Econic Technologies

Dr Rowena Sellens

Dr Rowena Sellens at start-up Econic Technologies has used a Horizon 2020 SME Instrument award to commercialise innovative catalyst technology that could soon prevent the emission of ca four million tons of CO_2 per year – the equivalent of taking two million cars off the road.

Company: Econic Technologies
Funding: Horizon 2020 SME Instrument

Econic created a proprietary catalyst technology that allows plastics manufacturers to replace part of their oil-based raw material with waste carbon dioxide (CO_2) to produce cheaper, higher-performing polymers.

Econic's CEO Rowena says: "There are substantial environmental benefits from the technology – for every unit of CO_2 used in manufacturing these materials, a further two are abated, due to the reduced reliance on oil based feedstock. In our first target market, which is polyols for polyurethane, we predict that with a market uptake of 30% by 2026, between three and four million tons of CO_2 per year will be abated, which is the equivalent of taking two million cars off the road."

Funding to face key challenges

Rowena explains that the European Union (EU) funding has been key to addressing challenges in commercialising the technology:

- proving the technology is scalable and that retrofitting it to existing production plants is cost-effective;
- demonstrating the viability of the CO_2 containing polymers in relevant market applications;
- identifying and engaging early adoption partners;
- ensuring they have supply partnerships to underpin the manufacturing and supply of the catalysts.

The €2.4 million grant was awarded in 2016 and the team have designed, built and commissioned a pilot unit that not only demonstrates the catalyst technology in action, but also validates estimates of what retrofitting really means to potential users and what that would actually cost. Outputs also include case studies and samples to support the company's marketing activity and papers presented at key trade conferences. The progress in the first 18 months of the Horizon 2020 funding was fundamental in the completion of a £7M investment round.

Rowena says: "We've underpinned all of that with cost/benefit models, and all of that additional information and proof has allowed us to engage a number of potential adoption partners and substantially strengthened our customer pipeline. On the supply side, we have worked with a number of manufacturing partners who will provide the supply capabilities for the catalyst."

Recruitment and reach beyond borders

Rowena explains that Econic recruited from a number of different groups with relevant expertise in the field from across the EU and wider. She says: "We currently have 30 employees from across the EU and the wider world and there is very much a diverse mix of male and female.

"I think, like many specialist companies, you look for people that have relevant experience in the types of tech you are doing and our employees have been working in groups inside and outside the UK on particularly strong research that just made them good candidates. [Brexit] will certainly impact on the pool we are able to recruit from in the future due to concerns people have. As an SME [small or medium enterprise] or start-up, you already have some vulnerability until you become a profitable, self-sustaining business.

"You have to drive progress all the time to get fresh funding and investment to take us through to the next stages of our business. That is a risk people take when joining an SME – if they believe in the focus and direction of the business, that's why they join in the first place, but if there is an added risk or hurdle over whether you will be welcome in the country, then that will create another barrier. We talk with our existing employees who certainly feel more vulnerable since the Brexit referendum."

Potential expansion and influencing policy

Econic currently have a small amount of revenue through early stage development activity with partners, though have not yet reached profitability. That is predicted to change over the next three-to-five years as customers start to scale the technology and Econic activity expands into further markets and applications.

Rowena says: "We talk about this as a *first market*, as the research foundation and IP [intellectual property] we hold would enable us to grow from this tech platform to go into other markets. Of course, from a company point of view it's important that we are successful in our first target market, which is a substantial market in which we expect that we could uplift the value of polyols to polyurethane – currently a $20 billion market – by $1 billion, through the economic benefits of this technology."

Rowena explains that while it is hard to see an individual technology having a significant impact on legislation, early valorisation on waste CO_2 is really important. She says: "This tech doesn't solve the CO_2 problem, (only taking the equivalent of two million cars off the road), but we can have real impact in the near term, by 2026.

"Doing that, and creating added value through it, is a foundation to encourage others into looking at what you can do and how you can address carbon issues. We have been involved in a number of policy discussions, both industry and sector wide, around this theme.

"There are technologies talked about that could make a huge impact but they are at best longer term and some still theories, they are not three to four years away from having a big impact. I think early commercialisation of a value-creating, CO_2-reducing technology should actually be a tangible foundation stone for developing a low-carbon economy, and in that sense it could influence policy."

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