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Photovoltaic Systems, Independent Research Connected to the Network Ground

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Abstract: PV modules are currently used widely in developed countries to create electric power in places where there are difficulties of access or use of electricity networks is expensive. These modules are often used to charge the batteries used by the affiliate to ensure consumers satisfaction. However, in most developing countries, electricity networks, either do not exist or are underdeveloped (particularly in rural areas) and the price is expensive. But, in developed countries, the photovoltaic systems are highly competitive with other sources of energy (especially in countries with high solar radiation levels, and where their use is increasing rapidly. The European Union knows that photovoltaic systems can improve the living standards of 2 billion people which by the World Bank observations have been identified as poor. In this paper, considering the sensitivity of the global community in the use of photovoltaic systems, different modes of photovoltaic systems will be investigated.

Key word: PV, Network, System, Power, Energy

INTRODUCTION

An accelerated program to develop renewable energy in 1997 in addition to the Europen Union with its plans to install 500,000 PV systems on roof tops will make an entrance in Europe by 2015. Plans to install 500,000 PV systems for rural areas until the end of this decade for decentralized electric starter in developing countries have also begun. Therefore, the aim of photovoltaic power is to fight poverty. The clean, cheap and friendly nature of features that this technology have caused the system to be better and more suitable and dependence on photovoltaic energy is better than dependence on fossil fuels (for the needs of people living in remote areas of poor countries). With terrestrial photovoltaic applications, systems can be either photovoltaic systems static (independent of network systems) and photovoltaic systems which are connected to a shared network.

Photovoltaic Systems, Independent of the Network (Self):

Photovoltaic power systems into its own static power can peak power of about several mW to produce several kW. This type of photovoltaic system with no network connection is not an electrical system. In other words, the supply of electric power systems, at times without radiation (eg at night) or with too little a supply (eg, cloudy at times) requires a storage system. And, simply, if the system has sufficient solar radiation to generate electric power then there is no need for a storage system. At present, a very large variety of photovoltaic systems are independent of a network. Examples of use of an area calculator and clock, related to the sun, are in traffic control systems and systems that need to be able to supply electric power in one or more remote areas and buildings. These systems can be DC systems with battery storage, or no battery, or AC system to be designed incorporating an inverter. This forms an overview of the hundreds of applications independent of network systems in global markets offers. Clearly, more than a third of all PV systems, independent of the network, by an independent system of rural and residential networks, are used. An autonomous system can be a producer of PV as a source of additional power or designed hybrid systems. Where there is additional production, fossil fuels or renewable energy, used to produce energy from PV systems have been developed and thus system reliability increases. With selected storage capacity and power production in a PV power source with additional irradiation conditions, the reliability and needs are dependent on economic conditions. Today, makeup applications for PV systems to achieve optimal system performance conditions are dependent upon private enterprise and two billion people around the world have no contact with a public network and about half of these people live in areas that have no access to electricity. Furthermore,

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electrical costs for these areas require large investments. While energy consumption in these areas is very low (less than a day KW1), networks aid the development of different people in remote areas and this option in these areas can generate electricity and power systems, where diesel generators are currently used. A simple system of domestic production from solar photovoltaics (pv modules), and controller battery charge, and offers another form of direct consumption of DC. In addition, support for instruction module and connecting cable are required for this application. These systems called Solar House System (SHS) can supply electric power required for lighting, TV tuners or a small refrigerator. In Solar House Systems basically a simple DC electric power is used. The Independent System pV Production of electric power network is for a single building. When a house has no contact with a public network, Photovoltaic systems are an attractive and economical alternative to diesel engines and are mainly used indoors with AC power network. Thus, one or pv systems are composed of two inverters. Because the radiation intensity with time, day, season, weather conditions can change, a pv system independent of the network to generate electric power used in a building should be saved and one of a battery charge controller is incorporated in its design.

Photovoltaic Systems Connected to the Network:

Pv systems connected to the network, usually by a public electricity network via a suitable inverter (for the PV module delivers only DC power), are discussed. Almost no trace of PV systems on power quality time on national network lines exists and transformers cannot be created. However, for a large share of photovoltaic systems in low voltage networks parameter requirements are calculated. There is no difference in the technical integration of pv systems to a large number of low voltage network as they will be a part of the respective peak times and a Pv system connected to a network can be divided into two types:

Pv Systems Connected to the Network of Non-central:

Pv system connected to a network of a mainly non-central area have a small power system installed on rooves of buildings or on a building's facade and can be combined. In these cases, energy storage is not necessary. Sunny days produce solar and as an example for an application of electric power to a house the excess energy generated is given to the public network. During the night and cloudy days that house is provided for by the public network. In this way (pv system connected to the network of non-central) the electrical network can be used as a large storage unit and needs to be considered. Based on the favorable tariff rates for electricity produced from pv systems, this is an attraction and a big score for power injection using a network of solar electricity.

Pv Systems Connected to the Central Network:

A Pv system connected to a central network can be installed on top of the range are MW. These systems with central station photovoltaic power can be injected directly to the network medium or high voltage applied. The pv system connected to the network and the central non-pv system connected to central networks are composed of two basic parts: pv module, and inverters.

