

Shift toward clean, secure energy hinges on the participation of women

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The transition to energy security and climate-neutrality means we need to close the gender gap to fully involve women in a technical, scientific and business transformation.

While it has been in the works for some time, [the EU's strategy to move away from dependency on fossil fuels](#) has gained a new impetus with geopolitical developments in Europe.

Already, on 8 March, the European Commission proposed the outline of a plan for joint European action for more affordable, secure and [sustainable energy](#). The goal is to reduce demand for Russian gas by two-thirds by the end of this year.

The shift towards clean, secure energy supplies in Europe and efforts to tackle climate change hinge on several key factors. One factor you may not yet have thought about is a better inclusion of women in developing the technical solutions required.

Diverse thinkers

"With the complexity and challenges of the 21st-century problems, we need diverse thinkers and diverse leaders," said Sandrine Dixson-Declève, co-president of the [Club of Rome](#) and thought leader in climate, energy and sustainable development.

The Club of Rome conducts research into new thinking about complex, planetary-scale problems. "We cannot do it with just a male perception of the world," she said.

Women remain underrepresented in scientific, technical and engineering (STEM) disciplines, despite growing demand. They make up just 38% of Ph.D.s in physical sciences and engineering (27%). Only 24% of self-employed professionals in science, engineering and ICT are women.

Society misses out when there's a lack of gender equality. "Women tend to lead with a more long-term vision in what they want to achieve, and tend to lead without just a focus on power gains, but in finding

solutions," said Dixson-Declève.

Climate-neutral cities

Professor Doris Damyanovic at the University of Natural Resources and Life Sciences, Vienna, focuses on sustainability in urban planning and landscape planning.

She has a special interest in [gender issues](#) and climate-neutral cities. She is calling for a rethink in urban planning, with an expansion of green and open spaces.

"The important thing is to consider gender, age, but also social and cultural background in local planning," she said.

"We work on designing open public spaces with more trees or maybe to use blue infrastructure such as a water fountain," said Damyanovic. On hot days, water fountains could make cities more liveable by reducing temperatures.

A challenge for many European cities is to build [affordable housing](#) in locations where people want to live, with good transport links.

Dependable and affordable public transport can take people out of cars and reduce consumption of fossil fuels.

"How can you have nice green areas, but keep housing affordable? This is always a big challenge," Damyanovic said.

People experience climate change differently according to their gender, age, ethnic and cultural backgrounds, noted Damyanovic. Those on low incomes, with health issues, a migratory background or a low level of education are especially dependent on climate resilient public spaces.

"Women are not per se more vulnerable than men, but many of these vulnerability characteristics apply more frequently to them due to structure disadvantages," said Damyanovic.

"Climate change has profound implications for gender equality and social justice," she said.

Dixson-Declève agrees that women are often bearing the brunt of climate change, while also taking leadership in terms of fighting for women's rights and climate rights.

"This is reflected in the youth movement today, where you see that it is being run not just by Greta [Thunberg], but also by many other young women." said Dixson-Declève.

Technical degrees

Dr. Maria Luisa Hernandez Latorre is a Spanish industrial engineer who co-founded [Ingelia](#) in 2008, to build industrial plants that recover resources from waste biomass.

Often, this comprises leftovers from the food and beverage industries, agriculture and forestry residues and organic waste. The plants recover chemicals such as carbon, nitrogen and phosphorus. One byproduct is nutrient-rich water with potential for use by local farmers as a fertilizer.

In Hernandez Latorre's industrial engineering course at the Polytechnic University of Valencia, women were few and far between. So too when she began her engineering career.

"Most places I worked in, I was alone, or maybe with one other woman, along with 60 (men)," she said. She points out that a technical background is very important in industry.

"Take a look at who is managing companies, whether big or small," she said. "Most of them have a technical degree."

Energy innovation

According to [Eurostat](#), renewable energy made up 37% of gross electricity consumption in 2020, up from 34% in 2019. Greening the fuel supply is a major ambition for Europe.

Solar power is the fastest-growing sector, but it still has room to expand beyond the 14% share it provided in 2020.

"Italy is a sunny place, and we should have more [solar cells](#) on our buildings," said Dr. Alessandra Giannuzzi, Italian physicist who carried out research on this technology at University of Bologna in Italy.

She began her career with an interest in astrophysics. Following her degree, however, she devoted attention to practical problems in energy and the environment, by applying insights from optics in astronomy to solar concentrators.

These are mirror-like devices that concentrate sunlight onto a receiver which uses solar energy to generate electricity. "There are technological similarities between ground-based telescopes and some types of solar concentrators," said Giannuzzi.

She says part of the problem with the lack of women in physics lies with societal attitudes, including from women themselves.

"A lot of people have said to me, 'Oh you studied physics, but you are a woman. No, I couldn't do that. It is too complicated,'" said Giannuzzi. "But this is a mental block. It is about intelligence and mental skills, and we are the same in that sense."

As part of its commitment to promoting gender equality in research and innovation, last year the EU launched [Women TechEU](#) supporting 50 women-led tech start-ups with a budget of €3.8 million.

"Women are excellent innovators. We really need to integrate women into all levels of companies," said Hernandez Latorre. The absence of women from technical projects and board rooms has negative repercussions for business.

Women can play a key role in "contributing to management bodies of companies to think out of the box, promote innovation and implement new ways of management," she said.

Huge change

"On the energy transition, our perspective is, that women can make a huge change," said Ioannis Konstas, the project manager for W4RES.

The goal of the project is to develop the role of women in the renewable heating and cooling market all across Europe, through technical and business supports. It also collects key data about women's participation in the industry.

The role of women in the energy sector is growing to becoming "an entrepreneur, (a) person willing to pursue a career in the tech sector and make a significant change," he said.

Inclusivity is no longer a luxury either, a widespread acceptance of rapid change is essential. Recent events underline the feeling that "we have an elephant in the room," said Konstas. The lack of women participating in key roles in the renewable energy sector is unsustainable.

The traditional model of for-profit management in the sector leaves

other considerations behind. "Women tend to be more open-minded, more inclusive in their approach," said Konstas.

Dixson-Declève noted that while "gender equality is not at the level that it needs to be, it is getting better."

She added that a more female holistic approach to the European economy, by men and women, is needed to shift away from power games, and towards values that matter, such as the environment, health care, education and well-being.

A new study recently launched by the European Commission is designed to assess women's participation in the field of green energy transition. It will help to determine ways to increase the role of women in the sector. Conducted by the Directorate General for Research and Innovation, the study will also aim to determine ways in which the demand for new skills in the energy sector can be met.

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