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Session: The Quest for Green Energy



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Edited transcript

Thank you, Andrew (Andrew Cave, session moderator); thank you, Dr Frank Jurgen Richter and Horasis. I visit India frequently and spend half the year in India. The solar and renewable energy sector is one in which I am very much interested, and I have participated in a number of projects. I would like to draw together some of the points made so far.

Storage is obviously very important, otherwise renewable energy will never be reliable, sustainable and able to provide the required stability and level of power supply. In addition to batteries, there are some very interesting innovations taking place, for example industrial scale hydrogen fuel cells. There is a company developing these just up the road from me in England. They have created a hydrogen fuel cell one cubic meter in size that can generate 50 kw of power from hydrogen. We must investigate and develop further these innovative forms of storage.

The next area is innovation in energy production. There is a great deal of innovation going on in the field of solar technology, for example in thin film technology, such as CIGS (copper indium gallium selenide). A colleague of mine at London South Bank University is doing pioneering work in this field. Let's say, for example, if you could improve the efficiency of solar cells by 1%, then you can either increase your output by 1% or decrease land usage by 1%. There are also cost benefits. So the level of efficiency of solar cells and solar panels is important, and this is an area that needs to be further investigated and developed.

The next area concerns regulatory issues. I speak to the people at SECI, the Solar Energy Corporation of India, which is part of the Ministry of New & Renewable Energy (MNRE). They are concerned that some of the bids for large solar installations are unsustainable economically and cannot be made profitable. These and other regulatory issues need to be examined.

The most important issue is self-sufficiency and resilience. From the global economic point of view, it is obvious that many things are going to change. In light of the outcome of the pandemic and recent unfortunate events, it is clear that India's relationship with China is going to change substantially. This is one example of how the global supply chain will need to change. For India, it is necessary to create complete self-sufficiency and a whole life cycle

approach in the solar and renewable sector – as well as every other important industrial and infrastructure sector.

We need to look at dual usage. There are already good examples of dual usage, for example where solar panels are installed above waterways, and combining solar and agriculture usage. It is important to look at off-grid and local networks, especially in a country as large as India, to make sure that energy supply can reach every part of the country and every pocket of the population. We must also look at innovations in local and micro grids, for example rooftop solar and Building Integrated Photo Voltaic (BIPV).

In considering the growth of the renewable energy sector and the green economy, we must consider not only how the energy is generated but also how it is used. If we look at our built environment, for example the large new cities, such as Gurugram, Navi Mumbai, and others, there are very large buildings with south facing glass walls, where there is enormous wastage of energy. These and other factors must be considered in moving towards a sustainable green economy.

Sustainable Development Goals (SDGs)

The consideration of the Sustainable Development Goals (SDGs) is crucial with regard to this session, where we are dealing with “green energy”.

It is difficult and challenging to spread adequate energy supply to the whole population through conventional energy using the grid, particularly to outlying areas using conventional energy. Renewable energy sources provide the opportunity for creating a viable energy supply to rural areas and other remote regions.

The SDGs are concerned with delivering adequate healthcare, education and social welfare to all parts of the population and to ensuring that everyone in the population has at least a minimum standard of living.

I have been involved in various projects in different parts of India. In Gujarat for example, CEPT University, one of the best technology universities, is looking at how local grid solar, bio and hydro energy can be used to create self-sufficiency in energy supply at the local level, particularly in outlying regions that may be almost impossible to connect to the grid.

The Confederation of Indian Industry (CII) has an urban-rural outreach programme. The purpose of this programme is to enable the development of rural communities via technology, and to enable the provision of healthcare, education, access to the market, etc. to the people living in rural communities. The topic of green energy and the green economy is vital for all the goals set in the SDGs.

The speed of change

(The moderator posed the question whether the required changes will be possible during the next decade.)

My impression is that because of the current global situation brought about by the pandemic, we will be obliged to make changes rapidly. For years, many aspects of the global and national economies have been developing in a particular way. For example, air transport has continued to grow year on year. We have taken it for granted that the world was developing and growing in a specific unstoppable way. We must now re-evaluate this.

Frank Jurgen Richter formed the Horasis platform as the Global Vision Community. Horasis has now been running for 15 years, and Horasis does a great job in allowing thought leaders to come together to evaluate what we must do in today's world.

So, the question that you pose Andrew, is the most important question in the session. We should throw that question back to ourselves. What can we do to make sure that the situation changes not just in 10 years' time but in the immediate future? It comes down to making sure that we take a comprehensive approach, not just looking at energy production through solar, hydro, and other forms of renewable energy, and examining on-grid and off-grid options. We need to look at the whole infrastructure network. We need to look at national self-sufficiency and resilience to make sure that the nation (and this applies to all nations), can be completely self-sufficient in moving towards a green energy economy.

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