Data Analytics for EV Integration

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The Future of Transportation is Electric

Decarbonizing the transportation sector is essential to realizing economy wide GHG reduction goals.

Charging Infrastructure	> Geospatial analysis and site selection. > Driving pattern and range anxiety. > Garage orphans/underserved areas for public chargers. > Load analysis with additional chargers simulation. > Swappable battery charging stations. > Infrastructure Investment/rate design.
Fleet Electrification Feasibility	> Fleet composition - Summary of key stats by vehicle type. > Assessment of fleets' performance - Age/Mileage/Insurance/ Estimated Battery Size. > Route choice/activity location patterns/most halted locations/ Fuel consumption. > Current charging facilities assessment and new site identification. > Vehicle battery charging and consumption simulation.
EV Load Profiling	> Contribution of EV charging on grid load. > EVs clustering on the distribution grid. > TOU incentives to EV owners to charge their EVs in low demand periods. > Electric vehicle driving, charging pattern, charger size and load shape analysis. > EV/PV disaggregation and net metering.
EV Adoption	> Electric vehicle growth forecast and the impact on the grid. > Operational changes necessary to accommodate a growing EV fleet. > Impact of incentivizing electric vehicle adoption. > Census, climate, salary factor analysis. > Customer awareness and engagement.

- Utilities across the world have set bold commitments about advancement of EVs to simultaneously meet customer demand and cut carbon emissions while earning additional revenue.

- Widespread EV adoption requires a utility market transformation, and as such, utilities must make progress on multiple fronts simultaneously and on an expedited timeline to meet their strategic EV objectives.

- Utilities Require a Data Strategy to Realize Ambitious EV Goals - Utilities will achieve greater returns from their existing technology investments by harnessing more accurate and up-to-date EV insights from the energy use data they are already collecting.

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Data-driven planning for EV charging stations and fleet electrification

LTIMindtree is working with a large utility to create an Enterprise Data Strategy Roadmap including EV Analytics being one of the initiatives. The utility has set an ambitious target to electrify more than 60% of its fleet by 2030, by:

- Enabling business fleet electrification.
- Supporting and scaling charging infrastructure.

Charging Adequacy

- Support reliable and affordable charging infrastructure.
- Reduce range anxiety.

Corporate Decarbonization

- Guiding corporate fleet electrification.
- Creating frameworks for faster deployment of viable charging infrastructure.

Optimize Charging Loads

- Vehicle2Grid and Grid2Vehicle management of the charging and discharging behavior of EVs through reasonable strategies and advanced communication.
- AMI data-based grid planning.

Customer Engagement

- Vehicle2Grid and Grid2Vehicle management of the charging and discharging behavior of EVs through reasonable strategies and advanced communication.
- AMI data-based grid planning.

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EV Owner

- Type of Driver
- Trips per day
- Distance and duration
- Source and destination
- Departure time
- Min/Max dwell and moving

Charger Provider

- Charger availability
- Power Rating

OEMs

- Motor Power
- Battery Energy Capacity
- Weather Data
- Hourly Temperature
- Road Condition/Slope

Utilities

- Grid availability
- Load Demand Profile
- Charging Strategy
- Customer Awareness
- Rate Design
- Infrastructure investment
- Energy Market, ESS
- Renewables
- Net Metering

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