

Benefits And Drawbacks Of Companies Using Solar Energy

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Introduction

Petroleum (fossil oil) products may be one of the best wellsprings of vitality that forces and impacts mankind's history. Coal, oil and gaseous petrol are the essential providers for the greater part of the energy needs over the world (Fronk, 2014). Moreover, in the business, petroleum product-based vitality had a noteworthy part in the Industrial Revolution. As indicated by Bulmer (2010), petroleum derivatives were the focal wellspring of vitality required in 'the Fossil Fuel Revolution' or the Industrial Revolution (p.197). Since the eighteenth century, non-renewable energy source utilizations have ended up being one of the key components that empowered the application and utilization of apparatus, improving the economy and way of life all-inclusive. Be that as it may, this mechanical development has a few negative effects on the earth and general wellbeing parts.

A piece of creating energy from fossil products is that it requires consuming coal, oil or flammable gas. The principal worry of this method is that it will build ozone-depleting substance discharges, for example, carbon dioxide (CO₂) levels in the air (Klare 2009). Therefore, generous natural issues would happen, for example, environmental change and air contamination. Regarding environmental change, a current research paper sets up that the consistent consumption of non-renewable energy sources will prompt an expansion in the temperature of the earth, probably raising the level of ocean water because of the softening ice that is caused by an Earth-wide temperature boost (Brown, 2016).

Contamination of Air, additionally coming from consuming this wellspring of energy, is likely to bring about genuine general medical issues, achieving fatalities. Darker (2016, P.27) states, 'the well-being effect of breathing air contaminated by consuming petroleum derivatives, as found in the three million individuals who bite the dust every year as a result of outside air contamination'. Non-renewable energy sources were the helpful alternative because of their minimal effort and high effectiveness. Be that as it may, it has been found to contrarily affect the earth and human prosperity with a high potential for additional negative ramifications in the forthcoming future. In this manner, in light of ecological, well-being and financial reasons, the world needs new wellsprings of vitality that are safe, inexhaustible, dependable and naturally neighborly to guarantee manageability.

New innovations uncovered meaning to supplant or limit the use of petroleum derivatives utilizing elective normal and sustainable power source assets, for example, the sun and wind. In this manner, sun-based power was first perceived to be an elective wellspring of energy back in the late nineteenth century. Per (Coughenour, 2014; Perlin 2013), additionally upheld by the innovators Augustin Mouchot and Abel Pifre through their logical tests to exploit daylight control in France. The investigations had

effective results by utilizing sun-powered energy to print 500 duplicates of a daily paper in 1880. Be that as it may, this achievement couldn't be countered in light of the atmosphere conditions in France, where there was insufficient daylight for sunlight-based gadgets to work legitimately.

Therefore, Jones and Bouamane (2012) show there were a few increments in the advancement of the sun-powered vitality industry, from sun-based water warming frameworks in the United States to sun-oriented fueled water systems in Africa, and researchers' interests in sun-based power were also expanding. In the year 1954, the Photovoltaic Cell (PV) was a noteworthy creation of sunlight-based vitality, where these cells were found to get sun radiation and change over it to electric power. This creation was embraced by NASA in 1964 and additionally connected to control satellites utilizing PV cells. Also, amid the oil emergency in 1973, tree huggers and lawmakers of the United States government came into the choice to reevaluate the significance of sun-powered control over oil wellspring of vitality (Johnson, 2015).

From that point forward, the sun-powered vitality industry picked up an abnormal state of acknowledgment because of its exceedingly positive effect on the earth and financial segments. Truth be told, Mekhilef, Saidur, and Safari look into (2011) outline that partnerships are at present thinking about the sustainable power source, particularly sunlight-based vitality, to be connected in their areas while petroleum products are uncovered to be a costly alternative with huge negative ecological effect and commitment towards nursery outflows. A few organizations around the globe discovered more about sun-powered power applications and their favorable circumstances on their business proficiency. Extensive organizations, for example, Apple and McGraw-Hill, are, as of now, very contributing and relying on sustainable power sources, including sunlight-based vitality (Goiri et al., 2015). As per the Apple Environmental Responsibility Report (2017), the sustainable power source is planned to engage 100% through framework changes in accordance with Apple Park grounds, which, as of now, gets 75% of its working force from PV cells set up on building a rooftop.

