

A Review analysis on Renewable Energy based electricity

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Introduction

It may or may not come as a surprise to learn that before the discovery of coal deposits around the time of the Industrial Revolution, most of the energy we used for lighting and heating was from renewable sources - with one or two exceptions. Then we discovered coal, which fueled the industrial revolution in the western world, and later still learnt to tap oil in greater quantities leading to an acceleration of technologies that would take us into the 20th century. Growth in consumption of coal and oil could end by 2020 due to increased uptake of renewables and natural gas [1]. Renewable energy systems are rapidly becoming more efficient and cheaper and their share of total energy consumption is increasing [2]. Renewable energy source presents a viable solution for meeting future energy demands. Coal, Petroleum and other sources of power generation techniques makes major environmental impacts. Also fossil energy sources might not be surplus in future scenario, perhaps will exhaust.

Historical development

Renewable energy is exactly what it sounds like: energy which can be renewed, unlike gas, oil, or coal, which is a limited energy source. Renewable energy sources are typically more eco-friendly and cost effective, although they haven't always been so. Let's take a look at the history of renewable energy with the brief timeline below.

200 B.C - Waterwheels are used by Europeans to produce energy used in mills.

1590's - The Dutch build their infamous, enormous windmills to generate power for nearly everything.

1821 - First Natural Gas Well in US Is Drilled

1830s - Ethanol Blend Becomes Popular Lamp Fuel in US, Displacing Whale Oil

1838 - First Hydrogen Fuel Cell Developed to Generate Electricity

1850's - Windmills have now become popular in the American Old West to pump water for settlers and railroad workers.

1860 - The first solar power system, called a "sun meter" is developed in France by Augustine Mouchet to Produce Steam to Drive Machinery

1862 - Abraham Lincoln Enacts an Ethanol Tax to Help Finance the Civil War, Severely Hampering the Ethanol Fuel Industry

1876 - The first demonstration of how electricity can be generated directly from the sun through a selenium solar cell is performed by William Grylls Adams - along with his student, Richard Evans Day.

1882 - Thomas Edison builds the first electric plant in New York, and the first commercial hydroelectric plant begins operating in Appleton, Wisconsin.

1888 - Charles F. Brush invents the first windmill used to generate electricity in Cleveland, Ohio.

1905 - Famed scientist, Albert Einstein, publishes the first theoretical paper detailing what is called the "photoelectric effect." It describes the energy contained in light cells, and how that energy may be harnessed.

1927 - The first commercial wind turbines are sold to remote farmers to generate electricity.

1935 - The Hoover Dam, which is the world's largest hydroelectric plant, is built on the Colorado River, in Arizona.

1951 - The world's first nuclear power reactor is built in Idaho during scientific testing on how to use nuclear power to generate electricity.

1953 - Gerald Pearson, Daryl Chapin, and Calvin Fuller of Bell Laboratories develop the first silicon solar cell.

1957 - Shippingport, Pennsylvania becomes the home of the first commercial nuclear power plant.

1958 - The first US satellite in orbit uses solar energy as its power source.

1978 - Tohono O'odham Reservation in Arizona is the world's first solar powered village.

1981 - The world's first large scale solar-thermal plant (Solar One) begins operation in Daguerre, California.

1986 - The world's first windfarm is constructed in New Hampshire.

1996 - The Solar Two Plant demonstrates a more cost efficient form of storing solar energy.

2009 - The US announces allocation of \$467 million in Recovery Act Funding for the development of Solar Energy.

2014 - The world's largest concentrated power generation plant (Ivanpah) goes live.

June 2, 2014 - EPA Proposes First Ever Rules to Reduce Carbon Emissions from Existing Power Plants.

Sep. 22, 2014 - Rockefellers and over 800 Global Investors Announce Fossil Fuel Divestment

Aug. 3, 2015 - President Obama Announces Clean Power Plan, Imposing the First Nationwide Limits on Carbon Dioxide Emissions from Power Plants

Mar. 28, 2017 - President Trump Signs Executive Order to Begin Reversal of President Obama's Clean Power Plan

May 9, 2018 - Solar Power to Be Required on All New California Homes by 2020

Green technology is here to stay, and it is already providing jobs all over the world, just as the fossil fuel industry does at present. The biggest economic advantage to localizing our energy supply is that most of the money spent goes to those people producing the raw parts rather than to importing products at great cost that provides fewer people with jobs and is not good for the economy or the environment.

The picture of this very early solar furnace used by Lavoisier in 1774 is presented in figure.1. It was used to study the properties of metals by melting them by solar radiation in a very pure environment (Trombe 1955). The Mouchot's solar power engine, as it was presented, in the 1778 Paris exhibition. the collected solar energy, in the solar concentrator drives a steam engine to operate a press. The press was used to print during the exhibition the "sunshine journal"(teller 1979).

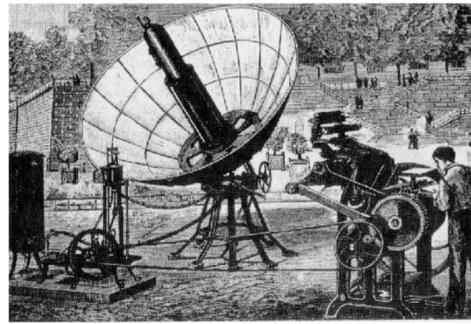
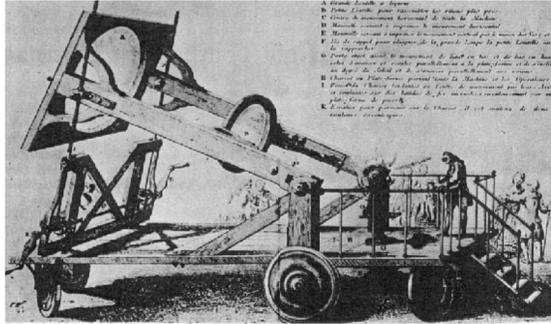


Fig1.The first large solar furnace built 1774. Fig 2. The Mouchot's solar power engine.

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- [2] Global renewable energy trends". Deloitte Insights.
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