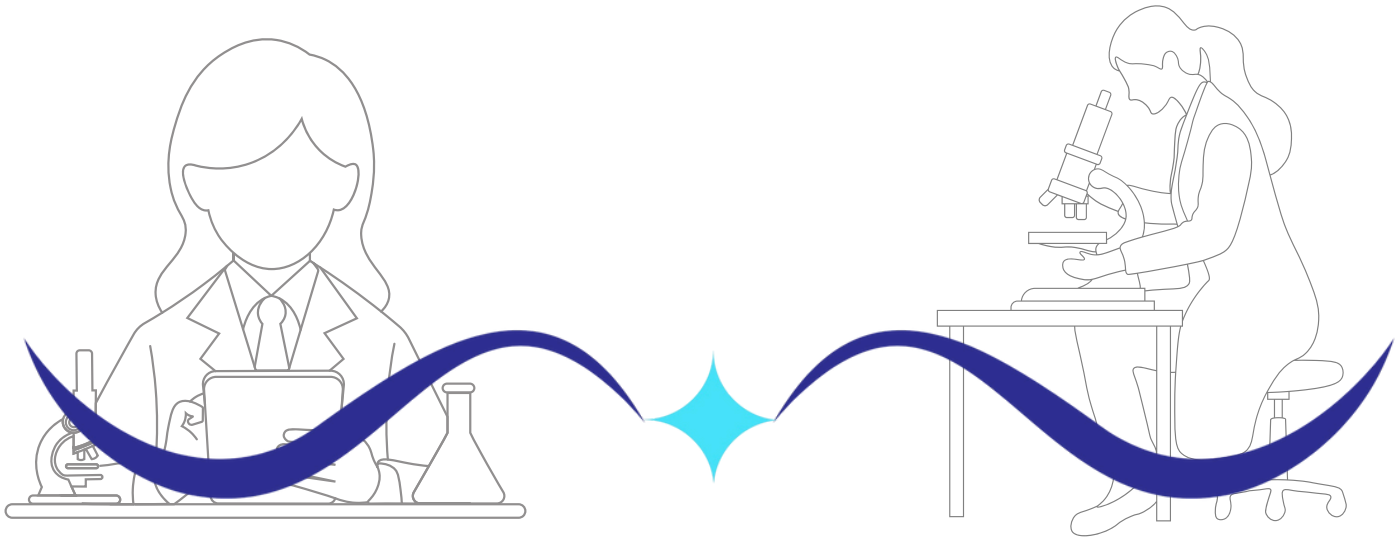
OPTHYCS

WOMEN IN OPTHYCS: Lessons to learn and challenges to face for the inclusion of women in the renewable energy sector



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Overview of women in the renewable energy sector

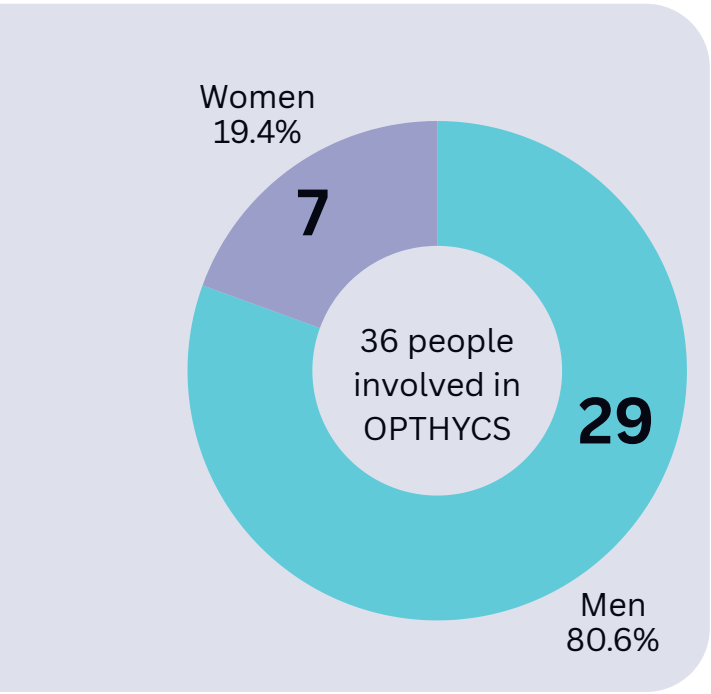
The renewable energy sector remains one of the minor gender-diverse sectors, male-dominated, and where women earn lower wages than men. The energy sector has historically been a male-dominated field, and its workforce needs to be more representative of the population and workforce at large. On average, there are 76% fewer women than men working in the energy sector, a significant difference from the average 8% gap seen in the total workforce, according to 2018 data from 29 countries (22 IEA members). The energy sector remains one of the least gender-diverse sectors, male-dominated, and women earn lower wages than men.

