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I am turning now to our last speaker, Mikaa Blugeon-Mered. You have many hats, including working now for Hy24 and a hydrogen-specialized investment fund based in Paris. Among the many things that you did is you wrote a book about the geopolitics of hydrogen. Hydrogen can be produced locally, but it can also be transported in various forms, in liquid or gaseous form. There are different costs and constraints related to that. Clearly, we talk about hydrogen, but hydrogen has different forms and byproducts. It can be ammonia, methanol, to name a few. Do you have the impression that hydrogen trade could actually pick up before we do local hydrogen production? Because what we do now is generally small demonstrator scale hydrogen production, although there are a few exceptions, which we can discuss. Do you think that the bigger scale will be driven by trade? What do you see for the region here as a potential hub, for example, and for what kind of products?

Mikaa Blugeon-Mered, Independent researcher specialized in the geopolitics and international markets of hydrogen

Thank you so much for having me. Thank you, Marc-Antoine, for this great introduction. Indeed, the book will be published on January 30. It will be available for everyone for free online. Do not worry about it. One of the things we tackle in the book is how hydrogen has changed in terms of geopolitical and geoeconomic factors over the past five years. Basically, during the first wave of contemporary national hydrogen strategies, starting in 2013 in Japan and going all the way until 2021/2022, what we have is the majority of countries saying that hydrogen will be unlocked thanks to international trade at massive scale, and to unlock that, to make it happen, we need to have some kind of major offer-centered policy support. What we have seen, starting in the second half of 2022, all the way until now, is that this strategy does not work. Why does it not work?

If you are Germany or France or Belgium, you have hard-to-abate industries in your country. You want to decarbonize them with green hydrogen. Okay, great. You have got two options. You can either bring the green molecule here, or hydrogen, or one of its derivatives – ammonia, green methanol, DME, whatever you like – from some place where you have produced it cheaply, in a place with ample land availability, and in a place where basically there are a lot of renewables. Okay, great.

The second option is that you can relocate the hard-to-abate assets from Europe to the very same countries that we were talking about. That is basically what is changing now in hydrogen. The more global southern countries, as we call them, have started building

hydrogen strategies at the national level, starting in 2021/2022, the more this kind of new narrative has emerged. If I am Namibia, if I am Kenya, if I am Morocco, if I am Indonesia, and the like, why would I export raw molecules to Europe for Europe to turn these molecules into high-added-value products? Why would I do that?

It does not make sense. I want to retain the added value in my country. I want to create local jobs.

I want to diversify my economy. I want to derisk my economy, particularly for regions like the Middle East, which need to actually not just decarbonize, but reinvent themselves for the post-fossil fuels world.

Based on that, those countries have said, “Hydrogen is now a green-shoring geopolitical factor, and if you want to decarbonize your hard-to-abate industries, do not pick my molecules up and take them all the way to the north. Invest in my country. Build assets there.” In a nutshell, that is the reason why major investors, like Ardian, for example, now with the Hy24 fund, are basically leading the narrative. They are saying, “Okay, so there is green-shoring on the one hand. There are still people who will need molecules, for example, TotalEnergies. They will need to import molecules to decarbonize their refineries in Europe. That is a given, and we need to help them, both on the infrastructure side and on the equipment side.” Why do we need to do that? Because, as I said, the first hydrogen national strategies were focused on the offer side, and because they were focused on the offer side, like on the chicken side, no one was really betting on the eggs part of the equation.

What we have realized is that many projects based on very large subsidies, which gained momentum in 2021, 2022, 2023, are now being stalled, not just because of the cost of capital, not just because we do not have the appropriate regulations and whatnot, but also because the demand has not picked up at the same pace. What countries are now doing therefore is that they are readjusting, realigning their hydrogen strategies to focus more and more and more on the demand, starting with Korea, starting with Japan, starting with Germany. Because if you have demand, basically there is always going to be someone seizing an opportunity here and saying, “Oh, I need to build a value chain upstream to actually meet that demand.” That is how you effectively unlock hydrogen, and that is a real geopolitical change, because if you are focusing on the demand, if you are focusing on the green-shoring aspect of things, then we are essentially building local value chains rather than international trade-based, large-scale value chains. That represents the biggest geopolitical and geoeconomic change in the past couple of years, particularly regarding hydrogen and its derivatives.

Marc-Antoine Eyl-Mazzega

Thank you, Mikaa. The focus on demand is essential because, indeed, if you do not have buyers the supply is of course not going to come. That is a fundamental energy policy challenge because you have to come with OpEx support measures for energy-intensive industries or hard-to-abate industries, and that is, of course, something that governments are not very used to so far. However, there are schemes, carbon contracts for difference, etc. Coming back to the supply side, you mentioned a number of countries that could rise up. What advantages do you see for this region here and for the UAE, for example, in this equation, because not everyone will be a front runner in that field?

Mikaa Blugeon-Mered

No, definitely. The beautiful part of hydrogen is that technically anyone could produce green hydrogen anywhere in the world. However, the cost question is, of course, important. When we look at the latest study from IRENA regarding the 1.5 degrees pathway and what kind of investment needs we would have for hydrogen, they have basically said we would need USD 900 billion of investment all across the hydrogen value chain between 2024 and 2030 to actually build the very first phase of that hydrogen economy model. Who has the money to actually deliver that now? Is it Chile? No, Chile is asking for money from the World Bank to develop its hydrogen economy. Is it Europe even? No, we are broke. Is it Japan? They are broke. Is it South Korea? They are not that broke, but at the same time, they have a limited market to actually kickstart the whole thing.

When you are in the Middle East, you have people with money, you have got people who have got available landmass and you have people who also have the availability to invest in all the other things you need to develop hydrogen, including the water supply, starting with desalination, which you know all too well. However, not just that. It is minerals and all of that. Also, the green-shoring aspect is key. If you really want to retain added value, then you basically say, “Look, I have the money to invest in hydrogen. I also have the money to build the industrial assets that are going to use that hydrogen locally.” Therefore, basically, here in the Middle East, whether you look at Oman, whether you look at Saudi Arabia, whether you look at even Kuwait, which is now building a hydrogen strategy, Iraq and the like, there are people here who can deliver that hydrogen economy.

I just want to add one key thing. We are changing. Hydrogen is changing the nature of energy geoeconomics, I would argue, and of course feel free to challenge me on that. We are moving, I would say, from a commodities-based geoeconomics to an assets-based geoeconomics because of hydrogen. Because hydrogen is not just about the commodity, the molecule. It is about all the assets that you need upward, upstream, downward, downstream to actually make it work. Based on that, the increasingly important factor is not really the OpEx. It is actually the CapEx, and if you want to deliver the CapEx, you need to derisk the entire industry moving forward. To derisk the whole industry moving forward, if you are broke, like Europe or Japan, or if you are not really sure of what you’re going do with hydrogen, like the US, and you want to make sure that you do not miss any opportunity whatsoever, what you need to do is to develop new regulatory systems and energy reserves that can push that market forward.

We have got that in Europe. RED III was mentioned. I could have mentioned here AFIR and many other directives of that sort. Of course, there is a CBAM effect in hydrogen, many derivatives or use cases of hydrogen. This is a very important factor. Then, when you also add the carbon capture, the eSAF, sustainable aviation fuels, and the like, and so you add the carbon question to rebuild some molecules that we need for e-fuels, then you also touch upon the carbon aspect and therefore you touch upon the forestry aspect, the nature-based solutions aspect and the like.

Therefore, to unlock all of that at the same time, you need adequate regulatory frameworks. You need the energy reserves, and currently, China is the only country doing that when it comes to building hydrogen strategic reserves in the world, and what you need is long-term

investors who are willing to provide maybe more conservative investors with a platform to invest in nature-based solutions. Ardian is doing that. They are not the only ones, but they were frontrunners in that with Hy24 in hydrogen, with the NBS fund when it comes to forestry and carbon management. Basically, you need these kinds of actors to then help derisk not just the economy, but the policymakers as well. Policymakers also need to be derisked when they take decisions to build these favorable regulatory regimes. You therefore need to bring all these people together and it is a systematic change that must happen.

Marc-Antoine Eyl-Mazzega

Thank you for that. I think this kind of gathering also helps to move in that direction.