

## Abstract

24th IERE General Meeting and PLN Indonesia Forum  
November 19–22, 2024

# Assessment of Hosting Capacity Limits for the Integration of Utility-Scale Distributed Generation

**Limuel Khin L. ESTORQUE**  
Officer, Network Asset Planning, MERALCO  
Metro Manila, Philippines

**Keywords:** *hosting capacity, subtransmission system, renewable energy integration, distributed generation, Distribution Impact Studies (DIS)*

### Abstract

The increasing integration of utility-scale distributed power generation poses new challenges and opportunities for distribution utilities. Traditionally, utility-scale generating plants were connected to the transmission grid. However, as distributed renewable energy (RE) penetration increases, utilities are faced with new challenges in managing the safe, reliable, and efficient operation of their networks. To address these challenges, understanding the network's hosting capacity is critical to ensure a reliable, safe, and efficient system.

This paper outlines a robust methodology for determining the hosting capacity limits, which will serve as a preliminary screening tool before conducting a detailed and comprehensive Distribution Impact Study (DIS). The hosting capacity (HC) methodology provides an initial assessment of how much RE can be integrated into the system at specific locations, considering technical constraints such as voltage regulation and loading conditions. Moreover, the proposed methodology is applied to an actual Meralco distribution network.

Through power system analysis, this study identifies the potential network reinforcements needed to enhance hosting capacity. By implementing this framework, distribution utilities can streamline the interconnection process for RE developers and support the country's energy transition goals. This work underscores the importance of early-stage evaluations or proactive approaches, such as hosting capacity assessments, in maximizing the integration of renewable energy sources while maintaining network resilience and operational reliability.

**Note:** This document will be opened to the participants on IERE website before the Forum and opened to the public afterward.

If there are multiple authors, please put “\*” at the right shoulder of the speaker's name.  
(e.g., Carl YASTRZEMSKI\*)

Please submit the Speaker's Information (Format 4) at the same time as this Abstract.