(1)

Multi Area Hydrothermal Interconnected Load Frequency Control with Double Fed Induction Generator Based Wind Turbine via Improved Harmony Algorithm

Farag K. Abo-Elyousr, Ali M. Youssef, Almoataz Y. Abdelaziz

Abstract:

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Keywords:

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Published In:

EPCS international journal , NULL , NULL

(2)

Various Advanced Control Techniques for Enhancing Stand Alone Three-Phase PV Energy System Performance

Ali. M. Yousef,Hamed. A. Ibrahem ,Farag k. Abo-elyousr,Moayed Mohamed2, 3

Abstract:

In this research, artificial neural networks (ANN) and sliding mode (SM) controllers are designed for islanded PV energy generation system in order to improve the dynamic PV energy production performance. Time domain simulation results of the PV system subjected to major disturbances are provided and investigated. To prove the superiority of the proposed controllers, the obtained results of the developed ANN and SM controllers are compared to conventional PI controller. From the simulated results, ANN controller shows better performance in comparison to SM and conventional PI controllers.

Keywords:

Photovoltaic system, Stand-alone, neural network, sliding mode control, power flow control, robust control.

Published In:

NULL , NULL , إربد الهندسى الدولى الثانى

(3)

Voltage Sag Improvement of Dynamic and Static Load Distrbution Network by Using D-STATCOM

Ali M. Yousef1, Farag K. Aboelyousr1,2

Abstract:

The main target of this research is to allow the DSTATCOM using 6-pulse inverter to participate effectively in mitigating voltage sags. The basic idea of the voltage sag reduction using a D-STATCOM, which is connected in shunt with the system, is to dynamically inject a reactive power into the utility grid. In this study, 6-pulse inverter operation is conducted using the sinusoidal PWM. The voltage magnitude as well as phase angle are taken as a base to convert the DC link voltage (Vdc) on the capacitor to a voltage source using the developed D- STATCOM. This method offers structural simplicity and less calculation complexity by using Power System Computer Aided Design (PSCAD) software. Simulation results indicate that this method is effective and D-STATCOM has good performance and capable of mitigating voltage sag as well as improving power quality of a distribution system. Static and dynamic loads are used to deem the effectiveness of the developed DSTATCOM.

Keywords:

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Published In:

Nineteenth International Middle East Power Systems Conference (MEPCON), Menoufia University, Egypt , NULL , NULL

(4)

Bi-objective economic feasibility of hybrid micro-grid systems with multiple fuel options for islanded areas in Egypt

Farag K. Abo-Elyousr, Ahmed Elnozahy

Abstract:

The main target of this research is to allow modern distributed energy resources (DERs) to contribute effectively in the economic feasibility of hybrid renewable power generation system. There are several factors such as the net present cost (NPC), levelized cost of energy (COE), amount of greenhouse gases (GHG) emissions, and the ability of the hybrid system to meet the load at different meteorological conditions to consider when evaluating the effectiveness of hybrid generation system within microgrids. A multi-objective based optimization algorithm to reduce cost, emissions, and a combined solution between cost and emissions is investigated in this research. This research presents an approach to optimize a hybrid microgrid (HMG) system with different fuel options. The power management approach determines the optimal sizing of DERs based on ant colony optimization (ACO) algorithm. In order to find the best configuration, the obtained results are compared with genetic algorithm (GA), particle swarm optimization (PSO), and HOMER. Three isolated areas in Egypt with different metrological conditions are selected for optimization of HMG system, namely: Kharga, Saint Katherine, and Qussair. The results show that the combined optimal configuration of HMG system is better in satisfying load demands without violating any restraints.

Keywords:

Hybrid microgrids; Economic feasibility; Multi-objective; Ant colony; Greenhouse gases

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(5)

Multi-Area Hydrothermal Interconnected Load Frequency Control with Double-Fed InductionGenerator-Based Wind Turbine via Improved Harmony Algorithm

Farag K. Abo-Elyousr, Ali M. Youssef & Almoataz Y. Abdelaziz

Abstract:

The main purpose of this research is to allow doubly fed induction generator (DFIG) to participate effectively in interconnected power systems load frequency control via improved harmony algorithm (IHA). In order to tune the parameters of the PI controllers without considering the complexity associated with the modeling of the power system, the corresponding optimization problem is formulated in terms of an objective function, which represents the norm of the closed-loop area control error signal. A three-area interconnected power system subjected to major disturbances is investigated to verify the effectiveness of the developed algorithm of DFIG wind turbine participation in load frequency regulation. Time domain simulation results are presented to prove the improved performance of the developed IHA-based controller compared with genetic algorithm, simulated annealing, and a conventional integral controller. The results show that the developed IHA controller has better behavior over other algorithms in terms of settling times and other indices

Keywords:

improved harmony algorithm, load frequency control (LFC), doubly fed induction generator (DFIG) based wind turbine, PI controller, hydrothermal multi-area power systems

Published In:

Electric Power Components and Systems , Vol. 46 - No. 6 , pp. 615628

(6)

Fuzzy logic controller for a photovoltaic array system to AC grid connected

Ali M. Yousef, Gaber El-Saady, Farag K. Abu-Elyouser

Abstract:

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Keywords:

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Published In:

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Fuzzy facts voltage regulator for isolated wind energy conversion systems under different wind speed and loading conditions.

Ali M. Yousef, Gaber El-Saady, Farag K. Abu-Elyouser

Abstract:

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Keywords:

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Published In:

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(8)

Sliding Mode Control for Three Phase PV Grid Connected Energy System Using LCL Filter

Ali M. Yousef, Hamed. A. Ibrahem, Farag k. Abo-elyousr, Moayed Mohamed

Abstract:

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Keywords:

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Published In:

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(9)

Fuzzy Logic Speed Control for Three-Phase Induction Motor Supplied by Photovoltaic System with a Robust MPPT

Ali M. Yousef, Farag K. Abo-Elyousr

Abstract:

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Keywords:

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Published In:

Journal of Electrical Engineering, JEE, , Vol 17, Issue 4 , pp. 148:162

(10)

Direct Power Control of PV-grid connected using Artificial Neural Network

Ali M. Yousef, Hamed. A. Ibrahem, Farag k. Abo-elyousr, Moayed Mohamed

Abstract:

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Keywords:

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Published In:

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Load Frequency Controller with Virtual Inertia Generator for Interconnected Power Systems via Artificial Bee Colony

Kamel Abo-Elyousr, Farag

Abstract:

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Keywords:

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Published In:

2018 20th International Middle East Power Systems Conference, MEPCON 2018 - Proceedings , NULL , p 367-372

(12)

Load frequency controller design for two area interconnected power system with DFIG based wind turbine via ant colony algorithm

Abo-Elyousr, Farag K.

Abstract:

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Keywords:

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Published In:

2016 18th International Middle-East Power Systems Conference, MEPCON 2016 - Proceedings , NULL , p 253-260