



## The future is female: just not in clean tech and the energy industry?

### Why aren't women attracted to the energy and technology sectors despite their promising prospects, and how could this be changed?

The energy transition is creating new jobs and transforming many job profiles, particularly in the energy and industrial sectors, where these are well-paid, offer stable prospects, and contribute to social goals like climate protection. Why does the proportion of women remain relatively low in both industry and skilled trades? What strategies and instruments show promise in addressing this issue? Just Climate spoke with **Dr. Clemens Striebing, research associate at the Fraunhofer Center for Responsible Research (CeRRI)**, about this topic. He researches and advises on change processes in organisations with a focus on organisational culture and diversity.

#### Technology mix

A country's technology mix is more decisive for the proportion of women in the industry than specific gender equality policies. In Germany, for example, with its strong automotive industry, there are generally fewer women in the industrial sector. In Denmark, the pharmaceutical industry is a more important sector to which women tend to be more strongly drawn.

Such gender effects can also be seen within individual fields such as the energy industry. Due to the widespread use of heat pumps, the energy transition in Germany is largely based on manual labour, a traditionally male-dominated sector. The expansion of hydrogen, which is

still very much based on basic research and in which researchers and developers with an engineering profile are still primarily sought after, is also typically German; accordingly, men are also clearly overrepresented here. By contrast, energy technologies like wind turbines and solar systems, which are already well-established in application, have a slightly higher proportion of women. In these sectors, sales and administrative roles—occupational profiles more commonly held by women—play a greater role. As a result, every step in the production and supply chain of these energy technologies reflects a gender division of labour role models.

When women are a clear minority in a company, it affects the working atmosphere. Diversity research has identified the critical size of 30%: if a group makes up less than a third of employees, it has outsider status. This can be unproblematic, for example, if the minority status is linked to characteristics that are also relevant in the workplace. An example of this would be the Indian skilled worker who speaks very good English but little German. As a rule, she is less likely to compare her status and expectations with those of her German colleagues than the German skilled worker. It is therefore important to achieve normalisation, especially for groups that are otherwise established members of our society: Women, the descendants of immigrants or East Germans.

This also explains why mentoring is not a particularly effective tool for gender equality. Mentoring is very effective in promoting people from smaller minorities, such as LGBTQ plus or people from a certain ethnic background. Their share can be increased in a relatively short time. Mentoring seems less suitable for promoting women, as the desired proportion is not achieved with the absolute numbers involved. To put it more graphically: If a company has 100 women and 30 of them are in management positions, the further development of 5 women into managers is a much less significant change than if 5 out of 10 workers' children in the company are developed into managers.

In general, role models are probably the most influential factor for the representation of women in the energy industry and technical professions. Research shows that the proportion of women in engineering professions in a region is also significantly linked to the proportion of female pupils and students with an engineering background. The more common it is for women in the parental generation to work as engineers, for example, the younger women consider it a possible option. Accordingly, campaigns can certainly be a lever. They make women in professions considered to be male more visible in the public sphere and simulate an above-average number in the region. However, hardly any campaign is as effective as the direct experience of role models at home or during career guidance days at school.

In European countries, there is a well-developed infrastructure supported by the state, business and civil society to bring pupils into contact with maths, information, natural sciences and technology (STEM). In Germany, these include the “Haus der kleinen Forscher” foundation, the National STEM Forum and the Deutsche Telekom Foundation with its Junior Engineering Academy. However, if these programmes do not have a gender focus but are

aimed at children in general, they are more likely to appeal to those who already have a corresponding inclination - in case of doubt, boys. There needs to be a targeted approach and programmes for girls.

### **Career choice**

The more gender equality there is in a country, the more stereotypical career choices often become (the phenomenon is known as the gender equality paradox). Economic equality ensures greater independence, with personal interests and inclinations taking precedence over economic considerations when choosing an apprenticeship or degree programme

As part of a recent experiment, students nearing the end of their schooling programme were informed about the earnings of various professional groups. The underlying assumption was that women would make different choices if they knew that care professions offer lower incomes. As a result, women indeed opted against care professions, but instead of choosing STEM fields, they increasingly selected business administration and law. Therefore, enthusiasm for STEM needs to be sparked much earlier, in kindergarten and primary school. Our clichés about engineers and scientists are also characterised by the country-specific industry shares. For example, in Denmark, when we think of STEM, we think of women in lab coats conducting pharmacological studies. In Germany, people think of mechatronics and mechanical engineers - they don't play on the "girls' team". In the German automotive and electronics industries, just one in ten jobs in research and development is filled by a woman. In the technical training professions, the figures are even lower.

### **Compatibility**

The expansion of childcare is one of the most important levers for equality. If you look at how working couples organise their time over a period of ten years, there is often no significant difference between women and men in terms of time off due to maternity leave or parental leave. What is important is how much time flexibility a couple can devote to work and childcare. These arrangements, which are a regular part of a couple's everyday life, are often still solved in such a way that it is the woman who reacts flexibly when the child falls ill, relatives need to be cared for or the child needs to be accompanied to leisure activities (e.g. to the sports club). It is this family management that puts more strain on women's career prospects in the long term than free time in the first years of a child's life. It is therefore crucial that childcare is offered reliably and throughout the day.

