

Launch event “Renewables Integration in India 2021” report

22 July 2021

QUESTION 1:

Wanted to understand how RE penetration in rural areas help water management - cheaper/free electricity could mean more extraction (as seen in Punjab) - what are the ways in which the Govt plans to address it?

ANSWER PROVIDED BY MR AMITESH KUMAR SINHA:

To comment on excess use of water, I want to clarify that under PM-KUSUM scheme, consumption of farmers will be benchmarked and if they save electricity below their benchmark consumption in number of units, they will be paid for that by Discoms. Such incentive to save electricity will lead to conservation of water also. Otherwise also, if demand will be shifted from night to day, there is no excess use of water. Rather, during night, farmers are not able to use water properly and water consumption is more than the required.

QUESTION 2:

State level inertia may be taken care of by large grid , any reason for flagging state level Inertia?

ANSWER PROVIDED BY IEA:

In the stakeholder consultations we were asked to address state level inertia, however the report we discuss this and highlight that in a meshed AC system inertia will depend on the larger system rather than individual states. However it may still be useful to understand how the development in individual states contribute to the system level inertia, this will help ensure coordination between states on this issue.

QUESTION 3:

What are the challenges envisioned in earlier adoption of hydrogen and hydrogen energy infrastructure, if it will play a significant role in addressing intermittency and in energy transition?

ANSWER PROVIDED BY IEA:

Currently hydrogen is still an immature technology for wide scale reliability and energy storage. So transitioning earlier to a hydrogen economy would need significant increases in investment. Hydrogen can play a role in ensuring flexibility and thereby handling the variable nature of e.g. wind and solar as well as help to decarbonise hard to reach sectors like aviation or shipping. As such, hydrogen is an important tool in the energy transition, but not the only tool. The IEA is undertaking significant work on hydrogen an example can be found in this report

<https://www.iea.org/reports/the-future-of-hydrogen>

QUESTION 4:

Energy conservation efforts/concet started in India in wayback in late 80s, 30-35 years ago, but till today no such thing for water management

ANSWER PROVIDED BY IEA:

As mentioned in the report the looks at water stress in India, and it is an important aspect to take into consideration when discussing demand response of agriculture.

QUESTION 5:

The proposal of relying on agriculture demand shift for demand reponse sounds effective for the seasons when irrigation is carried out. But, how do we propose to manage supply during non-irrigation seasons? Would a large-scale shift of agricultural demand to solar also necessitate large-scale seasonal storage, and if yes, do we have a sense of the economics of such systems?

ANSWER PROVIDED BY IEA:

For Gujarat, while there is a seasonal variation in the amount of irrigation, based on the historical data there is still some present during all the months and is actually quite a good match for solar availability which is higher during the months with higher agricultural demand. The shift in demand is only part of the system flexibility to manage the high solar amount during the day, so for our Gujarat model the existing other sources of flexibility in 2030 (for example power plants) are able to manage the seasonal variations, however you are right that this issue should be considered and needs to be studied for each individual system depending on seasonal variation in the agricultural demand, the total demand, and the variable renewables availability.

QUESTION 6:

We have a very aggressive roadmap for RE integration, but the efforts to improve flexibility through projects such as energy storage deployments are lagging behind with just studies being conducted. Industry as well as system operators need significant time to develop skills to optimize and operate the systems. It is not just about reducing capital cost at manufacturing level. Is there any plan to support systematic deployment of advanced energy storage technologies?

ANSWER PROVIDED BY IEA:

Indeed capacity building is needed for advanced storage technologies. The IEA is working to coordinate R&D and capacity building across the world, in order to ensure knowledge sharing and peer-to-peer learning. One effort that could be mentioned on this is the IEA's Technology Cooperation Programmes that tackle several technologies including hydrogen.

QUESTION 7:

Grid-interactive buildings and EVs is an important consideration for grid balancing. While the policies are proposed for RE integration, India needs to go through an intense and a quick learning curve. As such, would NITI Aayog, states involved in this study and IEA (and UK-AID perhaps) consider roll-out of specific pilots?

ANSWER PROVIDED BY IEA:

The IEA has launched a four-year cross-agency initiative, Digital Demand-Driven Electricity Networks (3DEN). 3DEN is working to accelerate progress on power system modernisation and effective utilisation of distributed energy resources through policy, regulation, technology and investment guidance.

The project was developed in the context of the 2019 Climate Action Summit and aims to step up global action for clean energy to fight climate change.

<https://www.iea.org/programmes/digital-demand-driven-electricity-networks-initiative>