



■ Karnataka

IISc study finds way to power Bengaluru Metro's Blue Line with only solar energy

The report is India's first corridor-scale techno-economic analysis of integrating solar photovoltaic systems into a metro rail traction network.



An installed solar capacity of 83.3 MWp across station rooftops, elevated viaduct parapets, station canopies and depot rooftops would be sufficient to meet the estimated energy demand. File photo| EPS

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BENGALURU: An Indian Institute of Science (IISc) study found that Bengaluru's 55-km Namma Metro Blue Line connecting Central Silk Board and Kempegowda International Airport can achieve 100% annual energy self-sufficiency through solar power using only BMRCL-owned land.

The study estimates Rs 61 crore annual savings, with station rooftops alone enabling 36.5% energy offset. The report is India's first corridor-scale techno-economic analysis of integrating solar photovoltaic systems into a metro rail traction network. The study was conducted by the IISc Sustainable Transportation Lab between August 2025 and March 2026 in collaboration with BMRCL.

An installed solar capacity of 83.3 MWp across station rooftops, elevated viaduct parapets, station canopies and depot rooftops would be sufficient to meet the estimated energy demand.

All 30 stations were identified for solar installations. The phase-1 investment is estimated at Rs 48 crore to Rs 63 crore and is projected to generate annual electricity savings of Rs 36.4 crore from first year, with a payback period of under two years.

The study projected environmental benefits, estimating that phase-1 solar deployment alone could reduce carbon emissions by 44,526 tonnes annually — equivalent to removing nearly 19,000 petrol cars. The 317-km Namma Metro network might reduce it by 1.53 million tonnes.

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