

Industry Position on Decarbonizing Pathways

The Issue

While fertilizers are widely recognized for their critical role in contributing to 50 percent of world food production, the manufacturing of fertilizers, and ammonia, in particular, is energy- and carbon emission-intensive by nature, which makes this industry a hard-to-abate sector.

Position / Key Messages

The fertilizer industry is committed to playing its part in achieving the 1.5°C goal of the Paris Agreement. The industry recognizes that an efficient transition to economy-wide, net-zero emissions is the only way to limit global warming. Several companies have already committed to net-zero; others are developing a strategy towards that objective.

The ammonia industry has achieved significant progress in the last 30 years thanks to the adoption of best available technologies. Until transformational new technologies can be implemented, however, most ammonia manufacturing will continue to be based on the Haber-Bosch process. Now academic institutions, research and development centers, and a number of IFA members are working on deploying transformational technologies to produce ammonia from sustainable, carbon-neutral inputs.

The sustainable production of ammonia is key for increasing the fertilizer industry's energy efficiency and reducing its CO₂ emissions in the coming years. The development and implementation of next-generation process innovations, including renewable energy, require a realistic schedule to ensure that the industry achieves its climate goals without affecting the delivery of fertilizer products to farmers around the world. It will be important for a global activity in this regard to prevent carbon leakage. A Nitrogen Technology Roadmap will be issued by the International Energy Agency this year and provide additional guidance to the industry on how to decarbonize over the next 30 years.

The **phosphate and potash industries** also achieved emission reductions in the mining and production of fertilizers by investing in more energy-efficient technologies, abatement of air pollutants, and the use of renewable, internally cogenerated energy. Many companies are also creating carbon sinks by reclaiming land from mines and converting it to arable land or forestry.

Measurable, industry-driven, carbon footprint reductions are happening in the fertilizer transport and supply chain down to the farm level as part of a comprehensive global engagement to decarbonize the entire food production chain. The fertilizer industry calls on governments to facilitate and support these efforts by developing or maintaining infrastructure and transportation systems, setting up electricity and renewable energy grids, and incentivizing carbon offset practices at the farm-level.

Background

- Today production plants, built with the most advanced technologies, use 30 percent less energy per tonne of ammonia produced compared to older plants. Older plants continue to make progress in cutting their energy requirements through regular equipment improvements and upgrades.
- Pilot projects are focusing on next-generation technologies such as electrochemical processes and photocatalytic and electrolyzed devices derived from carbon-neutral energy (also known as “green ammonia”).
- Furthermore, producers are decarbonizing ammonia production by capturing and re-using CO₂ or sequestering (“blue ammonia”), as well as by recycling byproducts of fossil fuel production to reduce their dependence on natural gas.