

Kerala plans drive and charge infra for EVs

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Chennai, 9 February

From range anxiety, to lack of charging infrastructure, to long time taken for charging — these are common concerns of users of electric vehicles (EVs).

If things go according to plan, the Kerala government may soon come up with a solution to those.

The state is gearing up to launch wireless EV charging infrastructure next financial year.

Through this charging can be done while driving, and this will make Kerala the first place in the sub-continent to do so. This system depends on copper coils positioned beneath the road surface to charge the EV. “This will be almost like a vehicle through which, instead of the EV, you electrify the road,” said K R Jyothilal, additional chief secretary (power department), Kerala. “We are trying for a pilot very soon,” he added.

Among global majors, Stellantis, the parent company of iconic automotive brands like Fiat, Citroen, Chrysler, and Peugeot, has started similar moves.

According to media reports, Stellantis demonstrated this Dynamic Wireless Power Transfer (DWPT) at Chiari, Italy. The project had used wireless technology from Israel-based Electreon Wireless. Globally, there are only a handful of companies having this technology.

Electreon did not respond to questions from *Business Standard*.

Based on an Electreon presentation, it has done similar projects in Sweden, Germany, France, China, and the United States.

According to the presentation, an Above-ground Management Unit (AMU) transfers energy from the grid to charging infrastructure, while in-road copper coils transfer power to receivers attached to vehicles.

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▶ **Above-ground management unit (AMU) transfers energy** from the grid to charging infrastructure

▶ **Underground management unit (UMU) has the same functionality** as AMU without any visual impact

▶ **In-road copper coils transfer power** to vehicle's receiver

▶ **Vehicle's receiver is installed on the EV** to transfer energy directly to the engine

▶ **Management software monitors** and manages optimal EV charging in real time

Under the new provision of the I-T Act, [Section 139 (8A)], if the mismatch detected is not explainable, the taxpayers can file an updated ITR for two years with additional tax -- 25 per cent for the first year and 50 per cent for the second year.

Sources said a pilot project with a limited number of cases started in September 2022, where about 68,000 notices were issued to explain the mismatch.

"The project resulted in updating about 4,300 ITRs. About 30,000 ITRs are identified as having serious mismatches, which may be taken up for detailed examination," a source said.

In the second cycle, issuing notices began in May 2023, and about 270,000 cases have been identified for e-verification. In the first batch of about 90,000 cases, 12,000 ITRs updated their ITR.

The third cycle of e-verification will be launched in March, when about 300,000 cases may be taken up.

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Later, vehicle receivers installed on the EV transfer energy directly to the engine. Such receivers can be installed on vehicles or companies can come up with special vehicles for that. According to a *BBC* report, the cost of such a project comes to around \$2 per mile, casting a shadow on its viability.

However, experts say the cost of installing will drop as technology matures. Electreon said battery capacity could be reduced by up to 90 per cent, stating an estimated \$53,000 and 48 tonnes of carbon dioxide emission per battery per bus.

Globally, such projects have happened in small stretches. Other major players operating in wireless EV charging reportedly include Continental AG, Daihen Corporation, Delachaux Group, ELIX Wireless, HEVO, and InductEV (formerly Momentum Wireless Power).

The plan to set up wireless charging is part of a road map to boost EV usage in the state and also its renewable push.

In addition to wireless charging, Kerala is planning to experiment with vehicle-to-grid technology too. Through this, vehicle owners can tap renewable energy (solar and wind) and sell it back to the grid, earning some additional revenue too. A pilot project in this regard is also expected to start soon.

The state government is also planning to transform Thiruvananthapuram into the country's largest solar city by 2030, by adding rooftop solar on every building. On the other hand, a report by JM Financial indicates that Kerala has one of the highest EV penetrations in India, especially in terms of two-wheelers, in the January-September period. Its penetration stands at around 12.2 per cent (electric two-wheelers as a percentage of all two-wheelers), which is the highest in India.

This can be compared to 9.5 per cent in Maharashtra, 10.6 per cent in Karnataka, 6.9 per cent in Gujarat, and 5.2 per cent in Tamil Nadu.