

Renewable Energy – Panacea for Climate Change?

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Introduction

Climate change is no longer just the horror scenario as it was thought to be just a few years ago. It is real! So real that most credible warnings are sounded, alarming that dire consequences are in sight if no action is taken to combat this most real threat to the planet Earth.

The problems have been compounded without the Earth's inhabitants fully realising it. Attempts to tackle challenges are yet to produce results. These have included a number of international initiatives including Kyoto Protocol and Bali Mandate. The world at large is eagerly anticipating positive outcomes from these initiatives.

Key words: Renewable energy, climate change, engineering education, legislation, energy research, sustainability.

1. Global Warming

It has been relatively easy, especially on the part of politicians with self-tuned agendas, to deny that there was any truth to the assertions by *eccentric* scientists to exaggerate the effects of excesses in the unbounded exploitation of the planet Earth's natural resources. It was not until way past the last century that concerns have been raised concerning the detrimental effects on the collective *health* of the planet and its inhabitants.

Global warming has been inextricably linked with the exploitation of fossil fuels. There are several issues beckoning attention in this context. Firstly, fossil fuels do not represent an endless source of supply of energy. Secondly, their continued use, even if they were not *exhaustible*, is the main source of generating green house gas emissions: now established as the main cause of global warming [1].

2. Climate Change

It is now well established beyond any doubt that climate change is the worst menace that the planet Earth has ever faced. Global warming due to the excessive release of the so-called *green house gas emissions* in the process of generating *heat* to facilitate the energy conversion process is now seen as the root cause of the climate

change problems. Awarding of the 2007 Nobel Peace Prize in December 2007 to IPCC together with Al Gore has done more than acknowledge the good work of a bunch of enthusiasts for the environment, a band of "greenies" who are speaking out of turn! It has lent indisputable credibility to the fact that the planet Earth is in dire straits.

3. Renewable Energy

Many have come to consider the use of renewable energy sources as the panacea for solving the climate change problems. Yet, there is a considerable amount scepticism associated with that.

The designation "Renewable Energy" is usually the preserve of the kind of energy attributable to the Sun. This includes solar energy, wind energy, biomass. In remarkably large instances, the use of renewable energy resources remains as being inextricably linked with generating electricity. That is not surprising in view of the fact that electrical engineering, as a genre, has been the most progressive and influential field of engineering, dominating engineering achievements and providing indispensable means of energy utilisation and communication. So, we need electricity! The popular adage: "no lights without electricity" sums up the reality of being deprived of electricity. Despite its relatively recent debut in the history of humankind, we view having access to electricity almost as our birth right! Our lifestyle has been so entwined with it that we no longer can live without it! So, it comes as no surprise that access to electricity is no longer considered a luxury, but rather a human right!

Yet, generating electricity using non-renewable sources of energy such as coal and natural gas is one of the major contributors to greenhouse gas emissions. In this instance the *right to electricity* must be tempered with duty of care. Benign sources of renewable energy need to be found to satisfy both criteria.

4. Coping with the Problem

The problem of climate change is universal, not confined to a geographical region. It is overwhelming. The humankind is grappling with the problem, National dictates, priorities, even greed take their toll in the process toward achieving amicable and sustainable

outcomes for all of Earth dwellers. The quest is to find out why all this is happening and how it can be stemmed.

There is a glimmer of hope though. Firstly by the signs of albeit late awakening on the part of the governments and the international community as evidenced by various covenants; secondly by the seemingly general concerns, vocally and passionately expressed by the masses everywhere.

Also, there is renewed interest in research. Applied and pure research is conducted at all levels to get to the bottom of the intricate cause-effect relationships in matters pertaining to climate change. In all this, education is seen as a key ingredient in the fight against global warming and everything else it stands for: education at all levels – from the layman in a country property to the research scholar at a research institution. Here, research is not directed toward personal gratification associated with the recognition that comes with it, but undertaken for the purpose of achieving research outcomes of practicable value to benefit the humankind at large.

5. Role of Education

Education looms as one of the most important weapons in combating the problems of climate change if it is at all possible to do anything about it. There are many initiatives taken around the globe. These vary from passionately presented programs at elementary levels of schooling to professional engineering degree programs at university level [2] [3].

To place the role of education in the contemporary framework of world events, one has to appreciate the nature of the problems humankind is facing. The problems are universal. They are indiscriminate. They are overwhelming. The humankind is grappling with the almost impossible task of finding solutions to problems beyond its collective comprehension. Parochial interests hamper progress in reaching agreements. Hence, the contemporary education has to break through parochial boundaries of national interest, inculcating the importance of selfless cooperation with the global community for common good. Such principles were articulated under Recommendation 96 of the 1972 United Nations Conference on the Human Environment, held in Stockholm, namely “It is recommended that the Secretary-General, the organizations of the United Nations system, especially the United Nations Educational, Scientific and Cultural Organization, and the other international agencies concerned, should, after consultation and agreement, take the necessary steps to establish an international programme in environmental education, interdisciplinary approach, in school and out of school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizen living in rural and urban areas, youth and adult alike, with a view to educating him as to the simple steps he might take, within his means, to manage and control his environment.” [4]

6. Conclusion

It is now beyond question whether the planet Earth is threatened as a habitat for life. The overwhelming evidence points to the possibility of our planet becoming unfit to sustain life.

There is compelling reasons for humankind to embrace any measure which offers a glimpse of hope to deviate from the perilous course that we currently seem to have embarked on without having counted the cost in the first place.

With reference to the USA, it has been asserted that “renewable energy is a force today and *will* be a major force in America’s future – the only question is when. The answer will depend only on the will of the American people for clean energy – or the next major political disruption in the Middle East.” [5].

That was in 2001. Much water has flown under the bridge since. Collectively, we know better than we did then. The imperatives have become much more compelling than we would have believed even just a few years ago.

We engineers carry a special responsibility on account of our knowledge and skills in dealing with issues arising from the conversion and use of energy. This behoves us to be actively involved in matters pertaining to climate change and renewable energy.

Is it too late? Some say it is! The hope is that we will be able to steer out of troubled waters provided we pull together.

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