The purpose of this research is to answer the research question, which is '*What are the benefits and drawbacks of companies using Solar Energy?*' encapsulating positive aspects of using solar energy on a commercial scale instead of using traditional fossil fuel sources, which have proven to be harmful to the environment and public health. Furthermore, consider the drawbacks and the difficulties in addition to potential barriers eliminating companies worldwide to obtain all possible advantages using alternative energy sources.

Literature Search Strategy

Research question:

1. What are the benefits and drawbacks of companies using Solar Energy?
2. Does the use of solar energy cause pollution to the environment?
3. Does the use of solar power cause harm to individuals or companies using it?

4. In terms of buying price, how is solar power compared to other renewable resources?
5. How costly is the maintenance of solar power?

Search Terms

Solar Energy

General overview use of Solar Energy (no keywords used). However, the information obtained will be evaluated for the correct hypothesis and conclusion on the benefits and drawbacks of Solar Energy use.

- The efficiency of solar energy to companies
- Emissions (harmful or not)
- Weather Dependency
- Pollution
- Maintenance
- Technological development

Companies

- Companies Embracing Solar Energy
- The cost of the use
- The Environmental Benefits and Hazards
- Global Warming

Review Thematic

With the positivist approach we used in the research, our study adopted the deductive method (Saunders et al., 2007). The kind of approach employed explored the usage of solar energy by the big companies and the bid as to why they chose that form of energy. We came up with diverse qualitative as well as qualitative analyses to justify the hypothesis of the study.

The inference after checking the consumer reaction and subjectively by intuition, sensation and reflection through quantitate analysis (Easterby, 2002). The approach used in the study showed that by logical reasoning, the results, theory and research all correlated. The data we collected would be later compared with the theories in the literature, thus ascertaining the facts published in the journals.

The search for future energy dawned on the use of solar energy, which exhibited a wide range of benefits and disadvantages. The case study of solar energy projects established jointly by Sun Power

and Apple succeeded a great deal as it strengthened international relations as well as promoted the brands. Through extensive research, we were able to identify the benefits of companies using solar energy and the drawbacks were also evaluated.

Discussion

Benefits of Using Solar Energy

The benefits that companies enjoy from using solar energy range from reduced cost, renewability, diversity in application, low maintenance and technological aspects.

First off, solar energy is a renewable source of energy; therefore, it can be harnessed worldwide and also available daily. Solar energy cannot be depleted as long as the sun is available, unlike the other sources of energy (Mekhilef, 2011,p.1782). That is why companies that use solar energy are in the right direction because, according to research, solar energy will be available in up to five billion years to come. Companies embrace the installation of solar to provide them with energy. For instance, Prologis – 108 MW, Hartz Mountain – 23 MW (megawatts), Macy’s – 39 MW, Kohl’s – 50 MW, General Growth Properties – 30 MW, IKEA – 44 MW, Apple – 94 MW and Costco – 51 MW have all respectively installed these diverse solar capacities to enhance their smooth operation.

Maintenance-Free and dependable

Once set up, a solar energy system requires a diminutive or no continuance fee at all, most particularly if there’s no battery being utilized (Camacho 2012). The system provides electrical energy silently and plainly for 25-40 years. The silence of the solar panels helps the organizational workforce to work in a clean environment. The warranty given by solar power companies carries a 25-year warranty or guarantee that helps the companies save much if the solar panels break up (Maehlum 2017). There is no stirring part occupied in a good number of applications in solar energy. There is no clamor linked with photovoltaics, and this contrasts positively with certain other green technologies, i.e., wind turbines. There is a low maintenance fee for the solar panels. The common solar power systems found today do not require much or a lot of maintenance. Built-up solar panels, more often than not, need cleaning a number of times a year. Serious solar producers ship 20-25-year warranties, as discussed above.

Earning the “Green” Label

According to Philibert (2011), one hour and thirty minutes of sunlight is enough to provide the whole planet with the energy or power it needs for a whole year. Companies that use electrical energy from solar energy save much while they ensure that they reduce pollution and greenhouse gas emissions.

By making use of this alternative option, any company or business is able to express its contribution to the fight against reliance on foreign sources and the fight against global warming (Writing 2018). Going green not only decreases business operating costs but it acts as an immense marketing and PR device. Solar power is milieu-friendly as it does not pollute the air. However, there are emanations linked to the transportation, manufacturing and setting up of solar energy systems almost nil contrasted to most conservative power sources. Solar power reduces the companies or firms reliance on non-renewable power sources, and this a significant footstep in fighting the weather catastrophes (Writing 2018).

