

P3436

Type of Project: New IEEE Standard
Project Request Type: Initiation / New
PAR Request Date: 28 Sep 2023
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PAR Expiration Date: 31 Dec 2027
PAR Status: Active

1.1 Project Number: P3436
1.2 Type of Document: Guide
1.3 Life Cycle: Full Use

2.1 Project Title: Guide for Electric Vehicle Charging Load Prediction

3.1 Working Group: Electric Vehicle Charging Load Prediction(SMC/SC/EVCLPWG)

3.1.1 Contact Information for Working Group Chair:

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3.1.2 Contact Information for Working Group Vice Chair:

None

3.2 Society and Committee: IEEE Systems, Man, and Cybernetics Society/Standards Committee(SMC/SC)

3.2.1 Contact Information for Standards Committee Chair:

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3.2.3 Contact Information for Standards Representative:

None

4.1 Type of Ballot: Entity

4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot:
Dec 2024

4.3 Projected Completion Date for Submittal to RevCom: Dec 2025

5.1 Approximate number of entities expected to be actively involved in the development of this project: 10

5.2 Scope of proposed standard: This guide specifies the basic technical requirements of electric vehicle load forecasting for dispatching systems and load aggregation platforms. It includes: forecasting scope, data sources, charging load data correction, charging load analysis, sensitivity analysis of charging load influencing factors, short-term charging load forecasting, and super short-term charging load forecasting. At the same time, this guide specifies the requirements for statistical analysis, predictive evaluation, and functional interface based on prediction methods and consumer technologies.

5.3 Is the completion of this standard contingent upon the completion of another standard? No

5.4 Purpose: As associated with energy independence and environmental issue, electric vehicle has become part of the government policy all over the world. The popularity of electric vehicles, which means the charging load, has posed inevitable impacts on the planning and operation of power system. This guide aims to provide electric vehicle charging load forecasting in the power grid. It is to predict the adjustable power of the electric vehicle charging load at different time scales. It is used to evaluate the capacity that can participate in the primary and secondary frequency modulation of the power system, thereby to save the frequency modulation cost, to reduce the frequency adjustment pressure of the power system and promote efficient energy consumption.

5.5 Need for the Project: With the increasing development of electric vehicle and high penetration renewable energy sources in modern power grids, operational situations become more complicated, largely increasing the operation risk and the control difficulty. In this case, load demand may be from charging stations via electric vehicles, meanwhile, both the large scale electric vehicle charging and renewable power generation bring indeterminacy/uncertainty to these power systems. Thereby, the ability of frequency stability regulation is decreasing and the risk of frequency instability is increasing. Significant electrical

frequency deviation of an interconnection grid can lead to load shedding, instability, machine damage, and even blackouts. Due to this, the precise electric vehicle charging load prediction is one of the best solutions to improve the operation of grid with EV charging and reduce the deviation of system frequency. Currently there is no standard or guide that have been developed in the field of electric vehicle charging load prediction, this project aims to fill in the gap.

5.6 Stakeholders for the Standard: The universality of this guide relates not only to the technical aspects, but also to the adoption of this guide as being pertinent across a number of industries and institutions, e.g., energy supply companies, power grid, and other interested entities.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?

No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project?

No

7.1 Are there other standards or projects with a similar scope? No

7.2 Is it the intent to develop this document jointly with another organization? No

8.1 Additional Explanatory Notes: