

# **Assessing feasibility studies on smart microgrid Systems: a global review and methodological Comparison for implementing microgrids in Malaysia**

## **ABSTRACT**

This paper serves as a comprehensive review of past feasibility studies conducted worldwide on smart microgrid systems. The primary focus of microgrids lies in the generation of electricity using micro sources, such as micro-hydro, photovoltaic, or biomass gasifiers. These generated power is then distributed through low voltage networks, catering to a relatively small number of consumers. Malaysia, owing to its geographical location, possesses abundant renewable resources, making it highly suitable for the implementation of microgrids. The adoption of microgrids in Malaysia holds significant potential, offering numerous benefits to the nation and its residents. Prior to initiating a feasibility study within Malaysia, it is crucial to conduct a preliminary study to gain insights into the methodologies employed in previous studies. This review paper concentrates on comparing the methodologies utilized in various studies, including the feasibility study of microgrid installation in an educational institution with grid uncertainty, the feasibility study for 100% renewable energy microgrids in Switzerland, the feasibility study of a microgrid village employing renewable energy sources, the feasibility study for a solar PV microgrid in Malawi, and the feasibility study of microgrid applications in Langkawi and Socotra Islands. By thoroughly examining these studies, this review paper aims to identify the most optimal methodology for conducting feasibility studies on microgrids.