

**Orianna Bretschger**  
CEO of Aquacycl



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**Sofia Babanova**  
VP of R&D of Aquacycl

*Chris: You've been a strong advocate for women in the Renewable Energy industry. What are some key issues that need to be addressed to encourage more women to work in this industry?*

**Orianna Bretschger:** One issue is awareness of the different types of jobs that are available in the industry. I wouldn't say it's gender specific as much as getting the word out early on in education – in high school, or even better, junior high – that there are some really cool and fun jobs available in water and wastewater. We've got a large population of operators who will be retiring in the next five to ten years, and there's going to be a huge experience and expertise gap to fill. We need people in the industry now, but so many students aren't aware of these jobs or of the training required to get these jobs – especially women, who are not always encouraged to play with the pumps and the pipes, and may not have awareness of what goes on in these types of jobs and how fun it really is. I think that's the biggest thing we can do – raise awareness and encourage women to get engaged early on. We focus ▶

our outreach toward helping students understand some of the fundamental science behind technology, that what they can do as a researcher, as a scientist, or as an operator. Building that confidence and awareness in women at a younger age, to know that we can wield a wrench just as well as anyone else, and it doesn't need to be gender specific. That's one of the biggest messages to get out there.

**Sofia Babanova:** That is absolutely true. As a scientist, when I started my PhD, I never thought of what the end applications might be. I was interested in science in general, but the application and where the work was going to go, what kind of technology I was going to develop, that was far away in the future, and detached from me as a scientist in general. Awareness is important, and especially in schools, you've got to be thinking about application. ▶

*Chris: How do you perceive gender diversity within your organisation?*

**Orianna Bretschger:** We are actually a little female-dominant now. It's not particularly intentional, though – we always want the best person for the job, and the best people we found for many roles we filled in this organisation happened to be women. You'll see we are pretty female-heavy in this office, but our engineering team balances that out at the other office. It is important to us to maintain gender diversity, and parity is really the biggest issue that we want to address. It's about bringing the diversity of thought and culture together, and that includes gender and sex. ▶

We don't have a specific diversity policy (it's in process now) – as I said, we want the best person for the job, and we want to make sure that in our outreach and public messaging, we are able to address the first question: why are we doing this? Because we love it, so let's get more women engaged in order to keep the parity and equality we've been able to establish here. Keeping that flow and grounding into the industry is core to what we want to do. The goal is to give team members the best opportunities, and do what's going to be best for the company and our customers. ▶



Interviewed by:

**Chris Barrett,** Client Partner for Pedersen & Partners' Houston office, interviewed Orianna Bretschger and Sofia Babanova for the “Women Leaders – Driving Change” series. Bretschger and Babanova are both experienced scientists, with a diverse and advanced background in electrochemistry, physics, biochemistry, microbiology, material science and analytical chemistry. Together, they founded the award-winning startup Aquacycl, which provides technologies for safe, reliable and cost-effective wastewater treatment. As the top executives of their company, Bretschger and Babanova have the final say in recruiting the right person for the job, and securing a diversity-driven workplace.

*Chris: Have you noticed any significant differences between hiring men and women when it comes to the offer and the compensation, with what the women are targeting versus the men?*

**Orianna Bretschger:** I would say there is a significant difference in negotiating confidence. We want parity here in salary, but when we say, "Here is the number. Are you OK with it?" we typically hear yes from the ladies straight away. From the gentlemen we may hear, "Well, I was thinking this number..." rather than an immediate yes, and we rarely get that kind of negotiation from the ladies. With the younger folks, we try to encourage them to do that in the next role they apply for, or even in negotiations with us. You need to associate your value with what somebody else is telling you, and make sure that it is the right value. So, I would say the negotiating part of it is definitely different.