Abundance and Many Application

The prospect of solar power is beyond one's thoughts. Solar power is accessible all over the planet (McDonald 2010). Not only can the nations that are near to the Equator set a solar power to make use of. For example - Germany has by distant the maximum aptitude for solar energy on the earth (McDonald 2010).

Solar power can be used for countless diverse reasons. It can be utilized in producing electrical energy in areas that are short of a grid link, for cleansing water or for distilling H₂O in Africa. Solar power is also referred to as "The People's Power," meaning it is, without doubt, usable for consumer intensity (both solar thermal and photovoltaic) (Latin American Energy Organization, 2012). With the invention of flexible FTF cells (thin-film solar), solar energy can even be ostensibly incorporated into the fabric of structures (houses incorporated photovoltaics) (Writing 2018). In Japan, there is a solar firm, Sharp, that lately began to manufacture transparent solar energy windows.

Reducing Electricity Bills

When a company incorporates solar energy, the electricity bills are reduced a great deal. The sum of savings on your bill will be dependent on the traverse of the adjacent planetary gathering and your energy or warmth use. Likewise, not solely will your spare cash be on the power charge, but if you make more power than you use, the surplus will be conveyed back to the grid, and you will get additional portions for that whole (considering that your sun-based board structure is related with the system). Venture assets can furthermore be created in case you offer excess power at high rates in the midst of the day and, after that, buying power from the framework in the midst of the night when the rates are lower.

Disadvantages of Solar Energy

Solar energy cons are actually not so many. In fact, the only noticeable drawback to solar power that is highly known is that the sun does not shine every day or 24 hours a day (Shahan 2013). When the sun is heavily shaded or goes downward, solar PV panels discontinue their production of electrical

energy. If the companies need electrical energy in that instance, the firms have to obtain it from some supplementary resources. In other words, the companies or the firms cannot be 100% power-driven by solar panels. Again the companies require batteries to stock up electrical energy created by solar panels for utilizing a little bit later (Shahan 2013). Below are the disadvantages of using solar energy.

Expensive

There have been many questions about whether solar power or energy is expensive. Perhaps this is the most arguable facet of the whole solar power cons and pros list. The dynamic forces following the growth of solar power are entrenched in politics (Smith & Carpentier 2012). Solar energy is incentivized to contend alongside the other power sources in the bazaar. Conversely, the American government, just like the other countries in the world, offers encouragement to every main power production marketplace, not only solar. In 2010, oil obtained 1,189 billion dollars in federal financial support and subsidies for electricity manufacturing, whereas solar energy was \$968 billion (Smith & Carpentier 2012). At present, the most excellent solar panels are, in numerous situations, less costly than buying electrical energy from the utility. Without the incentives, this would not have been achievable.

The primary prices for purchasing or buying solar structures are moderately high. Although the United Kingdom administration has set up some systems for persuading the implementation of renewable power resources, for instant, the feed-in tariff, the companies or the firms still have undergone the upfront overheads or expenses. Mainly, it comprises reimbursement for solar panels, batteries, inverters, installation, and wiring (Smith & Carpentier 2012). Nevertheless, solar expertise is continuously mounting, so it is not dangerous to take for granted that costs will go downward in the future.

Intermittent and Weather Dependent

Solar power is an irregular power source (Smith & Carpentier 2012). Access to sunshine is restricted on certain occasions (e.g., night and morning). Predicting cloudy times can be hard. For that reason, solar energy is not the company's first option when it comes to getting together with the bottom load power demand. On the other hand, solar energy has less tribulation than wind energy when it comes to alternating. Though solar power can be accumulated or assembled during rainy and cloudy days, the effectiveness of the solar structure goes down. Solar panels are reliant on sunshine to efficiently collect solar power energy (Smith & Carpentier 2012). As a result, a few rainy or cloudy days can have an obvious consequence on the energy structure.

Solar power can be collected effectively in areas where there is high radiation (Hufermann 2011). Companies need to take into account that solar power cannot be gathered during night-time. Conversely, on the other hand, if the firm also requires the company's water heating way out to work

at hours of darkness or during winter time, thermodynamic panels are an option to think about. As discussed above, the company's location can limit its benefits. It is obvious to say that solar panels need sunshine to produce electrical energy (Smith & Carpentier 2012). The companies in locations where they experience little sunshine find it difficult to use solar energy. Investing in solar structures although it is a good idea, the company needs to look at several factors. Recouping the company's capital expenses may take time depending on a mixture of both the experience of the company's panels reaching the sun and the business's physical footprint or location (i.e., how many panels the firms install and where the company stores them). What seems not understood is the markdown the company is eligible to obtain and the set of laws the company has to follow (Klare, 2009). Also, it largely depends on the company's facilities where they are located and the important impact on the company's economics. Fortunately, there are copiousness online resources that can assist the company finds out exactly what the set of laws and accessible credits are found in the company's region/area.

