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Issue:

Promoting research and measures that advance innovative and reusable forms of energy

Forum:

Special Conference 2 (SpC2)



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Position:	Chair & Deputy-Chair

Introduction

Our society has become dependent on the energy induced from oil, coal and natural gas. The problem is that these natural resources are running out. Oil reservoirs are becoming empty in such a drastic way that oil firms are willing to put arctic regions at risk in order to find more oil. The political and economic power of these forms of energy are of enormous scale. There have been multiple wars over the scarcity of these energy resources. The division of these energy resources are one of the major causes of the economic inequality around the world. Developed nations are using a proportional amount of the resources while they often come from developing nations that rely on the demand in these energy forms. Meanwhile the emissions of these energy forms are having such an impact on the environment, that we are seeing an increasing risk of not only the world itself, but also the survival of our species. The risk has also an unfair division, since developed nations deal with the lowest risk and developing nations deal with the higher risk. The unfair detail of it all is that the developed nations are often more to blame for the great amount of emissions in the atmosphere.

It is easy to say that this is a problem that keeps on getting worse and will eventually cause a worldwide crisis when the supply runs out. Climate protection movements are having more success in convincing governmental organisations in the danger of these energy forms. Investment in renewable resources are at its highest peak, however, we still have a long way to go. The UN has a major influence in the worldwide promotion of development in renewable energy.

The biggest problem of renewable energy forms is their fluctuating behaviour. They mostly rely on some natural factors. Without the sun shining, there is no solar energy. The same goes for the wind, water and biomass. The challenge for the future is finding measures create a reusable energy form that is reliable and does not fluctuate. To find these new measures, we need to continue investing in new innovation and research.

Definition of Key Terms

Renewable energy

Renewable energy is energy that has been derived from earth's natural resources that are not finite or exhaustible. Tester (2005) defines sustainable energy as, "a dynamic harmony between the equitable availability of energy-intensive goods and services to all people and preservation of the earth for future generations".

Sustainable energy

Renewable energy is only a part of sustainable energy. With sustainable energy, we mean energy forms that are not dependent on scarce resources that are slowly running out. Sustainable energy forms will also be there in the future and will not fade away over time. Other instances of sustainable energy forms, other than renewable energy, are nuclear energy and energy conservation of current energy forms.

Fossil Fuels

Fossil Fuels are formed from natural processes. It often takes millions of years until it reaches the shape of today. They can be found in the earth's crust and when they are burned, they can produce energy. One of the biggest by-products is the greenhouse gas CO₂.

Global warming

Global warming is the long- time rise of global temperature. However, more accurately, global warming is the rise in temperature caused by human activity. Humans have emitted more greenhouse gasses in the last few centuries, which is causing a faster pace in the global temperature rise. This has a lot of bas consequences for the planet and its species.

Low-Carbon Economy

A low-carbon economy runs on low carbon power sources that have a minimal output of greenhouse gasses, especially carbon dioxide. These economies have mostly shifted because of the catastrophic climate consequences of the global warming. These kinds of economies have benefits for both developed and developing countries since they lose their dependency of scarce fossil fuels.

General Overview

People need energy for all their daily actions. We will now look at the seven most common types of renewable energy.

Solar

Solar energy is derived by capturing radiant energy from sunlight and converting it into heat, electricity or hot water, through solar cells. The benefits of solar energy are that there is a limitless supply and could therefore, in the long term, reduce our energy bills. National and local investments in solar panels could also lead to more jobs for solar cell technicians. The limitations are that, despite it will save money in the long run, the panels remain often just too expensive to purchase and therefore forms an unrealistic expense for most households. Moreover, not every roof is fit for solar panels.



