POLICY REVIEW

Impact of Renewable Energy Policies on Sustainable Development

Abstract

Renewable energy policies have a major impact on sustainable development such as reducing greenhouse gas emissions, improving air quality (pollutants), increasing energy security such as(Natural gas, nuclear power, and coal), and creating jobs ( such as manufacturing, installations, and maintenance). This study shows that renewable energy sources such as solar and wind power, do not produce greenhouse gases which are a major contributor to climate change, countries can reduce their emissions by adapting to renewable energy which helps to mitigate climate change. Burning of fossils such as coal and oil release pollutants into the air which causes respiratory problems and other health problems renewable energy sources can help to improve the air quality. Renewable energy sources can also reduce poverty, improve health, and protect the environment by countries creating a more sustainable future for all, like in the United States, the renewable portfolio standard (RPS) has helped in the increase of renewable energy such as solar and wind power which has been of great significance in the renewable sources.

Introduction

Renewable energy is acquired from natural processes that are recreated constantly, it derives directly from the sun, or heat that is generated deep within the Earth. Its flows involve natural experiences such as sunlight, wind, and geothermal heat. It all started in the 1590s in the Netherlands where they discovered the use of windmills which were changed to wind turbines. A windmill worked through its blades and rotor shaft which were used to pump water and mill grains. After several centuries water was used to generate electricity which was called hydroelectric power that worked by capturing the energy of falling water which was stored in a reservoir that was released by a dam. Over the years there has been a discovery of other methods (such as solar energy, biomass, and geothermal energy) which have helped to reduce climate change. The intergovernmental panel on climate change (IPCC) was established in 1988, which helped to raise awareness of the need to reduce greenhouse gas emissions and promoted the use of renewable energy sources to reduce climate change. The Paris Agreement was made in 2015 and its aim was to limit global warming, the agreement also included provisions for the use of renewable energy which helped in the reduction of global warming and climate change.

Literature review

Studies have shown that the adoption of renewable energy resources contributes significantly to the reduction of greenhouse gas emissions, therefore, reducing climate change. These renewable energy policies such as solar and wind lead to the reduction of air pollution, improved water quality, and a decrease in fossil fuels also promote energy diversification and conservation of natural resources. Renewable energy can help boost economic growth and creation of job opportunities, especially in the construction, manufacturing, and maintenance of renewable energy, stimulation of innovation, and reducing energy costs. Renewable energy technologies can be more expensive to install than fossil-fuel based, some renewable sources such as solar and wind do not produce energy all the time making it a challenge to coordinate renewable energy into the grid.

Methods

There are different types of methods that can be used to assess the impacts of renewable policies on sustainable development. These methods may include qualitative analysis, quantitative analysis which are the major methods, and also modelling and simulation. The qualitative analysis provides a view into social acceptance, community engagement, and policy implementation challenges these methods may include interviews, surveys, and also gathering groups to discuss the impacts of renewable energy and how to improve them.

Quantitative analysis involves statistical analysis of energy production, consumption data, greenhouse gas emissions data, economic indicators, and social metrics which are used to analyze data and assess the impacts of renewable energy policies. Modeling and simulation involve utilizing computer models and analyzing the impacts of renewable energy policies on emissions reduction and economic factors. They may include the MESSAGE model which is being used in a number of countries such as Brazil and the European Union to stimulate the short-term and long-term evolution of renewable systems.

Results

These policies promote the use of clean energy sources which help decrease carbon dioxide and methane while contributing to climate change and reducing environmental energy production. It also helps in reducing the emissions of pollutants such as nitrogen oxides and sulfur oxide which helps in improving air quality, and public health, the use of hydropower can ensure many profits for water supply and irrigation in agriculture, but it also has some side effects for the aquatic ecosystems.

In rural areas, the development of the policy can solve the problem of energy consumption and combine it with agricultural production which increases the income of farmers. It is estimated that in 2050 renewable energy will approximately account for 30% of the energy structure in the world. The development of renewable energy relies on technology, innovation, and the growth of industries which stimulates the growth of a robust and competitive renewable energy industry, attracting investments and driving economic development.

Conclusion

These renewable energy policies have a significant impact on the development across the environmental, social, and economic dimensions which play an important role in addressing climate change by reducing greenhouse gas emissions and preventing environmental destruction. These policies also create job opportunities, particularly in the renewable energy industry, which helps foster economic growth, reduce poverty, and communities through ownership improve energy access, and also bring development to the communities. They also drive technological innovation which attracts investments and stimulates the growth of renewable energy industries which enhances affordability and security and reduces dependency on imported fossil fuels. In order to use less and cleaner energy power plants in buildings, industrial facilities, and transport systems many efficient technologies are applied. These technologies could help cut costs by up to 80 percent which helps in energy savings by up to 30 percent and also helps to slow global warming and climate change.

References

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