Photovoltaic System Connected to the Network:

A Pv system connected to the network almost in developed countries electric grid as a backup for pv systems or other renewable energy sources that are available is in vogue. Use of the grid will be like having giant batteries for pv systems. National network could force the surplus pv (for example, in the afternoon of summer days) absorbed and available to others and thus the amount of power produced by traditional systems with a common reduction, night or day when the output cloud backs up the system to create pv. Pv systems on a network are connected to the inverter system to move visitors to the network (Grid Commutated inverter) or synchronous inverters (Inverter Synchronous). There is a PV array DC power to AC power voltage and frequency and the network will be enhanced. Meanwhile, the amount of power sent to the electric meter or purchased from the grid is measured.

Pv Systems for non Domestic Buildings:

Pv arrays can also be built on rooves and walls of commercial and industrial training are embedded and replacing them with some rather traditional wall cover or rooves to reduce price. Even with some of the luxury and famous brands the price of traditional coating materials may be covered with PV although prices are higher. On the other hand, commercial and industrial buildings often are occupied in the day. Also one must consider the availability of solar radiation which is fully coordinated, so that the electricity from pv could effectively require the purchase of electricity networks to lower wholesale prices. Also there is a bonus of the

low economic cost of energy derived from pv used on the site that is sold to the public network. There are a lot of non-domestic pv systems connected to the network used in countries like Germany, Japan, Netherlands, Italy, England and America.

Large Electricity Producers Connected to the Network pv:

Huge central pv power systems that are often in the range of a few megawatts in some countries like Germany, Switzerland, Italy and America are used for the local and regional electricity grids. Comparing pv systems for buildings, electricity producing pv has great economic advantages of buying and installing pv modules and accessories at large scale and can also be built on sites that are optimized with solar radiation. On the other hand, they produce electricity for use on site and should not be distributed by networks that require transmission losses and where the regional electricity companies often only pay the wholesale price. It also requires large electricity and produces convincing evidence that the land mass should be purchased or rented or there will be increased cost. Although the land may be less valuable and useless, for example along roads and railways, can be used for this purpose. Land can often also be for other purposes and using the generated electricity by the PV system. In the German site PV is used where there are protected endangered local plants and flowers. In some large power producers of PV, arrays of at least one meter above ground level which are lined up to minimize shading of plants underneath it and even allow sheep and cattle to go under the panel. There can also be other new energy systems like wind turbines along a widespread PV system.

Solar Satellite:

Use of PV power producers connected to the network follows the concept of satellite solar power system (SSPS,System Satellite Solar Power), first proposed about 30 years ago. The idea consists in building a massive PV arrays, each with an area of more than Km 2 50 GB and produce several watts of energy in a fixed orbit around the Earth, respectively. The microwave power waves and the light beam generated by a transmitter antenna, diameter of one kilometer, and of space signal receiving antennae, diameter of 10 square kilometers on the ground, are important and noteworthy. The incoming alternating current (AC) power to the city becomes a national network of electricity to be subsequently distributed. The SSPS advantage, theoretically, is the considerable energy being received from the sun. PV arrays in space may receive solar energy and to the maximum amount compared to land-based availability. On the other hand, too much power will be always available (except during an Eclipse) and no weight and no air space, the possibility of making huge PV arrays and lightweight with no fear of the effects of wind and weather are there (although meteorites can sometimes create problems) as well as engineering challenges and costs of a SSPS necessary which may be very high. Great investment for implementation of a solar powered satellite is required to limit its use leading to several countries increasing their wealth. The issue of focus with regard to subjects decentralized nature of energy, will cause problems, however, and the next issue of harmful electromagnetic waves, microwaves are used. Especially if a technical defect in the immune system occurs, for example, if beams to the receiving antenna are not focused. Telecommunications and radio waves interfering with astronomical Telecommunications can also be a problem.

Conclusion:

PV modules are currently widely used in developed countries to create electric power in places where they are difficulties to access or use the electrical networks and for these cases it is expensive. In these modules often the batteries are charged up by using the continuity to ensure adequate consumption. However, in most developing countries, electricity networks, they do not exist or are underdeveloped (particularly in rural areas) and the price is expensive. Here then, is the photovoltaic system, highly competitive with other sources of energy (especially in countries with high solar radiation levels) and their use is increasing rapidly. Terrestrial photovoltaic applications systems can include both photovoltaic systems static (independent of network systems) and photovoltaic systems which are connected to the shared network. But note that the percentage of PV systems connected to the network over the years has increased rapidly. Photovoltaic power systems into its own static power can peak power of about several mW to produce several kilowatts. This type of photovoltaic system, with no network connection, is not electrical. In other words, electric power supply in the system, only without the radiation over time (e.g., at night) or too little light (e.g., cloudy at times) requires a storage system and is a good system only when solar radiation is sufficient. To generate electric power, there used to be a storage system in these systems but is not necessary. At present, very large variation range of systems are independent of the network. These systems can be DC systems with or without battery storage or as an inverter AC systems, in design. PV systems connected to the network, usually a public electrical network through a

suitable inverter (for the PV module delivers only DC power) are related. Ideally, almost no trace of PV systems on power quality national network, the time lines, transformers can be created. However, for a large share of photovoltaic systems in low voltage networks, the parameters need to be computed. But one sees no difference in technical integration PV systems to the large number of low voltage network as part of the relevant peak load.

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