Energy Storage is Costly

Energy storage space systems, e.g., batteries, will assist in smoothening the load and demand, making solar power energy steady, but this expertise is also costly (Hufermann 2011). Fortunately, there's a high-quality connection amid the company's access to solar power or energy and individual power demand. The company's electrical energy demand hits the highest point in the middle of the daylight hours, which also turns out to be similar to occasions where there is a lot of sunshine (Jones & Bouamane, 2014). Solar power needs to be used or utilized right away, or large batteries can be used as storage systems. The batteries used in the solar systems (off-the-grid) can be powered or charged throughout the daylight hours so that the power is utilized at night. This is a good quality resolution for using solar power all daylight hours, but it is also fairly costly (Brennan 2016). In a large number of cases, it is elegant to presently employ solar power throughout the daylight hours and take power from the gridiron in the night-time (the firm can only do this if its system is linked to the gridiron). Fortuitously, the firm's power demand is typically higher throughout the daylight hours, so the company can convene most of it with renewable power (solar power) (Brennan 2016).

Associated with toxic waste

While solar energy is definitely less poisonous than fossil energy, some tribulations are present. Some manufacturing progressions are linked to greenhouse gas release (Zehner 2012). Sulfur hexafluoride and nitrogen trifluoride have been highly linked with the fabrication of solar panels (Zehner 2012). These gases are potent greenhouse gases that, many thousand times, have caused global warming as compared to CO₂ or carbon dioxide. Installation and transportation of solar energy systems can also circuitously cause greenhouse gasses or pollution (Fronk, 2014).

Although greenhouse gases connected to solar power systems are far less contrasted to other energy

production sources, solar power can be linked with toxic waste. Installation and transportation of solar structures have been linked with the release of gases such as greenhouse gases (Sunpower.org 2016). There are also some hazardous products and toxic materials utilized during the development procedure of solar photovoltaics that can circuitously affect the surroundings (Sunpower.org 2016). On the other hand, solar power contaminates far less as compared to other alternative power sources. To ascertain this, there's nothing that is totally risk-free on the power plant, but solar energy contrasts very positively with all other technology.

Requires Space

W/m² (watt per square meter) or power density is necessary when glancing at how much energy can be obtained from a definite region of real estate on a power basis. Low energy density shows that too much real domain is needed to offer the energy that the companies or the firms demand or need at reasonable costs (Maehlum 2017). The international mean energy density for solar emission is 170 W/m². This is supplementary to any other power source that is renewable but not analogous to nuclear power, oil, and gas. The more electrical energy the companies need to manufacture, the more solar the companies will require since the firm requires collecting as much sunshine as possible. Solar panels need a lot of room, and some rooftops are not large enough for the number of solar panels that the company may require to have.

The up-front expenditures of solar are high.

There is no refuting that going solar costs cash, and the firm's original or initial capital venture in a profitable solar structure can take numerous years to prove or show ROI. As with any important procurement, it is imperative to think about how the company's venture in solar energy supports or aligns with the company's overall goals or strategy and make a judgment accordingly (Goiri et al. 2016). A company with many up-front operating costs can be lessened by other investment alternatives, for example, leasing the structure from the company's provider or entering into a solar PPA (power purchase agreement).

A plentiful and renewable power resource is also sustainable. Solar energy plays a great role in ensuring that the organization's machines can work well by providing them with power. In homes, people use solar energy for cooking and lighting their homes (Boxwell 2016). Solar power is sustainable because there are no means that organizations can over-consume it. The use of solar systems helps the firm to undertake organic farming. In the future, it is anticipated that many countries will employ the use of solar energy as it is cheap and environmentally friendly. Solar power saves the company a lot of money, and the solar providers have it that by venturing into a solar structure, the business is able to reduce its electricity bills. Depending on the location, size, and effectiveness of the company's installation, the company may even get rid of them completely (Sunpower.org 2016).

