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FCHgo! INTERVIEW

Katia Ferrari – Clust-ER Greentech

Emilia-Romagna Clust-ERs are communities of public and private entities, universities, research centers, companies, training centers which share ideas, skills, tools and resources to support the competitiveness of the most important production system in the region. The Greentech Clust-ER is part of this regional network and works in the fields of energy and sustainable development. Greentech promotes synergies and co-planning among its associates in many ways, ranging from promoting new low-carbon and efficient economy models to new technology for energy production, stocking and distribution, from monitoring and improving air quality to the efficient use of waters and treatment to promoting byproducts and circular economy. By joining the Greentech Clust-ER, you'll join an open and collaborative environment where you share and develop ideas and knowledge to improve citizens' well-being. You'll define political strategies and new projects, you'll know scientific, technological and business news in the fields of energy and sustainable development. Being an associate means being part of the challenging project to increase innovation opportunities.

Cluster-ER Greentech was founded in Emilia-Romagna, where excellent and innovative technologies are developed every day, but addresses Europe, the world and the future thanks to the partnership with public institutions, research centers and companies striving to create technological innovation and to promote community growth. With its associates, Greentech promotes the 2030 Agenda and believes that innovation is a key element to reach the sustainable development goals promoted by the United Nations

The Greentech Clust-ER is part of the regional system for innovation and is funded by the European fund for the Emilia-Romagna region – POR FESR 2014-2020.

Barbara Grazzini (InEuropa srl): Good morning everyone, today we have a new interview with FCHgo. Say hello to Katia Ferrari from the Greentech Clust-ER, our contact person for the FCHgo project. Thank you, Katia, for your time and for telling us what the Greentech Clust-ER does. We've seen the video introducing the Clust-ER Greentech as a group co-operating with different entities. Tell us what you do, what your mission is and why you are important for the region.

Katia Ferrari (Clust-ER Greentech): Thank you, Barbara. As you said, Clust-ER is a group. Legally it's a private association of entities, such as private companies, both public and private research centers and training centers. We are very happy to take part in your project as stakeholders because we also support schools to get in touch with research and innovation.

We're a new group, which was founded in 2017 under the push of the region, the whole system of innovation and the Emilia-Romagna High Technology Network, which also funds us. We have 76 associates, more than half are private companies. When you talk about industrial innovation and research, you talk about studying technologies which aim to find solutions ready for the market, not only do you study like research centers and universities often do, but you also create something which can be used in every-day life to improve citizens' well-being and to create new job opportunities.

We help all the entities that are essential to improve innovation, which will help us to find more sustainable solutions for our challenges, such as climate change, to promote a more sustainable economy. If these entities work on their own, they're not effective. What we want to instill in students is the value of cooperation. What I do in Clust-ER, together with my colleague Francesco Matteucci, under the guidance of our board of directors and our associates, is helping these entities to enhance their skills in a collaborative environment. You don't always have to compete with other companies, but you can create groups and work together to use everyone's expertise. Research studies are essential, among our associates we have industrial research laboratories of all the universities in the region, which always work together with companies. Companies need these skills, but then they are the ones who market these solutions. That's what we do.

Barbara Grazzini (InEuropa srl): Collaboration is even more important when it comes to new sectors. I call them new, but I know that hydrogen has been studied since the 1980s. Obviously, we didn't have regulations supporting its research and application, but now we have them and this supports the application of new resources and energy carriers, such as hydrogen, to produce eco-friendly energy. Grouping together helps "lonely guys", people who some years ago worked alone like crazy and were thought to be unconventional. Now that's our future, we must invest in this sector and people's attitude needs to change.

Katia Ferrari (Clust-ER Greentech): When I listed our entities promoting innovation, I forgot to mention two other actors. First, we have politics because without regulations and strategies supporting and funding research, it is difficult to transform these technologies into widespread technologies.

Then we have civil society and people because if there isn't understanding and sharing of intents, if you are afraid of new technologies which are not yet used, people might prevent the construction of new systems and the spread of new technologies. You need complex skills to assess risks and

benefits of new technologies. You therefore need to communicate, to explain and to move in the same direction. When it comes to hydrogen, I might spoil one of your questions…

Barbara Grazzini (InEuropa srl): Don't worry. Please, tell us.

