

Unit 2: Solar Technology

Reading comprehension:

Non-grid Solar Power

Non-grid solar power has typically been used in regions which are in remote areas or in which connection to electricity grid infrastructure is too expensive. The photovoltaic technology is identical; it differs only in no metering or connection to the grid. In order to have access to continuous electricity supply, users have been dependent upon storage systems. The most common option is a standby battery.

PV panels produce direct current (DC) electricity. Often boats or recreational vehicles (RVs) are powered by off-grid solar and consume DC power. Additionally, in remote locations PV electricity has often been used to power telecommunications systems, though this may require other backup power. If the user is powering household appliances, then an inverter is required to convert the DC to alternating current (AC) power. Traditional remote uses of solar power are lighting, cooling, etc, which will require AC power.

Off-grid PV systems that are connected to a battery will first fully charge the battery, and subsequently generate electricity which must be consumed, or the panels can be disconnected. Users can consume any potential surplus power by powering water pumps, creating heat or cooling sources (e.g., storing warm water or creating refrigeration), or other useful purposes. The addition of an inverter to power AC appliances will add substantial cost to an off-grid system, and thus users often try to limit their consumption to DC devices.