**Sofia Babanova:** I think having the right mindset is key. In order to fight gender discrimination in general, women should perhaps realise that we think too much about gender discrimination. Especially here in the US, women are always raised with the thought that there is gender discrimination. You apply for the job and you know that you may not be selected, because you are a woman. You have to accept what you can, or what you are offered. You always go to an interview with the idea, "I will be rejected, because

I am female". As a foreigner, I wasn't raised with that at all, so when I face gender discrimination, I don't even think about it. For example, talking to guys about technical engineering subjects can be challenging at the beginning, but often I don't even realize it might be because they have the presumption that as a female, I do not know what I am talking about. It takes a little bit of conviction, but in the end, if you know what you are doing, and you have the confidence that you know what you are doing, they will get to your level, and there is no discrimination after that. But as I said, in my case, I never thought about it at all.

**Orianna Bretschger:** In my former life, it was very clear that there was gender discrimination. I had to fight tooth and nail for my promotions, even though I would see male colleagues with far less funding and far fewer publications get faster promotions and higher salaries. I would see it and fight; I didn't always win, but it is important to highlight it to management: "Look, I'm seeing this, what are you going to do about it?" Now that we have the opportunity to create our own environment here, it's refreshing to set the terms. ▶

*Chris: I see it all the time with clients I do business with. They make requests ahead of the search, they know exactly what they want, and all I do is to tell them I'll bring them the best person for the job. When I prepare candidates for interviews, especially women, the first thing I tell them is, "You need to walk in there like you are the only person for that position, walk in with confidence." Does your organisation follow a deliberate strategy on gender diversity?*

**Orianna Bretschger:** We actually need to intentionally hire a couple of men now, for parity and equality. We are not just seeking gender equality for the sake of it; it's important for us from a cultural and technical perspective. We want folks who are coming in from other industries and who have different experiences, because what we do is fundamentally very multidisciplinary. In water and wastewater, we're selling to certain industries, but the technology itself is extremely interdisciplinary. We cover so many different things: chemistry, physics, biology, chemical engineering, mechanical engineering, electrical engineering. We've got environmental scientists represented here, we have a BSc in biotechnology, ▶

Sofia Babanova is a chemist, I am a physicist, we've got a bunch of engineers. Those different backgrounds are very helpful for developing what we are doing; we really need people coming at it with different approaches to make the technology cohesive.

When putting teams together, I think it's important that everybody can communicate in the same language, but that we do not all march in lockstep. For diversity of ideas, we need to be communicating with each other, but not always perfectly. We don't want a bunch of "yes-people" around, because we won't go anywhere with that. ▶

*Chris: Have you ever received any feedback when people are applying to work with you? Do you think that initially you get more female applicants, because the two founders are female?*

**Sofia Babanova:** The only feedback that I usually get when interviewing people is that we are highly intimidating, ▶

with our background, degrees and publications. ▶

*Chris: Do you ever ask anybody, "Why us? What attracted you to us?"*

**Sofia Babanova:** Yes. It's usually the impact the technology has, and the type of work. It's never about us personally. ▶

**Orianna Bretschger:** It's about the work we do and the technology we are providing, and those are the people we want. ▶

*Chris: What are some examples of initiatives or policies that can help women become key individuals in renewables?*

**Orianna Bretschger:** Initiatives and policies! I think the social conversation we are having now in the US is good, because it's bringing awareness to the fact that there is inequality across multiple industries. We've seen this in science and engineering for a long time, it's in Hollywood and everywhere. I think the social conversation is bringing awareness to the fact that we do need some initiatives to change. If these policies specifically focus on educational outreach, this is a big thing where corporations can bring that awareness to schools, and work ▶

with local and broader educational programs. We can say, "Here is a cool job that women can do just as well as men, so come and find out more, do an internship with us." We can start with exposure, getting people inspired and excited about a career path that they may not have considered. I think these initiatives are important from the corporate perspective, and that they should not just focus on gender, but on recruiting across a breadth of specialties and cultures. ▶

*Chris: On top of that, there is one thing that I think goes a little overboard when it comes to diversity as a whole, and I see it in Texas all the time. I think too many companies focus on one nationality, which is discrimination.*

