

Preface

A few decades ago, energy sustainability was just thought in terms of accessibility relative to the rate of use. Today, in the context of the decent agenda of sustainable growth, including concerns about global warming, greenhouse gas emissions, climate change and so on are very important issues. These include environmental effects and the question of the energy generation process as well as emissions, which are the primary reasons for damage to the earth environment during energy production, distribution and consumption. Sustainable energy development criteria have been promoted in several years into the front line of energy policy, which also showed how we address our energy needs on a sustainable basis.

Energy demand is likely to increase in the entire world, the ratio supplied by electricity is likely to rise rapidly, however, more energy demand is for continuous, and this qualitative consideration will continue to dominate in the energy sector. Meeting the needs of the present energy demand without compromising the needs of the future, the whole world has to pay attention to the energy sustainability, so that environmental protection remains equally important at the same time. Energy sustainability could drive environment friendly technological innovations with viable techno-commercial applications for social upliftment.

Renewable resources such as solar energy, wind energy, biomass, bio-gas and bio-fuels, hydro energy provide a source of sustainable energy. Worldwide, renewable energy resources are available to supply the expanding energy needs without environmental damage. However, the current renewable energy share is less in the worldwide energy production. It is an acknowledged fact that it should have been much higher as much as in favour of the environment, which is the most essential issue globally. Almost everywhere in the globe, clean energy production is given much attention due to the current environmental issues, which can only be solved by the renewables. Many countries are making significant efforts to move up the renewable energy ratio and overall approximated 19 % of global energy consumption produced by renewable energy in 2012 which continued to grow in 2013.

The aim of this book is to share the latest developments and advances in materials and processes involved in green energy generation, transmission-distribution, storage, etc., with chapters written by professors and researchers in the energy

and materials field, using original research materials. This book may be used as a reference book in college/university/training institute/professionals all over the world. This book can also be referred in all the green energy-related laboratories, industries and academic libraries and as a refereed book for “Alternative Energy Sources, Renewable Energy Resources, Climate Change, Energy Sustainability, Energy Policies etc.” for undergraduate and graduate students. The book presents a perfect blend of research and practice explained in a very simplistic manner. It also covers the sustainable provision of energy that meets the needs of the present without compromising on the ability of future generations to meet their needs.

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