

Climate Change and Renewable Energy

An opportunity for business growth, sustainable development and saving the planet

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Climate change - threat and challenges

The threat of global warming is so grave it has the potential of destroying our civilisation. The effects of climate change are already apparent with increased incidence of floods, storms, droughts, water shortage and rising sea levels; phenomena that is expected to grow in severity over the course of the century which is likely to hit the world's poorest the hardest.

The collapse of the Greenland ice sheet and the disruption of the Gulf Stream Ocean current are two very real threats that could cause mayhem long before 2100. The Arctic may become entirely free of sea ice within 3-4 decades. The melting Siberian permafrost is now pumping millions of extra tonnes of methane and carbon dioxide leaking into the atmosphere.

The principal reason for the mounting rising temperature is a century and a half of industrialisation, the burning of ever greater quantities of oil, gasoline, and coal, the cutting of forests, the practice of certain farming methods, impact of the wars and military on the environment. These activities have increased the amount of greenhouse gases in the atmosphere, especially carbon dioxide, methane, and nitrous oxide. Industry, power, transport, buildings, construction and deforestation are the main polluters and culprits.

However, if we manage our environment in a responsible way, by harnessing renewable energy, we will not only live in a cleaner planet but the net results in terms of profits will be in over hundreds of billions of dollars.

Present sources of energy supply

Biggest polluters

Coal - Coal fired powered plants contribute 40 per cent of the world's sulphur and mercury, thereby polluting the air quality of our planet and is considered the dirtiest form energy.

Oil – It remains a significant contributor of greenhouse gas emissions. The world used 82.5 million barrels of oil per day last year, and the most oil used in a year in the history of humankind. The high demand of oil and its increasing price is making the use of oil unsustainable.

Gas – There are environmental concerns with the use of gas as it is used widely as an important source of greenhouse gas emissions. The burning natural gas produces carbon dioxide, which is the most important greenhouse gas polluting the atmosphere.

Major polluting sources

Construction

This sector accounts for 30-40 per cent of global energy use. As it is a large contributor to CO₂, building "green" is an opportunity to use our resources

efficiently while creating healthier buildings that improve human health, build a better environment, and provide cost savings.

Aviation

With an estimated about 3% of the global carbon dioxide emissions, this industry has been at the forefront of the climate change debate because of the sharp increase in cheap flights. Aviation is one of the fastest growing sectors of the global economy, and it consumes significant amounts of fossil fuels and contributes to the growing problems of greenhouse gas emissions.

Transport

The transport sector – excluding international aviation – is currently responsible for about a quarter of total UK carbon dioxide emissions, 80 per cent of this is contributed by road users. The annual global greenhouse gas emissions (GHG) by transport stand at 13 per cent of the total.

By changing our habits and using public transport, car pooling, using cleaner fuel, walking or bicycling, you can achieve considerable emission savings.

Shipping

Shipping is responsible for transporting 90% of world trade which has doubled in 25 years and is reflected in its atmospheric emissions which is accounted for 2.3 million tonnes of Sulphur dioxide (SO₂) and 3.2 million tonnes of Nitrogen dioxide (NO_x)

Agriculture

Globally about one-third of the total human-induced warming effect due to GHGs comes from agriculture, land-use change and forestry and its impact on the atmosphere and its accompanying risks are serious.

Sources of renewable energy – a business opportunity for economic growth

Solar

Individuals and organisations should generate more energy from solar panels – power from the sun – which is free, clean and inexhaustible. In a broader sense, solar energy supports all life on earth and is the basis for almost every form of energy we use. The amount of energy received from the sun that falls on the Earth's surface is enormous, more than 23,000 times that used by the human population of this planet.

Wind

Clean, renewable forms of energy, such as wind power, are essential if we are to tackle climate change. Evidence shows that wind energy propelled boats on the

Nile River as early as 5000 B.C. It's clean, abundant, reliable, affordable, and safe and does not produce dangerous waste.

Hydro

Individuals and organisations should generate more energy from hydroelectric power by harnessing the energy stored in water and rivers, above sea level. For centuries water wheels have been used to convert the kinetic energy of moving water into mechanical energy, used in flour mills and other machinery.

