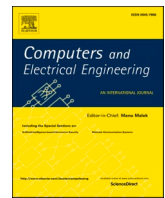




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Augmented energy transformative intrinsic algorithm based improved power quality in fuel cell driven dynamic voltage restorer[☆]

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ABSTRACT

Because of the increased usage of converters, the sinusoidal quality of the electricity generated at the producing station loses some of its merits when it is delivered to the consumer. Thus, power quality issues are raising particularly compared to energy output. Utilization of Increased power converters and non-linear loads causes power quality issues, causing serious damage to end users at low voltage regulation levels. FACTS devices ameliorate power quality, although they may still affect it. An Enhanced Energy Transformative Intrinsic (AETI) Algorithm, an optimal load and line side filter, and voltage management parameters are being studied to lower the injected voltage's Total Harmonic Distortion (THD) and meet IEEE and International Electrotechnical Commission (IEC) Power Quality (PQ) standards. A fuel cell is used to generate DC electricity for the device. The appropriate filters are then generated, and their efficacy is proven by the results using MATLAB/SIMULINK and a hardware laboratory setup.

1. Introduction

The pace of technological advancement is increasing. The demand for electricity is increasing as a result of technological advancement. The complexity of power frameworks has led to a reduction in power quality as they have grown in size and capacity. As electrical gadgets and apparatuses improve, more and more effort is required to keep up with and adapt to their demands. These have pushed the notion of regular delivery, altering the force condition for high-quality power generation [1]. In terms of Power Quality, there are two major categories: short-duration (less than 1 second) and long-duration (more than 1 second) (Long-duration). Protective

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