عنوان مقاله:

A Harmony Search-Based Approach for Real-Time Volt & Var Control in Distribution Network by Considering Distributed Generations Units

محل انتشار:

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نویسندگان:

Hamidreza Izadfar - semnan university

Seyed Javad Tabatabaei - Electrical Engineering Department of Islamic Azad University (IAU), Damghan-Branch, Semnan, Iran

خلاصه مقاله:

In recent decades, the development of telecommunications infrastructure has led to the rapid exchange of data between the distribution network components and the control center in many developed countries. Considering the numerous benefits of the Distributed Generators (DGs), these changes have made more motivations for distribution companies to utilize these kinds of generators more than ever before. The Volt & Var control in distribution networks is one of the greatest control plans which can be influenced via DGs. In this study, a new approach is presented for the Volt & Var control which the output reactive powers of the DGs, Static Var Compensators (SVCs), Load Tap Changers (LTCs), Interruptible Load (IL), and the settings of the local controllers are selected as control variables. The proposed approach is a non-linear optimization problem; hence, a novel and robust meta-heuristic algorithm based on the Harmony Search Algorithm (HSA) is presented with high-speed converge. Also, this paper presents an approach to incorporate the model of the DGs and SVCs in the load flow equations of distribution systems. The feasibility and effectiveness of the proposed approach are illustrated on a real-life distribution network, part of the Tehran province electrical distribution network.

کلمات کلیدی:

Distributed Generation (DG), Distribution Network, Particle swarm optimization (PSO), Volt / Var control

لینک ثابت مقاله در پایگاه سیویلیکا: