

THE NEXT PHASE: TURNING CLEAN HYDROGEN INTO A GLOBAL COMMODITY

Earlier this month, the IPHE hosted two widely viewed public fora¹. The first one demonstrated the amazing momentum of clean hydrogen in ports in Europe, the US and Australia. Ports are often connected to industrial clusters and form a great starting point for scaling-up clean hydrogen. This is already happening in an increasing number of places around the world. The second forum brought together high-level representatives from industry, government and the investment community to assess the growing global momentum on clean hydrogen.

How can we explain that this momentum seems to be growing despite the pandemic and the severe economic downturn? One reason is the unstoppable drive among governments and large companies to set **net-zero emission targets for 2050**. The hydrogen narrative that has become dominant in 2020 is that clean hydrogen is *indispensable* for decarbonizing hard-to-abate sectors like industry (e.g., steel, chemicals) and heavy-duty transport (e.g., trucks, ships, planes), as well as providing seasonal storage. This has found its reflection in many countries launching hydrogen strategies.

The *credibility* of these strategies was highlighted at the Policy Forum as being of paramount importance, giving a reliable signal to the private sector and investors. The other reason for the growing momentum is that governments are positioning public investments in scaling-up clean hydrogen as part of their **green recovery packages**. We are talking *tens of billions of dollars* already committed, and more to come. How to spend these billions most wisely and effectively, is becoming the key question going forward.

Still underrated is the emerging shift in *investment flows* of *oil and gas majors* (e.g., Shell, BP, Total) towards low-carbon energy, including clean hydrogen. At the same time, it's clear that the complexity of building these new value chains, including infrastructure for transportation and storage of clean hydrogen, is tremendous. One take-away from the Policy Forum is that we need to focus more on *demand-side incentives* to ignite the scale-up. Once the demand is clearly defined, reaching the gigawatt production capacity and bringing down the cost significantly will follow. We should move quickly beyond demonstration projects, the **time for scaling-up is now**, was one of industry's key messages. On the cost of clean hydrogen, we heard that the Australian government has installed a private-public taskforce 'H2 under \$2'.²

Another take-away from the policy forum is the key importance of **global trade in clean hydrogen**. The ambitious hydrogen strategy of Germany aims at building a domestic clean hydrogen market while counting on *imports* for much of its clean hydrogen needs. The same is true for the EU as a whole. The countries at the forefront of building clean hydrogen trade flows include Japan, Australia and Saudi Arabia.

Japan is planning massive imports of clean hydrogen to achieve its climate goals and diversify its energy mix. Australia's hydrogen strategy is not only geared to developing a robust domestic market, but also eyeballing the creation of a large hydrogen export sector with several large projects. In the Middle East, Saudi Arabia has started a first big export project (key part of the vision for NEOM), while the UAE and Oman also have serious hydrogen ambitions. The discussion in the policy forum highlighted the critical importance of a **reliable certification scheme** for hydrogen. Only on the basis of a globally accepted methodology to calculate the *carbon footprint* of hydrogen can we expect to see trading of hydrogen as a global commodity. The work on the design of such a

¹ The recording of these fora is available on our website www.iphe.net [Regions Forum](#) and [Global Policy Forum](#)

² This refers to 2 Australian dollars for a kg of H₂. 2 US dollars per kg H₂ in 2030 is increasingly becoming a new price frontier for several industry players.

methodology has started in an *IPHE Taskforce* this year, with participation of the US, Japan, EC, France and Australia among others.

Where do we go from here? For IPHE, completing the work on the methodology for calculating the **carbon footprint of hydrogen** is a top priority in 2021. This may also allow the world to move away from the infamous hydrogen 'colours'. A second priority for IPHE is to track very closely how the hydrogen strategies and policies of governments are evolving. In this rapidly moving space, it's very important for all stakeholders to have accurate information on **targets** (e.g., for electrolysis capacity), **deployments** (fuel cell vehicles and refuelling stations, for instance) and government **budget allocations** with applicable timeframes. Working closely with industry in the Hydrogen Council, we intend to monitor how the government ambitions stack up against the real investments taking place on the ground. Where gaps emerge, we want to engage in efforts to bridge the gap. This brings us to a third priority: mapping of regulations or standards to help identify **regulatory gaps** that are most pressing and holding back deployment or international trade. Stronger coordination on addressing **safety** (including sharing best practices) of hydrogen applications has already been identified as requiring continuous attention of policymakers across the globe.

In working on our priorities in 2021, IPHE will collaborate closely with **other international organizations and initiatives** in the hydrogen space to make maximum use of synergies in the collective effort to accelerate the development and penetration of clean hydrogen in the economy.

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