Katia Ferrari (Clust-ER Greentech): When it comes to hydrogen, Clust-ER, which is actually called The energy and sustainable development Cluster of the Emilia-Romagna region, works on two aspects, two value chains: one is LOW CARBON ECONOMY_ER and ENVIRONMENTAL SUSTAINABILITY AND ECOSYSTEM SERVICES.

The energy field became important for Clust-ER in 2019 under the push of our associates, first and foremost the University of Modena with Professor Romagnoli that you've already interviewed, who helped to grow our associates' interest for this energy carrier, Giordano Gozzi with Idro Meccanica, the Graf company of Modena, other companies, such as CTS H2 which is not located in Emilia-Romagna and AESS which you have interviewed. We have about fifteen associates dealing with research or from the business world, like Toyota Material Handling, covering the whole production chain. We have fuel cell manufacturers, electrolysis companies, compressor manufacturers. This helps us to put together the various pieces of the puzzle and to encourage the creation of infrastructures and big investments in infrastructures.

We have only one hydrogen fueling station in Italy located in Bolzano. Buying a hydrogen car is crazy today since we don't have infrastructures. Our working group wrote a manifesto and presented it to regional authorities to prove that we want to reach the European Green Deal's goals, which has been recently published. Europe is investing a lot and our region is part of a European partnership. Our working group hopes that Emilia-Romagna will become a Hydrogen Valley and will therefore get the necessary investments to build infrastructures for vehicles and for private and public buildings allowing us to use this technology.

Barbara Grazzini (InEuropa srl): If I'm not wrong, you can download the manifesto from your website, there's a link and a PDF file, maybe it's a summary.

Katia Ferrari (Clust-ER Greentech): Yes, it's a summary.

Barbara Grazzini (InEuropa srl): It might be interesting for schools following us to see what you wrote. It's essential that Emilia-Romagna as a region is moving forward to this path, like local entities. In Modena, which is the core of the Hydrogen Valley, also the province is investing in this field.

There's interest in this technology and in building infrastructures. We also want to know what other regions are doing, but being based in Emilia-Romagna we mainly focus on this area, it's easier for us, but other regions, such as Tuscany or northern, southern regions can set the example, too. Maybe you want to tell us something about the network you set up, some anecdotes, we didn't arrange this but you might know something that could grow interest in this theme. FCHgo aims to send a message about sustainability, environment, climate change, but what can we do more concretely, what are you doing on the territory and how will be your future?

Katia Ferrari (Clust-ER Greentech): In my opinion it is important to understand one thing. Instead of telling you an anecdote, I'll tell you we work with schools and support principals in sustainability courses to provide updated information, let our competent members tell their experiences. One of the aspects I hear people talk a lot about, for example in the area of mobility, is that electricity is a panacea to everything, but we must be careful because electric cars fueled by electricity produced by non-renewable sources are not the proper solution.
Old lithium-ion batteries don't last for long and their disposal has a high environmental impact since the extraction of lithium in poor countries, for example in Latin America, is unsustainable, therefore it is the cause of serious social impacts, that's not a solution and all the solutions must be studied along with the process chain. From the extraction of resources to the application of energy, to the cycle of life of the product, the service. For example, electrical energy is not the best solution if renewable energy is not involved in the process. This is another important aspect to highlight. Hydrogen allows us to store energy because it's a gas and it is produced, you must have told it a million times but I'll repeat it…

Barbara Grazzini (InEuropa srl): Repeat it.

Katia Ferrari (Clust-ER Greentech): It's a H2 gas produced from water electrolysis, which it's a very expensive step. Breaking down a water molecule into oxygen, that then will be released, and into H2 is expensive and in that process you must use renewable energy, because otherwise it would not make sense, that must be immediately used when it's needed. There are people who do not agree to use gas reserves all at once, but instead of wasting they think it's better to save… like 30% of it...

Barbara Grazzini (InEuropa srl): At least some.

Katia Ferrari (Clust-ER Greentech): A percentage of gas that is stored for months which is available in case of need is better than wasting it. Therefore another "lesson" or observation I'd like to make is that there has never been just one proper solution but a combination of things, the important thing is an integration of solutions that must be adapted to reality. Another example is that it does not make sense if you produce renewable energy in Bolzano and carry it on a diesel truck, I'm making this up…

Barbara Grazzini (InEuropa srl): Yes, but that's a good example.

