
How renewables ramp-up and no-regret use of hydrogen can boost Southeast Asian industry

Press release

Targeted use of renewable hydrogen can play an important role in accelerating industrial decarbonisation in Southeast Asia. To drive sustainable economic growth, governments should reserve renewable hydrogen for no-regret applications while prioritising renewables deployment and developing cross-sectoral decarbonisation strategies, a new report by Agora Industry and Agora Energiewende shows.

Bangkok, 30 April 2024. Governments in Southeast Asia increasingly see hydrogen as an important element for achieving climate targets and reducing dependence on fossil fuel imports, with five countries in the region having recently adopted hydrogen strategies.

While renewable hydrogen will play an important role in the medium term in decarbonising certain industrial sectors such as chemicals, iron and steel, prioritising faster renewable energy deployment would help ensure sustainable economic growth in those countries, a new report by Agora Industry and Agora Energiewende finds.

The paper explores the challenges and opportunities of hydrogen specific to the region's energy landscape.

"Southeast Asia urgently needs to ramp up renewable energy production to reduce its demand for fossil fuels, instead of betting on a wholesale switch to hydrogen," says Dimitri Pescia, Director Southeast Asia, Agora Energiewende. "Removing market entry barriers, providing long-term investment certainty and facilitating power system integration can help foster a competitive renewable energy market."

Renewable hydrogen is secondary to direct electrification

While hydrogen will be important, it is less efficient than direct electrification due to energy conversion losses. Producing clean hydrogen also requires significant additional deployment of renewable energy.

Renewables-based direct electrification will thus play a more prominent role than hydrogen in future energy systems, the study finds. This underlines the need to reserve hydrogen for "no-regret" applications where direct electrification is not an option. Such uses include feedstock in the chemical sector, reaction agent for steel manufacturing, aviation and shipping, or in the power sector for long-term energy storage used to back up solar and wind power. Co-firing ammonia – a hydrogen derivative – in coal power plants, however, is inefficient and ineffective in cutting greenhouse gas emissions, the authors write.

Using hydrogen beyond no-regret applications can increase its demand in the region fivefold, compared to scenarios where electrification is prioritised, the study finds. This would put an extra strain on electricity supply and resource availability and require significant additional investment in renewables.

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Dimitri Pescia: "Governments in the region should focus on direct electrification and on low-carbon industry development while carefully considering hydrogen demand potential. A targeted use of renewable hydrogen can help keep both its demand and electricity prices in check."

Opportunities for low-carbon development of the region's industry sector

Despite possessing abundant renewable resources to fulfil domestic energy demands, Southeast Asia faces challenges in making hydrogen production cost-competitive compared to other potential exporting regions that have even better renewable energy resources.

Becoming a hub for global hydrogen trade, as proposed by some Southeast Asian countries, is thus unlikely to materialise and risks investment in infrastructures that may become stranded. Focusing instead on the production of higher value goods, such as green steel or chemicals (methanol, ammonia and fertilisers) would create export potential in the global market for hydrogen derivatives, in particular towards East Asian nations.

"As the world transitions towards climate neutrality, there will be an increasing demand for low-carbon products such as green steel, methanol and ammonia. Southeast Asia can tap into this potential by using renewable hydrogen to produce such materials and thereby increase industrial competitiveness and create new jobs, bringing important socio-economic benefits to the region," Dimitri Pescia said.

Robust long-term strategies to attract the necessary investments

Cross-sectoral policy frameworks for renewables and hydrogen that include robust environmental and social standards can attract potential investors and create new jobs. The paper outlines key actions for the region to attract private and international investments in renewable energy and hydrogen development. Such actions include setting clear policy goals and targets to send positive signals about the region's medium and long-term pathways.

Furthermore, Southeast Asian governments can benefit from working together to develop net-zero aligned hydrogen strategies and policies. These strategies should promote the expansion of renewable energy to decarbonise sectors where electrification is the most efficient solution and reserve renewable hydrogen for those applications where electrification is not possible. Such collaboration could take place through ASEAN, in line with its vision of regional economic integration and adherence to multilateral trade rules.

Finally, the introduction of sound financing instruments is a crucial priority to speed up the development of renewable energy, the power grid and the production capacity and infrastructure for hydrogen in the region. Many Southeast Asian countries do not have the necessary public funding to support renewables development and hydrogen production or demand on a large scale. Demonstration and pilot projects could help attract private sector investments into renewables, hydrogen and industrial decarbonisation in the region, the study concludes.

The 60-page report, *9 Insights on Hydrogen – Southeast Asia Edition*, is the result of extensive research and discussion with experts across Southeast Asia.

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Agora Industry and Agora Energiewende develop scientifically sound and politically feasible strategies for a successful pathway to climate neutrality – in Germany, Europe and internationally. The organisations which are part of the Agora Think Tanks work independently of economic and partisan interests. Their only commitment is to climate action.

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