Driving a just hydrogen transition: Key enablers for clean hydrogen uptake and de-risking of investments

Date: Tuesday, 28 November 2023
Time: 9:00 – 10:00 a.m. (CET)
Location: Vienna International Centre, Vienna, Austria

Objective
To raise awareness and induce discussion among Member States of the potential of Hydrogen to help achieve a net-zero industrialization in renewable-rich countries and what it takes for the transition to be a just and fair one.

Overview
Clean hydrogen, produced from renewable energy sources, is being promoted as the fuel of the future for being clean, storable and portable. While it can serve as a clean energy carrier and storage option for renewable energy, clean hydrogen also has the potential to substitute fossil fuel to decarbonize “hard-to-abate” economic activities and creates unique opportunities for a net zero industrial development for developing countries that have abundant renewable power potential.

An energy transition pathway aligned with the 1.5°C scenario, will require the production of clean hydrogen on a global scale to reach approximately 492 million tonnes (Mt) and 31.5 Mt of blue hydrogen, compared to the 95 Mt of grey hydrogen currently being produced. However, several bottlenecks hamper the scale-up of clean hydrogen production. A shortage of renewables and high capital and production costs for clean hydrogen renders the current price per kilo too high to be cost-competitive. Moreover, the lack of a domestic market, bottlenecks in trade-infrastructure and investment shortages, inter alia, slow down the development of clean hydrogen production in developing countries.

In addition to supporting decarbonisation efforts in renewable-poor countries, international trade of clean hydrogen could supplement the balance of payment for the renewable rich countries. However, the international transport of clean hydrogen still faces major technological and regulatory uncertainties. No internationally accepted standard for hydrogen exists. UNIDO is supporting ISO to develop one, but national capacity for implementation and certification needs to be developed.
To date, around 50 countries have developed dedicated clean hydrogen strategies, of which 40% developing countries, to provide some direction in addressing these challenges. Many developing countries boast a distinct advantage to tap into the transition to clean hydrogen. In addition to the decarbonization prospects offered, clean hydrogen also creates unique opportunities for these countries to leapfrog to clean hydrogen production as a clean energy solution and energy security. It opens up participation in the global hydrogen trade, which will account for about one-quarter of the total global hydrogen demand by 2050. Clean hydrogen offers new opportunities for net zero industrial development and creates local value addition, thereby paving the way for job creation, skills upgrading, investment mobilization and wealth creation. Clean hydrogen can reinforce developing countries’ overall economic resilience and drive the development of a diversified and knowledge-based economy. The clean transition enabled by clean hydrogen can in many aspects be regarded as a new industrial revolution.

**Key questions to be addressed**

- **General**: We have heard about the opportunities which renewable hydrogen can bring to developing countries. Could it become a missed opportunity for developing countries? What is needed to make sure that we seize it with both hands?
- **Hydrogen strategy**: What are the main tenets of a Hydrogen strategy and how does it fit in the industrialization plan for your country? Are there any lessons learned you would like to share with us? E.g., on adapting ambition level to reality or Export vs. local industrial development focus
- **Just transition**: The clean hydrogen transition will have implications for the socially crucial dimensions of security in energy, water, and food supply. How can we ensure that the clean hydrogen transition is a just one, fair for the people and planet?
- **Investment framework**: Having high renewable energy is not enough, you need to have the environment and investment framework in place. The need for investment to also impact on national economic development – e.g., local content, skills upgrading, etc. Any lessons learnt on how to attract FDI which can be relevant to other countries? What is the role that the policy and regulatory framework can play in mobilizing resources and de-risking investments in this sector?
- **Infrastructure development and technological innovation**: The development of hydrogen infrastructure carries uncertainty around the performance, efficiency, and scalability of these technologies, potentially leading to financial losses. How can we lower the risk associated to the large investments needed to build a robust hydrogen infrastructure?
- **Hydrogen trade**: Especially for strongly export-oriented developing countries, the uncertainties and cost challenges could jeopardize the viability of clean hydrogen development in the envisaged timeline. Will large scale hydrogen trade ever become...
reality? What needs to be done have it happen? The transportation and distribution of hydrogen can be complex, particularly for long-distance or international trade. Infrastructure bottlenecks, transportation costs, and regulatory issues can impact the financial viability of hydrogen projects. How can we ensure that risks are adequately address and minimized?

The event will have simultaneous interpretation in all official languages of the United Nations, and will be livestreamed on UNIDO’s website: https://www.unido.org/general-conference-20.