**Orianna Bretschger:** It's got to be the best person for the role, but what we can do as employers to find the best person for the role is to look in diverse areas. Rather than just two or three streams of resumes coming in, you can look at non-traditional colleges and programs. We recruit out of community colleges, technician certification programs, non-traditional ▶

educational programs – we know we can find some really great people there, who aren't necessarily from conventional STEM backgrounds and big-name college programs that are not always so diverse. Looking across different resources will also add diversity. Again, it's a matter of exposure – looking into a broader pool, finding the best person for the job. ▶

*Chris: Do you do any outreach or speaking about women in the industry, and promoting the technology? Universities have had a steep decline in female and even male STEM graduates over the last three years. It's primarily that a lot of people aren't thinking about renewable technology – they think "Hey, we're in Texas, it's oil and gas," and oil has been stagnant for almost five years. Companies are not really hiring: oilfield service companies and oil majors have had continuous cuts. You're a not a big corporation, and you have to set up outreach.*

**Orianna Bretschger:** Sofia and I both do a lot of outreach, so we've been engaged with these schools. We are both mentors and like to educate, so we don't get any brownie points for that – it's the satisfaction of doing it. Local organisations and schools frequently ask us to come and talk to their young people, usually at high school level, although we've done a couple of middle school events. We raise awareness of job opportunities and alternative careers in the STEM field, and we are part of an industry organisation called TMA BlueTech that is big on public-private partnerships, linking industry with academia and policy-makers and so on. We get opportunities through the events they organise, and I speak on a variety of different panels throughout the year, looking at challenges that we as women ▶

face specifically in this field, but also just raising awareness that these are some really cool jobs. We do a lot of that!

**Sofia Babanova:** I was recently invited to give a talk at Buena Vista High School about being a female foreigner who came to the US and is successful in her career. They want to hear about things like: How did I come? What did I do to be successful? What challenges did I face as a foreigner?

**Orianna Bretschger:** We do six or seven events like that per year.

**Sofia Babanova:** Our lab technician heard about our company through her sister, who was part of an outreach event. We were talking to middle and high school girls, showing them what ▶



kind of career path they can have. That's how she heard about us – she came as an intern, and we hired her immediately.

**Orianna Bretschger:** We've had a couple of interns from high school like that, two boys that we mentored, and Sofia is still in touch with them. They were both first generation college-students who were never expected to get into any sort of science field. They were from low-income farming families, and they thought they would go back to farming, like they were doing in school. We met them through a program we run at their high-school pig farm, to treat

manure, The high school installation has been our longest running technology demonstration and has connected us to students and speaking opportunities. These two boys came in as interns, and one of them in particular won a state Science Fair for working on our project, and that inspired him to think outside the box. He went through a technology certification program after graduating high-school and now he is the first kid in his family who is not in farming, and he earns over 50K a year making microscopes here in San Diego. Seeing this young man, a minority student, grow and gain confidence and look beyond expectations is super cool.

*Chris: Especially when it's a family thing and you feel obliged.*

**Orianna Bretschger:** But now he can do more for his family than he could before. So that's been really neat,

and hopefully we can have more of those stories.

*Chris: You've emphasised the best person for the position. How important is diversity for senior management and executive positions as you grow – do you want to have a balance, or are you focused on the best person for the job?*

**Orianna Bretschger:** We want to maintain diversity, as it's better for business, frankly. We want the best person for the role in all cases and diversity plays a large part of that.



*Chris: What advice would you give to women who want to get into renewables and clean technology?*

**Orianna Bretschger:** Ask questions! Don't be afraid to ask questions.

**Sofia Babanova:** Just go out there and apply! Because most of the time, women don't apply for positions like that at all.