Norway, Sweden, Canada, and Switzerland rely heavily on hydroelectricity because they have industrialised areas close to mountainous regions with heavy rainfall.

Tidal

Tidal technology generates renewable electricity from ocean waves, using both tidal turbines and sails to capture the force of the tide, and is a valuable energy source for the 21st century. The world's first commercial energy wave farm is being constructed off the shores of Portugal. Denmark is supplying tidal energy to 1.4 million Danish homes which brings 3 billion euro a year and employs over 20,000 people.

Biofuels

Use biofuels as a substitute for fossil fuels which include coal, oil, gas, and wood. Agricultural crops, such as sugar cane, corn, sunflower seeds and soya beans, can be grown for use as energy sources called biofuels, which can be used in motor vehicles. Biomass in the form of residues from forest and wood should be used for generating energy in future as the soaring high food prices are making production of biofuels unsustainable.

Geothermal

Individuals and organisations should generate more energy from the use of geothermal energy as humans have used this technology for thousands of years, using hot springs initially for cooking and building reservoirs around springs to create shrines and bathing complexes such as those built at Bath (UK) by the Romans.

Nano

Use nanotechnology which has a vast potential in assisting environmental initiatives. Simpler and smaller structures can be built as applications in fields as diverse as materials engineering, medicine, information technology, environmental solution, energy production, and agricultural technology.

Nanotechnology has the potential to help curb carbon emissions in five areas:

- Increasing fuel efficiency in engines

- Cutting the cost of solar cells
- Playing a key role in the development of hydrogen technology
- Allowing the batteries in electric cars to recharge faster
- Improving solid wall insulation significantly

Energy efficiency

We need both to invest on a large scale in existing renewable technologies and to stimulate innovation into new low carbon technologies for deployment in the longer term by promoting the uptake of low carbon technologies like PV, fuel cells and carbon sequestration.

Efficiency measures should include:

- Improved efficiency in producing electricity which can be utilised for energy consumption of building and appliances.
- Use of renewable energy – power of the wind, sun, water, tidal and other forces to generate energy.
- Packaging should be kept to a minimum and should be renewable, reusable and bio-gradable.
- Minimal material waste
- Accuracy and precision in manufacturing

Nuclear

Nuclear power is a non option because it is very expensive and dangerous. It needs huge amounts of cooling water at a time of water shortages and global uranium supplies which are very limited. There is additional danger of nuclear terrorism and radiation leaks.

Renewable energy for sustainable development and corporate social responsibility - the way forward

Renewable energy, efficiency and conservation are key components of energy sustainability—the concept that every generation should meet their energy needs without compromising the energy needs of future generations. It focuses on long-term energy strategies and policies that ensure adequate energy to meet today's needs, as well as tomorrow's.

Sustainability also includes investing in research and development of advanced technologies for producing and promoting the use of renewable energy sources, and encouraging sound environmental policies.

Companies must strike a delicate balance of harnessing renewable energy to return to profits to their main investors as well meeting their corporate social responsibilities, including saving the planet from being destroyed.

The Rio or earth summit called for major initiatives in key areas of sustainable developments such as convention to combat desertification, development of small island states, and a convention on biological diversity, a concept which

was reinforced in Johannesburg in 2002, also called the Rio +10. The way forward is to form policies which are ecologically and environmentally sound.

Conclusion

The implementation of renewable energy is easy, realistic and affordable as an alternative to replacing nuclear and fossil fuels (coal, oil, gas). The opportunities for business growth are huge leading to strong foundations of a stable economy.

What we need is an international body directly promoting the use and dissemination of renewable energy sources under the auspices of the United Nations as a matter of urgency. This body should implement a plan for adaptation, mitigation and conservation, including the promotion of technology transfer, research, public awareness, education and training.

The quicker we change to renewable energy sources, the sooner we will be saving our precious and beautiful planet. The other benefit of doing so is that, renewable energies not only lead us to climate change solutions and sustainable development, but create boundless opportunities for profit and wealth in a responsible way.

Harnessing renewable energy is living in harmony with nature. As the HOLY VEDAS (the oldest book on earth) says "Live as if you are one with the trees, rivers, the mountains and the whole universe will embrace you like a friend."