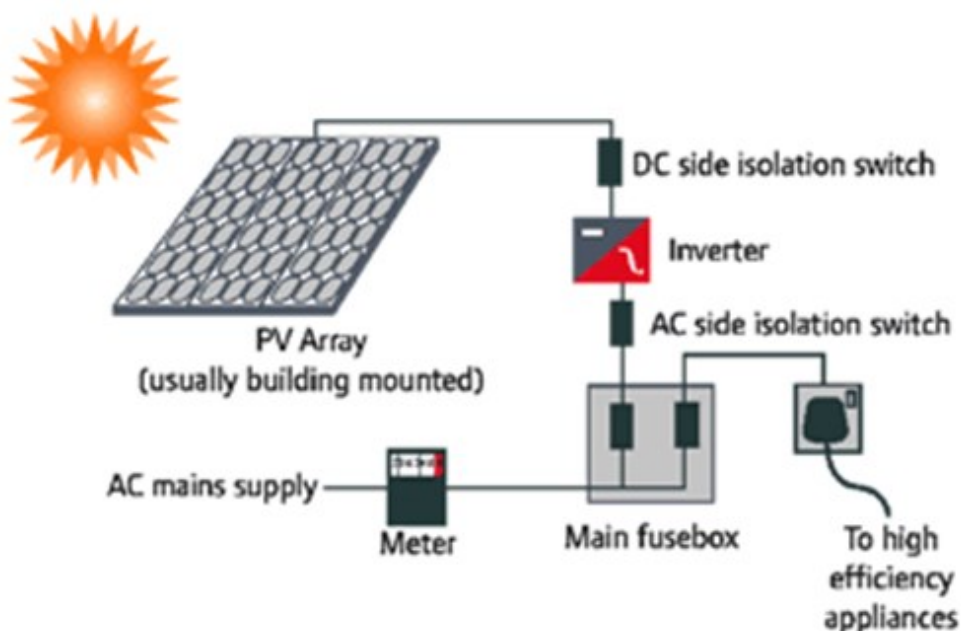


ETHOS Technology Highlight: PHOTOVOLTAICS

The world has roughly enough oil to last until 2050 and enough coal to last until 2088. Since 2002, global photovoltaic production is estimated to be increasing by approximately 20% every year making it the fastest growing renewable energy technology. Currently, there are nearly 140 GW of photovoltaics installed all around the world which are capable of producing a minimum of 160 TWh of electricity annually. This amount of electricity is the equivalent to the production of 32 large coal power plants! The energy from the sun is free and can easily supply the world with all of our energy needs. [1] [2]

Why is it important? [2] [3]

- Coal and natural gas are very harmful to the environment due to the release of carbon dioxide and methane into the atmosphere when they are burned to generate electricity
- The world consumes approximately 84,249,000 barrels of oil per day (equivalent to 3.5 billion gallons of oil)
- Non-renewable energy sources will continue to become more expensive as energy reserves deplete
- The world will run out of resources to generate electricity without alternatives



[4]

FAST FACT

It only takes the sun



MINUTES

to send the world
the same energy we
currently consume in a year

Based on information found at iea.org [2]

Summer 2014 Spotlight

Auroville, India– Energy
Consulting

Bihar, India– Solar Refrig-
eration

Photovoltaic panels are made up of tiny solar cells which are semiconductors typically constructed from crystalline silicon. The figure on the left shows the typical set up for a photovoltaic array. When sunlight strikes the surface of a solar cell, chemical reactions cause the silicon to release electrons that generate a direct electric current. Then, an inverter converts the current into alternating current. The electricity can be used through outlets in our households. An energy meter will monitor your energy production and if you use less energy than you generate, the energy will be sent back to the grid for others to use. On average, solar panels currently have an efficiency of about 22%. The Fraunhofer Institute of Solar Energy Systems holds the world record for producing a solar panel with an efficiency of 44.7%. [4]

[1] <https://www.ecotricity.co.uk/our-green-energy/energy-independence/the-end-of-fossil-fuels>

[2] <http://www.originenergy.com.au/4228/Solar-energy>

[3] <http://www.investinganswers.com>

[4] <http://www.suncraftenergy.net/>