Wind

Wind 'farms' capture the energy of wind flow by using turbines and converting it into electricity. Wind is a super clean energy source with zero pollution. Investment in wind energy technology can also open up many jobs for technicians, as the turbines need to be serviced and maintained to keep running. The downsides to wind energy and wind 'farms' are that people do not like it to have them ruin the sight of the landscapes and also threaten wildlife like birds which are sometimes killed by the arms of the turbines. However, if the wind farms are to be situated far away from the cities, the energy must be transported via transition lines, leading to higher costs.



Hydroelectric

When water flows through a dam's turbines, electricity is produced. This hydropower is very versatile and can be generated using already existing big structures like dams. It's a mechanism that does not generate any pollution. But sometimes, the mechanism consumes more energy than that it can produce. Furthermore, it can be an obstacle to the animals living in the waters.



Geothermal energy

Geothermal heat is the heat that is trapped beneath the earth's crust from the formation of the Earth billions of years ago and from radioactive decay. Sometimes this heat escapes naturally, in the manner of volcanic eruptions and geysers. This heat can be captured by using steam that comes from the heated water pumping below the surface, which then rises to the top and can be used to operate a turbine. Since the system can be built underground, it leaves very little footprint on land. Geothermal energy is naturally replenished and therefore does not run a risk of



depleting. On the downside, it is a very expensive manner of producing energy, and could easily be destroyed by earthquakes.

Biomass energy

Energy can be derived from biomass, an organic matter that comes from recently living plants and organisms. Biomass can be burned, which creates carbon dioxide, but the regeneration of plants consumes that same amount of carbon dioxide, by which a balanced atmosphere is created. The only downside to biomass energy is that plants take time to grow.

Positive aspects about renewable energy and its role in the future

Renewable energy sources used in energy generation helps to reduce greenhouse gases which mitigates climate change and reduces environmental and health complications associated with pollutants from fossil fuels sources of energy.

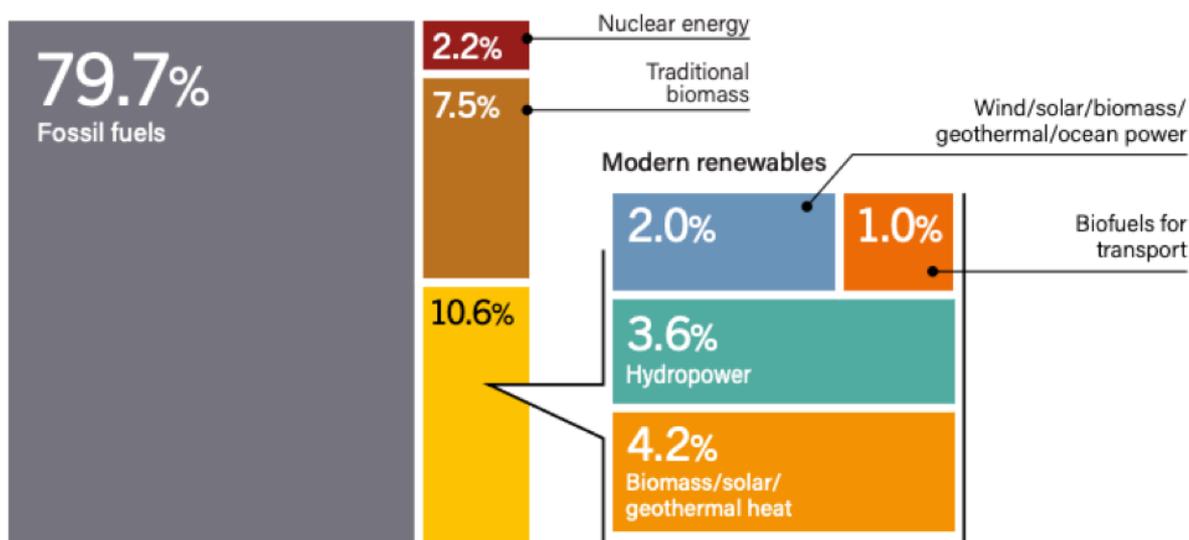
Renewable energy sources could become the major energy supply option in low-carbon energy economies. Disruptive alterations in all energy systems are necessary for securing worldwide provision in sustainable energy. Organising this energy transition is often described as the major challenge of the first half of the twenty-first century.

