



## **Industry-Academia-Government Consultative Meeting to Address the Challenges of Energy Sector (Conventional & Non-conventional) and Energy Devices**

17 October 2022 (Virtual)

### **Meeting Report**

#### **A. Summary of discussions**

1. The consultative meeting brought together 86 experts and participants from the Asia-Pacific region and provided a platform to share experiences, and deliberate on enabling strategies for addressing the challenges of energy sector (both conventional & nonconventional) and energy devices in the Asia-Pacific region. Participants from 8 member States of ESCAP, namely China, India, Malaysia, Nepal, Pakistan, Philippines, Sri Lanka and Thailand. attended the meeting. The participants comprised of national focal points of the Centre, representatives from the Government, academia, industries and related agencies/institutions, and experts from energy associations and relevant stakeholders from the region.
2. Key international and national experts shared knowledge on emerging energy technologies, identified opportunities of collaboration, and deliberated on the priorities and actions required through Industry-Academia-Government collaboration to accelerate transfer and adoption of emerging energy technologies.
3. The event was jointly organized by the Asian and Pacific Centre for Transfer of Technology (APCTT), the Council of Scientific and Industrial Research (CSIR), and the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology of Government of India.
4. National and international efforts to decarbonize the energy sector need to be designed and planned to align with the mega trends such as rising long term demand of energy, slower transition to clean energy, and stable investment flow to energy sector over the next 15 years, among others. Towards clean energy transition, three approaches are critical for countries to adopt - decarbonization, decentralization and digitalization of the energy sector.

5. It was noted that by 2050, almost half of the emissions savings that will need to be realised would come from technologies that are currently under development. However, many of these technologies are still at the demonstration or prototype stage. Without strong international collaboration on innovation, it will be difficult to reduce carbon emissions even after 2050.
6. The 4IR technologies (e.g., Artificial Intelligence, machine learning, digital twins, clouds and Internet of Things) are going to play a vital role in intelligent and integrated power operation and maintenance. These technologies will help in failure prediction, preventive maintenance, worker safety, efficiency improvement, load matching, reduction in power losses, and reduction in greenhouse gas emissions.
7. In India, the 2- and 3-wheelers are the first mobility segments to be converted into electric mobility and will depend on creating charging infrastructure, battery configuration standardization and battery swapping options. However, the small passenger car vehicles would continue to adopt variable energy mix solutions.
8. It was emphasized that industry and academia together can play a key role in energy storage (i.e., chilled water or hot water storage) which offers very cost-effective solutions for the energy and power sector, particularly for energy-efficient buildings.
9. Close collaboration among academia and industry is necessary for the development of indigenous low-cost technologies so that industry can adopt it without cost escalation. A good example is the development of energy storage solutions with a focus on battery technology being developed in India. In this programme, 15 Indian industries are participating and working closely with the Central Electrochemical Research Institute of CSIR India under a common platform to develop Li-ion battery supply chain.
10. A resource-based approach to Industry-Academia-Government collaboration has definite advantages through collective pooling of resources from complementary partners including suppliers, intermediaries, complementor and competitor enterprise, universities and even government organizations. This approach offers potential benefits for knowledge sharing and co-creation of technologies to the benefit of energy and power industry. Collaborative innovation is suggested to reduce risk exposure and time to market by leveraging the capabilities of other network partners.
11. The public sector enterprise Oil and Natural Gas Commission (ONGC) of India actively collaborates with leading national and international academic and research institutions to innovate and design path breaking technologies to drive the company's inclusive and holistic growth. Memorandum of Understandings (MoUs) are signed by ONGC from time to time for expanding cooperation in energy-related areas.
12. Developing and facilitating high value innovations, goods and services to enter the global market could be facilitated through collaboration between public and private sector.

## **B. General/policy recommendations**

13. The status of clean energy transition in member States could be studied to understand the needs, technology gaps and strategies for addressing the challenges.
14. Industry and academia could work together to take the technology from early pilots to commercial viability through scaling up on the path towards net zero.
15. International R&D collaboration efforts need to be integrated into formal decision-making processes to be more effective and results oriented.
16. Legal mechanisms could be streamlined by countries to facilitate better collaboration among different partners across the region.
17. Joint activities at international level could be organized for knowledge-sharing and cross-learning of lessons in the energy and power sector.
18. In organizations, it would be useful to have a core group of actor(s) that is truly committed to developing the collaboration and willing to carry out the administrative tasks.
19. Digital platforms could be created to share research findings, good practices among member States for technology development.
20. Industry-Academia-Government collaboration based on mutual interest and cooperation could be institutionalized in the governance process. Initiatives that have formalised procedures for collaboration are often more successful at identifying opportunities and following them up.

## **C. Feedback from participants**

The conference was received very well by the participants, which was corroborated through positive feedbacks. 80% of the responses received indicated that the knowledge gained from the conference was highly useful in their present profession. 80% of the responses received indicated that they found the presentations and deliberations by resource persons highly informative and insightful.