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Q&A-Renewables' share in electricity to rise to 90% by 2050; Solar, wind to dominate; Energy transition investments need to double: Gauri Singh, IRENA



The share of renewables in electricity production will increase to 90% from around 25% currently, with electricity becoming the main carrier of energy by 2050, **Gauri Singh, deputy director-general at the International Renewable Energy Agency (IRENA)**, told the Reuters Global Markets Forum on Tuesday, May 4.

Singh said she expected solar photovoltaic and wind to dominate the future energy system, with a combined 63% share, and nuclear power's contribution at around 6% in 2050.

Attracting investments is the key issue for much of the developing world to aid their transition to renewable energy, Singh said.

She added that the global investments in energy transition technologies need to more than double to \$4 trillion annually up to 2050, from \$1.8 trillion in 2019.

"The total energy investment required is \$131 trillion... Important to note that \$98 trillion is already planned but not aligned with the transition," Singh said.

Following are edited excerpts from the conversation:

Q: What has the progress of the global transition towards renewable energy been like so far?

A: Despite the really challenging situation last year, which impacted very heavily on manufacturing, hospitality, and others, we are seeing significant momentum for the energy transition. Last year, 80% of new power generation capacity added globally came from renewable energy, which is an all-time record. Renewables are increasingly the dominant form of new electricity.

Of the 260 GW (gigawatts) of renewable installations, 127 GW and 111 GW of new installations last year, came from solar and wind respectively. Together, they now make up more than 50% of total installed renewables capacity.

This trend reflects the preference governments and increasingly markets have for renewable power. I would also like to add that for the last few years we have been seeing capacity deployment trends of around 200 GW. So, as you can see, it was a good year for renewable energy deployment for renewables, globally.

Q: Of the multiple renewables available, which one do you think will eventually become the dominant?

A: IRENA recently released a preview of the World Energy Transitions Outlook, with a view to showcase a pathway for the energy sector that would limit the temperature rise to 1.5 degree Celsius. In this, our analysis shows that in 2050, electricity will be the main carrier of energy. And the share of variable renewable energy - represented by solar and wind, the share would go to 63%.

Therefore, to conclude, our expectation is that the future energy system will be dominated by solar PV (photovoltaic) and wind. Our analysis shows that nuclear will contribute around 6% in 2050, as countries race to meet net zero commitments. 90% of the electricity will come from renewables.

The energy sector is responsible for around 80% of anthropogenic CO₂ (carbon dioxide) emissions and has a central role in delivering the decarbonisation required. To reach net zero by 2050, indeed CO₂ emissions must decline 3.5% year-on-year, on average. IRENA's 1.5°C scenario shows that this is achievable but extremely challenging, requiring urgent action on multiple fronts.

Q: What are the requirements of the global energy system in terms of policy and investment to 2050?

A: The key issue facing much of the developing world, is attracting investment. Much of this can be achieved by enacting stable and attractive policies that encourage the private sector investments needed in the long and short term. Ambitious climate and clean energy targets are essential at both national and subnational levels to support the flow of capital.

Important to note that targets are only effective within a holistic policy framework, where deployment policies combining financial and fiscal incentives with market pull -- e.g., regulatory and pricing policies such as auctions, and technology push mechanisms -- e.g., mandates, go hand in hand with enabling policies such as measures to ensure the reliability of technology and system integration.

Q: Would you be able to share some examples of raised renewable energy ambition and strong implementation?

A: When IRENA was founded in 2011, the total renewable energy capacity was 1,329 GW globally, and today we have more than double the capacity to nearly 2,700 GW. This has not happened because of only some countries. Nearly all countries have been a part of this amazing journey, though the speed might differ. Capacities have trebled in Asia, doubled in Africa, South America, Caribbean, Europe, Middle East and in the U.S.; capacities more than doubled in Oceania. This is undoubtedly positive momentum. But as highlighted, more needs to be done.

There are some very strong examples of countries around the world, in all regions, making significant commitments to renewable energy deployment. China has a remarkable story to tell. The speed of renewables adoption in India has been breath-taking. The UK, host of this year's COP26, is the world's leading offshore wind market and the U.S. installed more new renewable energy last year than at any point in history.

In terms of ambition, it has never been greater. Just last week we heard President (Joe) Biden talk of reducing U.S. greenhouse gas emissions by up to 52% by 2030 relative to 2005 levels. Much of this will be achieved in the energy system. Countries accounting for 70% of global emissions now have net-zero targets in place by 2050 which is unprecedented and a strong signal of intent by the world's major emitters.

Q: What do you think about green nudges and nudge units set up by many governments? Will they play a pivotal role?

A: Policy making requires not just coordination across the various ministries but also across stakeholders. So, if the nudge is for Green and it is for a sustainable and resilient energy system, it has a role.

Q: What would you see as the major milestones, both in terms of time period as well increasing renewables' capacities, that could be seen as on-track to achieving the mid-century climate goals?

A: I think it is important to keep in mind that while net zero commitments for 2050 are creating the political momentum, medium-term targets for 2030 are extremely important. Our analysis shows that the renewables deployment needs to go up from around 200 GW to about 800 GW.

In addition, the level of investment in energy transition technologies needs to scale up from \$1.8 trillion that it was in 2019 to nearly double to \$4 trillion. These are some of the indicators that we need to track to see if we are on our path. In addition, the recent report of IPCC (Intergovernmental Panel on Climate Change) pointed out that we need to reduce emissions by 45% by 2030. This means a year-on-year reduction of 3.5%.

Q: How can wider adoption of renewables, including by way of financial aid to developing countries, be enabled?

A: SDG (sustainable development goals) target seven focusses on universal access to affordable, reliable, sustainable, and modern energy services. Rapid growth in access to electricity in the last decade has resulted in the global population lacking access to electricity dropped to 789 million in 2018, from 1.2 billion in 2010.

By contrast, the global population without access to clean cooking solutions remained largely unchanged during the same period, standing at close to 3 billion. Efforts will need to be enhanced if we are to ensure universal access to both electricity and clean cooking, consistent with SDG target seven. Off-grid solutions will play a major role in providing universal access to clean and reliable energy. In this context, a specific ecosystem is needed to support livelihoods, which includes efficient technologies that cater to specific needs; awareness regarding available solutions and skills to distribute, install and maintain them; integrated resource planning as part of national-level policies and targets; and access to finance, de-risking tools and conducive ownership models.

Q: Should the onus of financing developing countries' transitions fall on developed countries?

A: There is a clear role that the developed countries agreed to when the Paris accord was signed. That encapsulates not just providing support financially, but also in technical assistance. The roles have been negotiated and agreed upon and therefore, when developing countries put out their nationally determined commitments, you often find that these are conditional on receiving requisite support.

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