

# Home solar applications



Outline Introduction 3 Home Solar Applications in Context 3 Solar Thermal 3  
Passive Solar 4 Solar Electric/Photovoltaic (PV)4  
Conclusion7

Works Cited8

## Home Solar Applications

### Introduction

It is common knowledge how homeowners are weighing options between solar power and other sources of energy for domestic purposes. Many people are looking to solar power for such reasons as enhancing overall energy efficiency when it comes to matters of home management (Tiwari, 27). Solar power is known to be a non-pollutant and renewable as compared to oil, natural gas and coal. The United States for instance boasts of slashed energy bills meaning that the country's dependence on imported fuels is minimized (DeGunther, 234). It is worth noting that the process of harnessing solar power has a wide scope. This could be as simple as ' upgrading hot-water heating system or as complex as considering the application of green building design principles.

### Home Solar Applications in Context

Solar power has various applications as regards domestic level of energy utilization. The various categories include solar thermal, passive solar and solar electric.

### Solar Thermal

Berry (88) reveals that these systems are known to use heat emitted from the sun for a number of household purposes including space, water and pool heating through radiant floors. Successful installation of an efficient solar domestic hot-water system translates to the drastic reduction of water

<https://assignbuster.com/home-solar-applications/>

heating, natural gas and electric bills. Tiwari (25) asserts that installation of solar power in homes guarantees financial paybacks in less than eight years. Solar power systems have been accurately designed to be used in almost any location even areas where there is little exposure to direct sunlight (Solar Technologies, 1).

### Passive Solar

These systems operate on the principle of utilizing heat and light from the sun without influence mechanical devices. Passive solar systems are built on the principles of maximum energy efficiency. Glazed windows, heat absorbing thermal mass, south-facing windows, and overhangs are examples of passive solar design (Berry, 110). Additionally, these designs are commonly located on floors and walls that are exposed to direct light through southern windows.

### Solar Electric/Photovoltaic (PV)

This solar power system uses light emitted by the sun to successfully excite photo electron in order to generate electricity. Consequently, solar modules are durable and require exceptionally minimal maintenance. This category of solar power systems is sub-divided into grid-tied systems (with or without battery backup) and off-grid systems the following illustration according Oksolar (1) are meant to give a clear impression solar electric.

Figure 1 depicts the layout of a basic grid-tie system consisting of the solar panel, main utility service unit and utility all interlinked to the utility grid.

Figure 2 is a clear representation of a grid-tie system with backup power.

This is very essential especially in the event of technical hitches that tend to tamper with the normal functioning of the entire system (Rutledge, 1).

Figure 3 is an off-grid system with an inverter and a battery for backup

purposes.

Figure 1 above is a basic grid-tie system with OEM Wind Generator (Oksolar.com). In addition to the main utility service unit, utility grid, utility meter and battery tank, this system is also installed with a diversion controller and the OEM wind turbine as shown in the figure.

### Conclusion

In conclusion, it is important to always consider the essence of increasing home energy efficiency. Solar power systems are reliable relative to this challenge. Today, many practical applications of solar have emerged due to diminishing costs and increasing solar energy technology efficiency. Home owners should, therefore, feel encouraged to establish solar power systems in their respective homes in order to reap the numerous benefits.

### Works Cited

Solar Technologies. “ About Solar Power Applications”. 13 Dec. 2008. Web. 19 Mar. 2013.

Berry, Berth. “ Solar Power for Home Applications” New York: Demand Media. Pp. 76-121.

Oksolar.com. “ Home Solar Energy Complete Residential Solar Systems”. 03 Mar. 2011. Web. 15 Mar. 2013.

Rutledge, Renee. “ Five Practical Applications for Solar Energy in the Home”. 04 Apr. 2013. Web. 18 Mar. 2013.

Tiwari, Gopal. “ Solar Energy: Fundamentals, Design, Modeling and Applications.” New Delhi: Narosa, 2002. Pp. 23-34.

DeGunther, Rik. “ Solar Power Your Home For Dummies.” New York: For Dummies. (2 ed.). 2010. Pp. 203-289.

<https://assignbuster.com/home-solar-applications/>