachore-Maksi (88 RKM) section on Indore - Guna-Bina route has also been commissioned providing an alternate route to Maksi-Bhopal-Bina. On Howrah/Sealdah-SVD Katra via Patna route, Bhagalpur-Shivnarayanpur (45 RKM) section has been commissioned. On the route connecting Kariakal port to coal, fertilizer & steel plants of Tamil Nadu & Andhra Pradesh, Thiruvarur - Karaikal port (46 RKM) section has been commissioned providing port connectivity to Erode, Coimbatore & Palghat.

Indian Railways has also taken a number of initiatives to promote solar energy. Indian Railways is working to harness the potential of 500 Mega Watt (MW) energy through roof top Solar panels (Developer model). Till date, 100 Mega Watt (MW) of solar plants have been commissioned on roof-tops of various buildings including 900 stations. Solar plants with a combined capacity of 400 MW are under different stages of execution. Tenders are already awarded for 245 MW and target for completion of these plants is December 2022.

Besides this, Indian Railways is trying to produce power from land Based Solar installations for running trains. Indian Railway has 51,000 hectare of land potential of installing 20 GW land based solar plants. The Solar power so generated will be fed to Central / State Grid or directly to 25 kV AC traction system. Railway Energy Management Company Limited (REMCL), a Joint Venture Company of Indian Railways (49 % Equity) and RITES Limited (51 % Equity), has been mandated for proliferation of taking up land based project.

One project of 1.7 MW at Bina (Madhya Pradesh) in collaboration with Bharat Heavy Electricals Limited (BHEL) has already been installed and is presently under extensive testing. This is First of its kind of solar project in the world.

Initially for the Land Based Solar Projects, Indian Railways has taken up 3 GW Solar Project in three phases. In phase I tender has been floated under developer model on 29th April 2020 for 1.6 GW capacities in railway plots for open access states. In Phase II, 400 MW capacities in railway plots will be developed for non open access States under ownership model of REMCL (captive use). For this tender has floated on 16th June 2020. In Phase III 1 GW capacity in railway plots along the tracks under developer model will be installed for open access States for which tender has been floated on 1st July 2020.

In the wind energy sector, 103 MW wind-based power plants have already been commissioned. Among them, 26 MW is in Rajasthan (Jaisalmer), 21 MW is in Tamil Nadu and 56.4 MW is in Maharashtra (Sangli). Indian Railways has also planned to set up 200 MW wind energy plants in next 2 years in Tamil Nadu, Gujarat, Rajasthan and Karnataka.

Realizing its role in climate change Indian Railways has started other Green Initiatives like 100 per cent LED illumination of buildings and stations. Indian Railways has also acquired Green Certification from CIII to 7 Production Units (PUs), 39 Workshops, 6 Diesel sheds and 1 Stores depot. 14 Railway Stations and 21 other buildings/ campuses have also been Green certified. Other than this 215 Stations have been certified with Environment Management System (EMS)/ISO 14001.

Total 505 pairs of trains have been converted to Head on Generation(HOG), unleashing approx 70 million liter diesel/ Rs 450 crore per annum potential of saving. Energy Efficiency Studies of all 8 Production Units & 12 workshops have been completed under MOU with CII resulting in 15% improvement in energy efficiency.

In the field of Green Initiatives a total of 69,000 coaches have been fitted with more than 2,44,000 bio-toilets in Indian Railways.

\*\*\*

DJN/MKV/SK

**END**

crackIAS.com