

Conferences > 2023 4th International Confer... ?

Design of a Solar Fed Phase Shift Full Bridge Converter for Microgrid

Publisher: IEEE Cite This PDF

Harshini Panda ; S Pradeep Kumar All Authors ...

93 Full Text Views

Alerts

Manage Content Alerts
Add to Citation Alerts

Abstract

Document Sections

I. Introduction

II. Phase Shift Full Bridge Converter

III. Optimization Algorithm

IV. Results and Discussion

V. Conclusion

Authors

Figures

References

Keywords

Metrics

More Like This

Download PDF

Abstract:
The work suggests utilising the different optimization techniques to design a solar power fed Phase Shift Full Bridge (PSFB) DC-DC converter to feed a 48 Volt DC microgrid... **View more**

Metadata
Abstract:
The work suggests utilising the different optimization techniques to design a solar power fed Phase Shift Full Bridge (PSFB) DC-DC converter to feed a 48 Volt DC microgrid which can be used to satisfy the voltage levels of household appliances. Microgrid is a compact network of electricity consumers with a nearby power source that is typically connected to a centralised grid but has the capacity to operate on its own. These Solar-powered fed PSFBs can also be used to charge these batteries. Solar energy is employed as the converter's input source since it is abundant and simple to install, making it a viable renewable energy source. A MPPT approach is used to get the most power out of PV panels. The duty cycle of the switching signals produced by the MPPT control algorithm are sent to the converter. Salp Swarm Algorithm (SSA) and Emperor Penguin Optimization (EPO) serves as the control algorithm in this situation. They are metaheuristic algorithm that makes sure the PV panel functions at the best voltage and current in order to harvest the most electricity under all climatic situations. The remainder of the solar energy is used to charge the battery when the converter reaches the desired power. By Using Matlab 2015a/Simulink, the overall system efficiency is calculated based on the metaheuristic approach utilised for MPPT tracking. This article suggests a solar-powered fed PSFB that is SSA and EPO based, which works well as an approach for feeding the energy source to the microgrid and battery.

Date of Conference: 06-08 July 2023DOI: 10.1109/ICESC57686.2023.10193430

Date Added to IEEE Xplore: 01 August 2023Publisher: IEEE

► ISBN Information:Conference Location: Coimbatore, India

Contents

I. Introduction

Solar photovoltaic (PV) is a DC renewable energy source, and the current topology links such energy source to the infrastructure for power distribution while necessitating the use of DC-DC converters. As the production of electronic home appliances rises quickly in both homes and workplaces, a DC-DC converters helps in converting the solar power to required power needed to feed a microgrid. While most home appliances are directed towards electronic-based loads, the majority of the current battery-based on-grid or off-grid PV systems are still dependent on an AC environment for power distribution for load. It is time to consider how electronic-based appliances use energy, particularly in uses for PV systems, in order to save more energy.

Authors	▼
Figures	▼
References	▼
Keywords	▼
Metrics	▼

More Like This

Voltage Regulation for Rural Microgrid Stabilization Using Bidirectional AC-AC Switch-Mode Converters

2019 Southern African Universities Power Engineering Conference/Robotics and Mechatronics/Pattern Recognition Association of South Africa (SAUPEC/RobMech/PRASA)