Despite all the crocodile tears about the orphaned coffee kitchen, the right to work from home is an important gender equality tool. It promotes flexibility which is such an important resource for women between office and family management. The current debates about its possible withdrawal signals of a step backwards for equality.

One way for women to take on leadership responsibilities in more family-friendly units is job sharing. Job sharing is also, purely in terms of numbers, one of the most effective tools for promoting women: where there were previously Hans and Thomas, now Thomas and

Barbara share a management position. The proportion of women among these three managers immediately rises from zero to 33 per cent. Politicians can promote the framework conditions for job sharing and reduce existing disadvantages

### **The company**

The current debate about greater participation of women in industry and the skilled trades is being framed in the context of the skilled labour shortage. This recourse to the hidden reserve of women seems logical. However, many companies want to solve their skilled labour shortage problem and not a gender equality problem. There is definitely a conflict of objectives. If no women apply during a recruitment round, then men are selected. From a business perspective, this is understandable; in the medium term, however, it undermines efforts to promote women. Companies could communicate differently and present themselves differently to the public. Employees who are role models could be sent to schools and universities as ambassadors. Specialised internships for women can be offered by universities.

In general, it also helps to reflect on the product language - can it make sense to adapt products with a masculine design in order to appeal to a wider market? Take car advertising, for example: this tends to appeal more to male consumers. Such a profile is then also reflected in the decision to work in these sectors.

### **Reporting obligations**

When It comes to the advancement of women, there is a three-part approach:

1) measuring the workplace climate and the proportion of women in various positions; 2) identifying problems and defining measures; and 3) implementing measures and continually adjusting them. In the first step—continuous reporting—the state can make a significant contribution. It is therefore not surprising that the proportion of women in energy sector companies with state involvement tends to be higher. Stricter regulations apply, and there are designated responsible persons, task forces, and diversity management initiatives. On the one hand, there are more support mechanisms, and on the other, there are often higher quotas or targets.

The state could oblige companies to carry out monitoring. To do this, the current rules for public companies regarding the advancement of women and gender equality would simply have to be extended to private companies. To reduce the burden on SMEs, it would be possible to proceed in stages or limit this obligation to large companies that can deal effectively with bureaucracy.

### **Management level**

The commitment and dedication of managers are crucial. Managers are sometimes the cause of a lack of equality in a company. However, they are always part of the solution to the problem. Research shows that managers tend to take a negative view of coercive measures such as equality training or diversity training. Instead, incentives and the prospect of better

results for the team are much more effective. Good diversity training does not threaten the General Equal Treatment Act, but empowers managers to get the best out of their team's diversity of personalities.

The commitment of top management is also a key building block in committing a company to the serious advancement of women. However, it is not enough. The recruitment policy is implemented by middle management. Incentive structures are also needed for middle management. A top manager who is regularly brought up to date by middle management with regard to measures and progress on gender equality in the company and discusses these seriously and in a target-orientated manner is sometimes a much stronger incentive than a salary bonus for achieving quota targets.

Commitment at the management level is also crucial when it comes to the working environment. There are successful examples of this in the nuclear, oil and mining industries, such as BP<sup>1</sup> with a very proactive diversity management programme. The key is the targeted development of appropriate network structures within the company, proportionate investment and committed management.

### **Gender innovation**

Gender is an important aspect in the development of innovations. An example: around fifteen years ago, things were going poorly for the Japanese video game manufacturer Nintendo. Its last console had flopped, and in competition with Sony and Microsoft, the company was at risk of losing its footing. In this situation, a team of developers set out to develop a console that would be optimised for young mothers. According to the team's assumptions, young mothers want to immerse themselves quickly and do not like complicated technical setups or games that consume time and processing power. Technical and energy-intensive hardware is not important to them. The result of this process was the Nintendo Wii, Nintendo's best-selling video game console to date, used in children's rooms and retirement homes.

The European Union or the European Research Area is a model region worldwide for the integration of gender aspects in research. Including gender aspects in innovation and standardisation processes can be a competitive advantage. New products and services become more sustainable, as target groups that have not been given enough consideration to date are included by strengthening gender perspectives. This can also sometimes - as in the case of Nintendo - open up completely new markets.

### **Branding**

If you open any physics or computer science textbook, you will quickly get the impression that applied technologies have little to do with people. We learn more about pressure equalisation systems and little about how the lack of electric charging points is slowing down

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<sup>1</sup> BP integrates diversity very strongly. Diversity is already strongly emphasised in job advertisements. The company also promotes self-help and community networks worldwide.



the spread of electric cars or how we in Germany have managed to go from poorly insulated houses with several decentralised stoves to centrally and remotely heated underfloor heating in 50 years. Technology serves people and is not a system detached from them. Even the naming of academic subjects and vocational training professions offers a lever to make these fields appealing beyond just technology purists. Due to socialisation, women tend to have stronger social empathy. Accordingly, 'sustainable energy technology' appeals to more women than just 'energy technology'. On the other hand, the content of studies should also be changed, emphasizing societal aspects more strongly in energy technology and energy systems, rather than, as has been the case in the education system so far, sharply distinguishing applied technical knowledge from social science knowledge.