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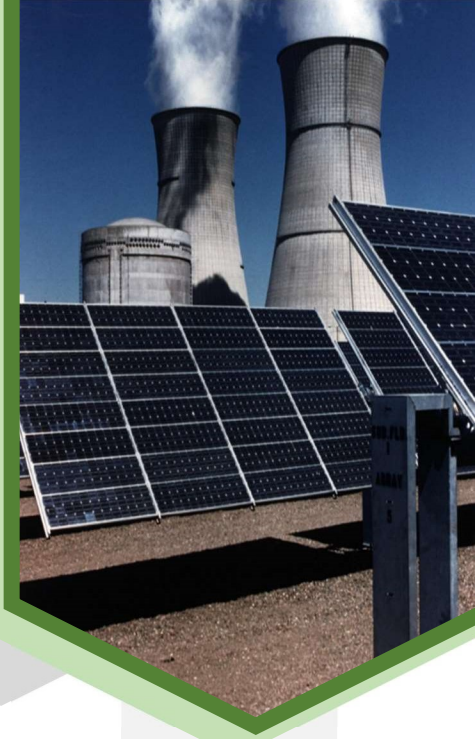

ENERGY INNOVATIONS

Preamble

Dr. Nadeem ul Haque started the discussion highlighting the importance of energy for human civilisation. He raised certain questions:

- *How do we define energy innovations for Pakistan?*
- *Are innovations happening in Pakistan?*
- *Is there any demand for innovations in Pakistan?*

Key Takeaways

- Globally energy policies are designed to address the energy trilemma (supply inadequacies, demand inefficiencies and reduction in greenhouse gas emissions). The objective globally pursued is to achieve SDG Goal 7- access to clean and affordable energy for all. This is pushing for innovative solutions.
- Global trends suggest increased focus towards renewables, moving from the centralised energy management to the hybrid and off-grid management, electrical vehicles, storage technologies, micro and smart grids.
- The world's commitments towards SDG 7 for the reliable, affordable, sustainable, and modern energy access for all till 2030 has led to the increase in the share of renewables in the global energy mix; and an exemplary improvement in energy efficiency. Global trends suggest, almost 50 per cent of electricity in future would be generated from renewable resources.

Speakers

Mehroze Rafique
Staff Officer to Chairman, NEPRA & Future Energy Leader (WEC)

Amjad A. Awan
Former CEO, AEDB

Shahid Sattar
ED APTMA, Former Member Energy, PC

Sobia Baig
Head Energy Research Centre, COMSATS

Ermeena Malik,
Renewable Energy Consultant, World Bank

Amir Durrani
President, Reenergia

- Globally the government is a major player in energy investments.
- In Pakistan, there is no innovation. We are only following world trends. There is no commitment to achieving SDG 7.
- In Pakistan, there is an “unmet energy demand”, a market of about 80 to 100 million people. These people are largely in rural areas or in semi-urban areas with little urban footprint.
- Pakistan is one of the most energy-intensive countries with a highly inefficient use of resources. The cost of energy production is also very high as compared to other countries in the region.
- In Pakistan, the reason for not doing innovations and not integrating renewables with other conventional technologies is lack of resources, missing state ownership for energy innovations, governance issues, lack of institutional capacity and accountability, lack of collective thinking, issues relating to other sectors and above all “power beyond politics”.
- General perspective about innovation is that it is the application of new techniques along the entire energy supply chain. But in fact, innovation is an enabler not just limited to technology. It includes new ideas, policies, regulatory frameworks, and new financial /business models. Innovation is also about providing access to clean, affordable and reliable energy in areas where there is unmet demand; and laying down the national grid infrastructure is not viable for the government.
- In a resource-constrained Pakistan, there is an urgent need to reduce our dependence on imports and focus more on indigenous resources. We need to develop our own mechanism to use these resources. We need to develop our own technologies to reduce costs in generation, transmission and distribution.
- Our energy research institutes should develop those mechanisms, techniques etc. In Pakistan, we do have energy research centres, but they are working on their own. There is no collaboration between academia, the energy industry and the government.
- On the supply side, renewables do provide energy security but along with the development of storage capacity, micro and smart grid system for creating reliability in supplies.
- Digitalised systems optimise the power supply with minimum human intervention and maintenance.

- On the demand side, the solution lies in energy-efficient projects, to curb the wastage and misuse of energy at the consumer level.
- There is need to create awareness among those relying on non-conventional energy sources about growth and clean energy solutions. Distributed generation with the involvement of local communities, as pursued worldwide can help those with unmet energy demand. The national grid is only feasible for dense urban localities.
- Micro-grids for our rural areas or wherever it is required is more cost-effective, as compared to connecting those communities with the national grid. The localised energy grid solutions offer energy independence and efficiency. There is also a possibility to shut down some grids and make way for renewables.
- Globally, distributed energy projects are supported by the government. In Pakistan, the government should also support such initiatives. Our national thinking should broadly focus on all sectors and not just energy. That is, collective thinking on power generation fuel mix, pricing of energy sources, and in energy allocations_ national priorities should lead.
- Electricity is heavily regulated because it is treated as a commodity that should be available to everyone at a reasonable cost. Now with new technologies, renewables, costs are also going down making electricity affordable. This demands a new regulatory framework.

The session ended with the comment from Dr Adil Najam that the market is the only way forward.

https://www.youtube.com/watch?v=d-p_YLpGLaE&feature=emb_logo

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