Ethiopia power line communication in smart grid

What are smart grid objectives?

Smart Grid objectives include the integration of intermittent renewable energy sources into the electricity supply chain, securing reliable electricity delivery, and using the existing electrical infrastructure more efficiently. This paper surveys power line communications (PLCs) in the context of Smart Grid.

What is plc based smart grid technology?

PLC based smart grid technologies/solutions are propelling for renewable energy applications in for DC-DC conversion based distributed power system. Fig. 46. The solar energy grid integration system integrated with advanced distribution-power system (DPS) . Active and reactive power management to ensure power quality.

Does smart grid secure data transmission for high voltage grid?

Smart grid secure data transmission for high voltage grid. In: Proceedings of the International Conference on Information Technology Systems and Innovation (ICITSI), 2014. 24-27 Nov. 2014, vol., no., p. 70-75. Paruchuri V, Durresi A, Ramesh M. Securing powerline communications.

Can Narrowband power line be used as communication technology?

Cataliotti A, Cosentino V, Cara DD, Russotto P, Tine G. On the use of narrow band power line as communication technology for medium and low voltage smart grids. In: Proceedings of the IEEE Instrumentation and Measurement Technology. 2012, p. 619-623 Yingjie Sun, Pratt T. Narrowband PLC SIMO-Based Interference Suppression With Zero-Forcing.

How can a wind generator operate in a smart grid?

In order to operate in a smart grid (SG) environment, the proposed system employs PLC technology for transmitting the power references from the control center (CC) to the wind generator through power cables.

What is quasi-stationary broadband power-line communication (QB-plc)?

China in the recent years has developed quasi-stationary broadband power-line communication (QB-PLC) which is an integration of NB-PLC and broadband power-line communication (BB-PLC) technologies,brings advantages within frequency band (witin 1-10 MHz) and delivers high speed data up to 2Mbps,for long distances AMI networks/systems.

PDF | On Oct 23, 2023, Seda Üstün Ercan and others published POWER LINE COMMUNICATIONS FOR SMART GRID TECHNOLOGIES: A LITERATURE SURVEY | Find, read and cite all the research you need on ...

4 ???· A Comparison of smart grid technologies and progresses in Europe and the U.S. IEEE Transactions on Industry Applications. 2012 Jul;48(4):1154-1162. Google Scholar. 6. Barzola ...

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4 ???· A Comparison of smart grid technologies and progresses in Europe and the U.S. IEEE Transactions on Industry Applications. 2012 Jul;48(4):1154-1162. Google Scholar. 6. Barzola J. A hypothetical migration analysis of the PLC based on IEEE 1901.2 Standard. ... Power Line Communication Systems for Smart Grids . 2nd. 2024. If you have the ...

This second edition of Power Line Communications will show some adjustments in content including new material on PLC for home and industry, PLC for multimedia, PLC for smart grid and PLC for vehicles. Additional chapters include coverage of Channel Characterization, Electromagnetic Compatibility, Coupling, and Digital Transmission Techniques.

In an electrical power system smart grid is a network that renewable energy sources along with smart devices. Communication capabilities of the conventional grid can be improved by the inclusion of superior sensing and computing abilities. Device control, remote management, information collection, intelligent power management is achievable by using communication ...

Power Line Communication (PLC) has emerged as a crucial technology in modern smart grid networks. It utilizes existing power lines to transmit data, enabling efficient communication between ...

Power line communication, that is, using the electricity infrastructure for data transmission, is experiencing a renaissance in the context of Smart Grid . Smart Grid objectives include the integration of intermittent renewable energy sources into the electricity

the role that Power Line Communications (PLCs) can have in the Smart Grid. Furthermore, we here report recent results on the electrical and topological properties of the power distribution network. The topological characterization of the power grid is not only important because it allows us to model the grid as

This paper discusses the use of distribution transformers as a power line communication channel and seeks the possible usage in smart -- grid applications and the efficiency of the suggested methodology is given according to BER criterion. This paper discusses the use of distribution transformers as a power line communication channel and seeks the possible usage in smart ...

Smart grid is an automatic power transmission network [1], [2] combining traditional distribution grid and digital communication network for analyzing data from different elements of the grid [3], [4], [5] and achieving reliable transmission of grid data through advanced sensing and measurement techniques. Power communication network is an important ...

This paper investigates the use of Power Line Communication (PLC) for Smart Grid (SG) applications. Firstly, an overview is done to define the characteristics of PLC and PLC-based SG applications are addressed to define the compatibility of PLC. Then, the advantages and disadvantages of PLC for SG applications are

analyzed to improve the issues ...

This paper discusses the use of distribution transformers as a power line communication channel and seeks the possible usage in smart - grid applications. Traditionally, PLC is achieved over the transmission line where all parameters are known for line protection. Generally, transformers are bypassed during this operation because they behave as a low pass filter and are not suitable ...

Power line communications (PLCs) have recently absorbed interest in the smart grid since they offer communication capability in an easy and simple deployment. The main role of PLC access network (PLC-AN), which is constructed with medium and low voltage distribution networks, is to exchange control signals between substations and end users or ...

Power grid topological studies are very important for PLC networking as the power grid is not only the information source but also the information delivery system-a unique feature when PLC is used for the Smart Grid. Index Terms-Smart grid, power grid, power line communications, power line channel, cyber-physical systems.

The design of the Smart Grid requires solving a complex problem of combined sensing, communications and control and, thus, the problem of choosing a networking technology cannot be addressed without also taking into consideration requirements related to sensor networking and distributed control. These requirements are today still somewhat undefined so that it is not ...

This paper makes a first qualitative attempt to better understand the role that Power Line Communications (PLCs) can have in the Smart Grid and reports recent results on the electrical and topological properties of the power distribution network. The design of the Smart Grid requires solving a complex problem of combined sensing, communications and control ...

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