Promoting the advance of innovative and reusable energy.

Globally, renewables made up 26% of electricity generation in 2016, according to the Center for Climate and Energy Solutions (C2ES). 16% of that being formed by the use of hydropower. The 26% is expected to rise to 45% by 2040.

Of course, this does sound positive. The Special Committee should only ask themselves whether these changes are firstly enough and secondly fast enough. If we are to believe the statements in the current climate debate, the world could already face detrimental effects from the climate crisis in the coming decade.

FIGURE 1. Estimated Renewable Share of Total Final Energy Consumption, 2017



Note: Data should not be compared with previous years because of revisions due to improved or adjusted data or methodology. Totals may not add up due to rounding.

Source: Based on OECD/IEA and IEA SHC. See endnote 54 for this chapter.

Major Parties Involved

The C2ES

A good example of an actor in the advancing technology to enhance renewable energy resources is C2ES, the Center for Climate and Energy Solutions, an independent nonprofit organization, 'working to forge practical solutions to climate

change'. They function as an information provider, a bridge-builder between city, states, governments and businesses, and as a policy innovator.

Timeline of Key Events

1992	The United Nations Conference on Environment and Development takes place in Rio de Janeiro, Brazil
1996	The World Solar Summit takes place in Harare, Zimbabwe
1997	The Kyoto protocol is adopted.
2002	World summit on Sustainable Development held in Johannesburg, South Africa.
February 2005	The Kyoto protocol enters into force.
2010	The Cancun agreement are adopted.
2012	United Nations Conference on Sustainable Development
2012	UN Secretary-General Ban Ki-moon launches initiative "Sustainable Energy for All"
2013	China is the leading country in renewable energy production
December 2015	Paris 2015 climate agreement.
June 2017	US president Donald Trump announces that he intends to withdraw from the Paris 2015 climate agreement.
November 2017	COP23 in BONN.
2019	School strikes all over the world for better climate legislation
December 2019	COP25 Chile/ Madrid fails.

Previous attempts to resolve the issue

Not many steps have been taken yet to stimulate further research and innovation of renewable energy, however over the latest years, nations have had an increasing amount of interest. One of such projects were the conventions of Global Environment Facility (GEF) Assembly hosted by the United Nations Industrial Development Organization (UNIDO). The conferences have increased awareness about the need of renewable energy. Furthermore, the conventions have increased industrial interest in new innovation.

In many countries governments are thinking of a specific carbon tax. It will mean that the amount of taxes is levied on the carbon content of fuels. This gives citizens a further incentive to think of the emissions they cause. It has also incentivized companies to invest more in sustainable energy forms in order to make more revenue.

Possible Solutions

In order to tackle this problem, many aspects should be taken into consideration. First of all, further steps need to be taken in spreading awareness of the need of sustainable energy. The public needs to appreciate, accept and support the widespread adoption of renewable energy and the private sector needs to be involved in tapping renewable energy. This can not only be done by subsidies of governments, but also by international education and financial programs.

Furthermore, there needs to be more academic research in renewable energy. Nations should invest to incentivise the research in renewable energy. This research may lead to further development in the energy forms to ensure a higher efficiency and less fluctuation in the energy flow. For a low carbon economy, an economy needs enough technicians and professionals that are capable of designing energy tapping structures and maintaining them.

Lastly, we need to focus on finding possibilities for sustainable energy forms in every country. This requires an organisation that will map out such measures and can estimate the consequences of such industry rising in a country. How will it affect food security? Will it fit in the balance between demand and supply? These are questions that need to be thought of more. The use of international organisations is very recommended since together countries can share their technology and research to advance the use of renewable energy forms.

Appendix/Appendices

- <https://undocs.org/en/A/RES/67/215>

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