The power the company draws from its planetary panels is not only utilized to power the company's facilities but it can also be used to power other buildings. When it is sun-drenched, the company or the firm is likely to supply superfluous power to the gridiron. Then, on other not-so-sunny days or nights when the company needs power, the company can make use of that credit to counteract the price of the electrical energy the firm is pulling or getting from the gridiron (Sunpower.org 2016). For most companies, the main rationale for undertaking solar is to accumulate and save money with a number of the companies predicting to save thousands of dollars and more in electrical energy costs.

Conclusion And Recommendation

Today, numerous organizations spend a considerable measure of cash on power and oil to create control in their associations. With the repetitively rising interest and a need for electric power, enterprises are searching for the less expensive vitality that can enable them to accomplish their objectives. Among the sustainable power source supplies that the organizations are receiving is sunlight-based power. Sun-powered power has numerous preferences when contrasted with different wellsprings of vitality. Sun-powered power can be used for incalculable assorted reasons.

In homes, sunlight-based power can be utilized for refining H₂O, giving knob lights in the evenings or during the day, and can be utilized for other family gadgets, i.e., TVs, ice chests, microwaves, and so on. In workplaces, sun-powered power can be utilized to guarantee the effective development of machines, lighting globules, work PCs, and so on. Once a firm sets up a sun-powered board in its association, the vast majority of the expenses are lessened. For instance, the support cost, the power charge, the oil bills, and so forth. A sun based vitality framework can furnish the organizations with the vitality that is more affordable when contrasted with different wellsprings of energy, i.e., power. The administrative workforce can work in a shining climate where there is no clamor. Additionally, the organizations can guarantee that they lessen and diminish contamination and ozone-harming substance generation.

The certification given by the sun-powered vitality associations (25-year ensure) encourages the associations to spare a great deal of cash if the sun-based board breaks before 25 years are finished. Contingent upon the effectiveness, size, and area of the authoritative set-up, the enterprise may buy sun-oriented boards that fit their structures or boards that can have the capacity to supply enough energy to the association and its staff. As the sun-based boards, for the most part, rely upon the sunbeams, when it is bright, the business or the firm is probably going to give unnecessary energy to the lattice, and this can be put away for the future time when there is no sun. Dedicating and utilizing sun-based power gives long-haul reserve funds and fast payback. Inexhaustible and ample vitality or power assets guarantee that the association can get the most extreme power that it can use in its tasks.

The hindrances of utilizing the sunlight based boards are that the setting up and transportation of heavenly bodies are connected with the arrival of gases, for example, ozone-harming substances.

Additionally, the reliance on the sun is a noteworthy impediment as sun-oriented boards may not get control amid the stormy season and amid the evenings, i.e., at the point when the sun plummets, sun-based PV boards stop creating electrical power. Sun-powered vitality is boosted to battle close by the other power sources in the market. Sunlight based vitality is a topsy-turvy vitality source. Access to daylight is restricted at specific events, and this is a noteworthy disadvantage for sunlight-based power.

In spite of the fact that sun-powered vitality can be gathered or amassed amid shady and blustery days, the productivity of the galaxies goes down. Sun-based boards are reliant on daylight to effectively gather sunlight-based vitality. Therefore, a couple of blustery or overcast days can have a conspicuous outcome on the vitality or power frameworks. Companies require considering that that sun oriented vitality can't be gathered in the evening time. Certain sun-oriented cells require assets that are expensive and phenomenal in regular history, especially verifiable for thin-film planetary cells that are discovered either on CIGS (copper indium gallium selenide) or CdTe (cadmium telluride).

Then again, the American government simply, like alternate nations overall, offers support to each fundamental power generation organization to guarantee that the nation can upgrade its monetary development. Despite the fact that the U.K government has made a few structures for impacting the working of sustainable power assets, for example, the bolster in duty, the organizations still experience forthright costs or overheads. There is a requirement for organizations to hold onto this vitality as it is less expensive and it spares a lot of money. Likewise, the administrations require ensuring that the costs for sun-powered boards are directed with the goal that numerous people and enterprises can buy them.

Limitations

- Gaining Access to the physical companies mentioned
- Language: English
- Human Effects and Environmental Effects
- Dates of publication: 2002-present
- Exclusions: physical impact, direct health impacts, transportation noise (road, rail, air), durability span.

Databases

- Princeton Library
- Energy Science and Technology Database (EDB)
- Energy Citation Database (ECD)
- EBSCO
- OECD iLibrary

- EBSCOhost Web
- Proquest library
- INSPEC
- SEIA

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