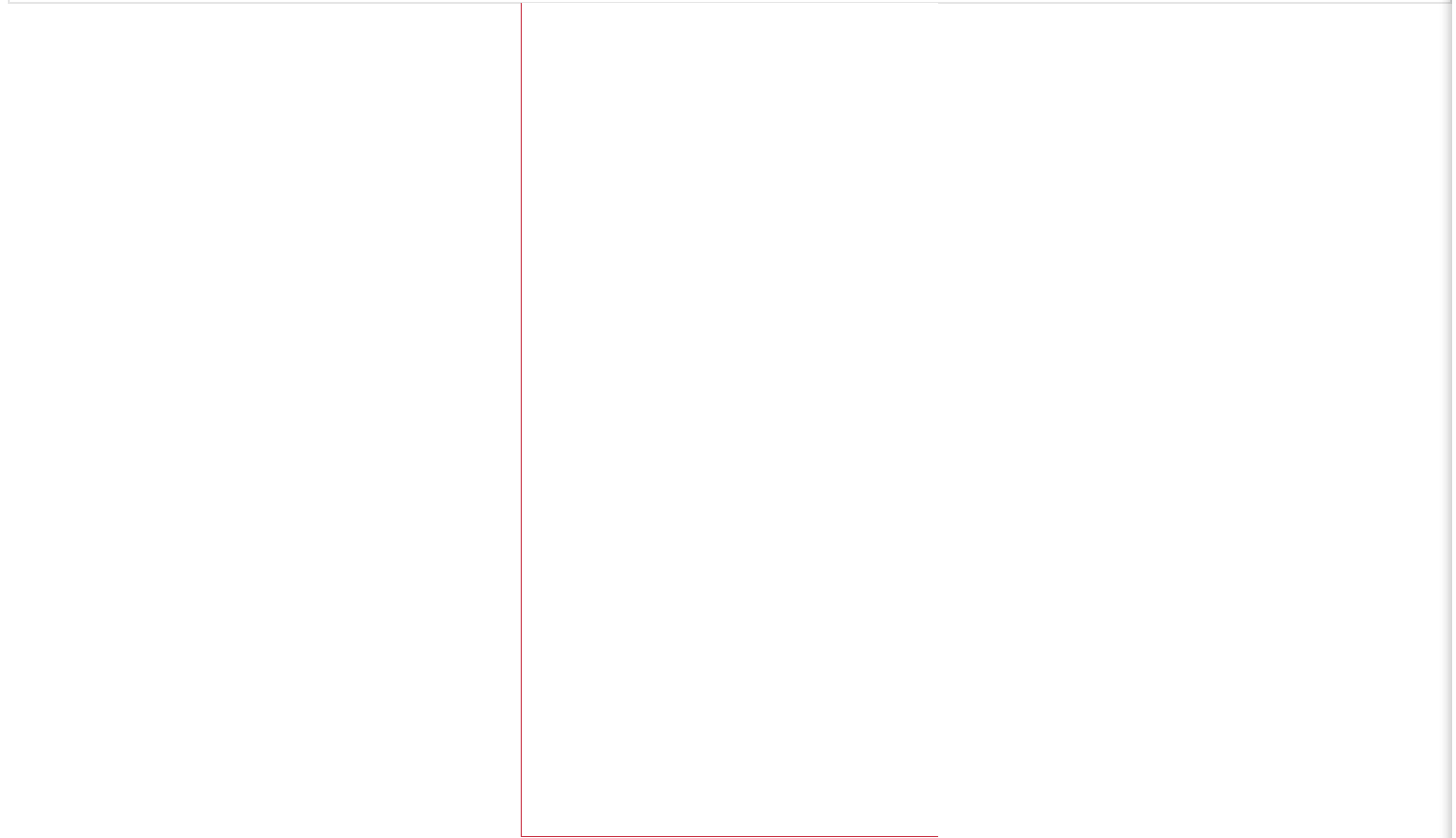
Published: 2019

Research on State Switching Control Strategy of AC-DC Hybrid Microgrid Based on Improved Voltage Loop

2023 Power Electronics and Power System Conference (PEPSC)

Published: 2023

Loading [MathJax]/extensions/MathZoom.js



IEEE Personal Account

CHANGE USERNAME/PASSWORD

Purchase Details

PAYMENT OPTIONS

VIEW PURCHASED DOCUMENTS

Profile Information

COMMUNICATIONS PREFERENCES

PROFESSION AND EDUCATION

TECHNICAL INTERESTS





Need Help?

US & CANADA: +1 800 678 4333

WORLDWIDE: +1 732 981 0060

CONTACT & SUPPORT

Follow



About IEEE *Xplore* | Contact Us | Help | Accessibility | Terms of Use | Nondiscrimination Policy | IEEE Ethics Reporting  | Sitemap | IEEE Privacy Policy

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

© Copyright 2024 IEEE - All rights reserved, including rights for text and data mining and training of artificial intelligence and similar technologies.

IEEE Account

» Change Username/Password

» Update Address

Purchase Details

» Payment Options

» Order History

» View Purchased Documents

Profile Information

Loading MathJax extensions/MathZoom.js

- » Communications Preferences
- » Profession and Education
- » Technical Interests

Need Help?

- » **US & Canada:** +1 800 678 4333
- » **Worldwide:** +1 732 981 0060
- » Contact & Support

[About IEEE Xplore](#) | [Contact Us](#) | [Help](#) | [Accessibility](#) | [Terms of Use](#) | [Nondiscrimination Policy](#) | [Sitemap](#) | [Privacy & Opting Out of Cookies](#)

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.
© Copyright 2024 IEEE - All rights reserved. Use of this web site signifies your agreement to the terms and conditions.