Katia Ferrari (Clust-ER Greentech): If you carry hydrogen from there to Messina, it doesn't make any sense, you must carry it nearer. If you carry it on diesel-powered ships, it doesn't make sense. These aspects must be considered too, you must have the possibility to transport hydrogen, but how? By which kind of vehicle? These are all aspects that must be kept in mind. The big advantage is that in Italy, specifically in Emilia-Romagna, there's a big gas transport network and we can exploit it.

Barbara Grazzini (InEuropa srl): You can use it, exactly.

Katia Ferrari (Clust-ER Greentech): This doesn't replace batteries that have a storage capacity of a few hours. The experts are looking for the perfect mix of solutions for a certain situation and keep on doing research to break down the costs of the supply chain that is very expensive, specifically electrolysis. Another important thing is that hydrogen can be used for mobility and buildings and together with CO2, which is used in other steps to produce synthetic methane similar to the non-renewable natural methane. Therefore, there are various possibilities of applications of hydrogen through Power-to-Gas technology that transforms it into methane. This is a way to produce methane.

We have a working group that is working on this production together with hydrogen to develop this kind of technology, which is still very expensive, allowing systems producing biogases to generate methane from hydrogen and CO2. This could be useful to extract less of it, there are systems applying this technology in Germany, but it's not affordable and there is still work to be done to reach short-term amortizable costs of operation and investment to make it able to compete with the price of fossil methane.

Barbara Grazzini (InEuropa srl): Absolutely.

Thank you for these observations, we didn't talk about this in the other interviews, it's interesting because you give further ideas to our viewers that might be curious to explore and understand this kind of applications. Thank you, Katia. Would you like to tell us something else regarding your short and medium-term objectives?

Katia Ferrari (Clust-ER Greentech): When it comes to hydrogen and Power-to-Gas, Clust-ER is now focusing on two manifestos that are almost ready to get launched. We are trying to include new strategic and important plans of the supply chain in the new Smart Specialisation strategy of the region, we are one of the seven regional clusters created in 2017, they concern different sectors like Automotive & Mechatronics Clust-ER, Agri-food Clust-ER, Building Clust-ER, Cultural and Creative Industry Clust-ER, Healthcare and Wellness industry Clust-ER and IT Services Clust-ER. These are all sectors designated by the region, proof of the importance of local policies related to European policies. I'll try to explain this in simple words for the kids because it's important to understand how Italy, Emilia-Romagna region and all the other Italian regions are related to Europe. Italy is an EU member and the region Smart Specialisation strategy adopted by the Emilia-Romagna region for the period 2014-2020 channels its investments.

The region identified the business drivers, we dealt with innovation. Then every region must define their own priority skills that differ from region to region and, as agreed with the European Commission, a seven-year policy is developed and financed by the European Community with the renowned fund POR FESR. The fund is necessary to achieve the objectives of the strategy which is defined by the region in agreement with the other subjects. Clust-ER is one of those subjects. Since Clust-ER was founded we have helped the region to set the objectives at the halfway of the strategy. Currently the strategy is coming to an end and the region is setting its next objectives and is starting to work on its new strategy.

We give consultations, this is another advantage of being part of a community because if you work on your own it is difficult to make your voice heard. Thanks to the skills of our members we speak so that strategic ideas they propose are included in the policy and therefore funded. We aim that the region adopts this kind of inventiveness for the next strategy.

Barbara Grazzini (InEuropa srl): Exactly, for the 2021-2027 programming period.

Katia Ferrari (Clust-ER Greentech): Exactly.

Barbara Grazzini (InEuropa srl): Absolutely. Katia, you've been crystal clear, I'd like to keep on talking to you because you are saying very interesting things. Why not? We could talk again and make a second interview. Maybe at the beginning of the next programming period to see the decisions of the region. Especially for your manifesto which we will follow and we encourage our viewers to do the same. I thank you a lot for your words, your time and your expertise, talk again soon.

Katia Ferrari (Clust-ER Greentech): Thank you for this opportunity, thank you Barbara.