*Chris: Let's talk more about why you moved into this sector.*

**Sofia Babanova:** For me, it was pure curiosity. I love science, and science brought me here, got Orianna and I together. But as a scientist, I never thought about the final application of the research. It was an interesting toy I could play with and understand how it works, and that kept my mind engaged. Later, when I met Orianna, she started to talk about application. When we started our first pilot installation, I was like, "Oh, cool! That can be an actual technology!"

In general, I think it's important when we recruit people from academia, they should be able to see that light, and think, "I am not just doing science, there is an application for it." I filed a few patents when I was at the University of New Mexico, and I never thought that they would end up being used. You write them because it's good for your resume that you discovered something, but you never think that they will actually be utilised.

TRUST – RELATIONSHIP – PROFESSIONALISM

*Chris: The one thing about renewables which is a significant shift from oil and gas is that there are so many more different technological roads that you can go down. There are so many different avenues and applications, whether it's wastewater, or creating different fuels, or making processes significantly cleaner.*

**Orianna Bretschger:** Making a process cleaner is a win. There needs to be more awareness that anybody who wants to get into renewable energy can do it. You've got to be tenacious, unafraid to walk into the room, and you are going to stick out, because we do. But that can be an advantage: you walk into the room as an equal, you stand out as an individual, and your contributions are equivalent. Every woman needs to understand that, and not be intimidated on the initial step through the door. Sometimes it's hard to cross that threshold, and to feel that way. There have been ►

a few times in meetings when I very fundamentally realise I am the only woman in the room. There are sometimes moments when it's just too much testosterone, but often I don't think about it, and it's just getting to that confidence – you don't want it to be the first thing you notice. The first thing that comes out is curiosity about how we can work together, collaborate on a project and make a sale – not thinking about gender at all really helps, I would say. Just go for it, and don't be intimidated. ►

*Chris: Why do you think you chose this path? Thinking about the environment, climate change, and the influence you have, versus chasing the science?*

**Sofia Babanova:** The positive impact that our company's technology has helps me sleep better, and motivates me. I definitely do not do it for the money. I love what I do, and when it has a positive impact, that's always a good thing.

**Orianna Bretschger:** We're a startup and our salaries are not awesome. We have stock options, but we are on the lower end of the pay scale, because we have to be. We've been able to recruit and retain great talent because people believe ►

in the products, in what we are doing and the impact we can have. I think that's motivating for all of us. I got into this because I wanted to do something in renewable energy; I did not anticipate that it would be turning poop into electricity, but I love it, and it is a happy accident.

**Sofia Babanova:** When you say it, we sound like magicians.

**Orianna Bretschger:** It's been fun to be on the forefront, and breaking through boundaries in a lot of ways. It's exciting. ►

*Chris: Lastly, when you are interviewing potential talent, do you discuss people's motivations for coming to work? Is it important to you that concern for the environment comes up, and does that have any impact on who you think is a better fit?*

**Orianna Bretschger:** Absolutely! People have to come to work and enjoy it, and get more than just a salary out of it. In startup world, all of us wear a lot of hats and you've got to jump in, be creative, be flexible. It's a very dynamic environment, and so it's important that we have to be very selective of who to bring into the team. Everybody must be able to jam, because when you have an outlier, someone who doesn't believe in the products or project, or just wants a 9 to 5, they're not going to fit. Both the environment and the technology are motivations that play a role in who we want to bring in; it's not going to work for them or for us if they are not on board with both, understanding what we are doing, and the impact of what we're doing. We all believe in it, and they have to be as passionate about it as we are, and as able to handle the craziness. ►

**Sofia Babanova:** A huge part is the understanding that there will be many, many challenges. Nothing is easy, nothing happens smoothly. We are a startup company, so having that mindset at the beginning makes your job way easier. Many new hires think, "I go to work, do my job and I like it", but can they face the constant challenges? And then later they break down, "It's too difficult, I can't do it." But that's how it is, you have to be able to handle challenge and be flexible with your tasks and responsibilities.

**Orianna Bretschger:** And somebody who is passionate will be more open to doing that, so these two things are directly related as far as we're concerned. ■