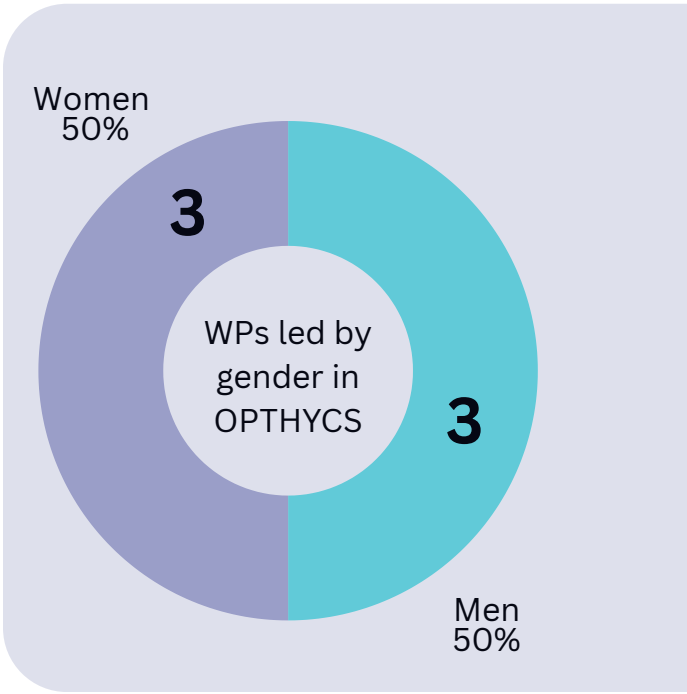
But to speak beyond gender towards inclusion in the hydrogen sector, we can observe that two of the four “D” objectives regarding energy transition in the world are to digitalise the services and products and democratize access and participation in the energy markets, in addition to decentralising systems and decarbonising production and consumption. This means that all individuals should have the option to use renewable energy through democratisation and digitalisation.

This is why our vision of a GAP goes beyond gender. We assume, as a working principle, that the intersectionality between gender and other variables, such as age, cultural background, religion, capabilities, or sexual preferences, should be examined together, as they shape people’s identities and are closely connected to human rights.

OPTHYCS Inclusion Action Plan

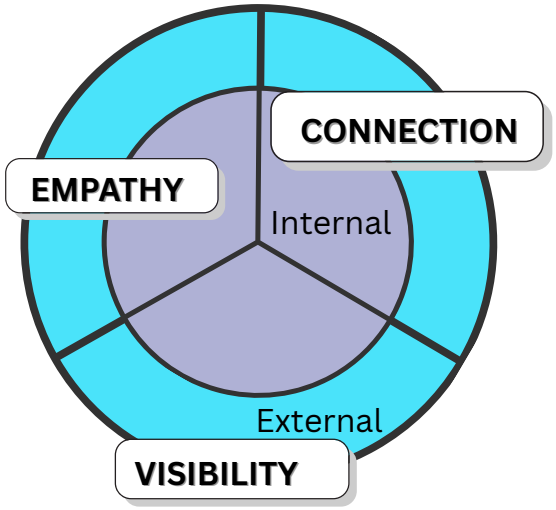
The analysis of the inclusion situation on the OPTHYCS project and the design of the Gender Action Plan were based on the analysis of the project consortium regarding gender and decision-making.





Graphics 1 & 2: Comparison by gender of people involved in OPTHYCS and leaders of the project's Work Packages. Source: Project database consulted in June 2024.

After analysing the data gathered and adapting it to the OPTHYCS project, we selected some initiatives we believe are reachable and relevant. We categorised them to match our objectives and the European Union goals in this terms.



Graphic 3: OPTHYCS Inclusion Action Plan Framework. Source: OPTHYCS Gender Action Plan

The three categories we propose have a twofold orientation: inside and outside the consortium. The latter comprises actions towards participants, society, researchers, etc.)

Both orientations are reciprocally affected.

Empathy: Everything should start with accepting and understanding the other's diversity and richness. In the OPTHYCS project, we encourage you to consider the valuable part of the difference between the rest of the partners, participants, etc. and work towards it so that they feel included and considered.

Connection: Once we have empathised with others, we are ready to connect in a meaningful and effective way to boost the power of diversity. Fostering interrelations among partners or the rest of society through the proper channels and formats is critical to making people feel part of and promoting innovative and relevant solutions.

Visibility: Finally, we have to enhance the power of diversity and collaboration that has led us to the success of the consortium and the solutions proposed. This role model empowers different collectives to act and get involved in sectors like energy, where inclusion and diversity are urgently needed to rethink the system. Visualising it fosters transparency and leads to empathy, closing the virtuosic loop.

An action plan must be a guide to ensure that the initiatives are considered and practiced during the project. This is why a description of the activities, and the response is key for the Inclusion Action Plan (IAP) monitoring to track the progress and keep the consortium updated. A list of 15 initiatives structured in the three areas and organized under the internal or external focus is presented in Table 1. Those initiatives are taken from the workshop conducted with the project partners and iterated to provide a simple but effective Inclusion Action Plan for the OPTHYCS project.

EMPATHY

SCOPE	WHAT	HOW	WHO
Inside	OPTHYCS's one language	Ensure information and complex concepts are communicated in an inclusive and understandable language adapted to the audience in internal communications or events.	All
Outside	User friendly language	Ensure complex concepts and words is translated to understandable and inclusive language for the many of the society to allow accessibility to participate and/or learn from the project	All
	Usable services	Ensure OPTHYCS services are usable and understandable for all kind of users despite their age, energy literacy, etc. and that are adapted to the local context.	All

CONNECTION

SCOPE	WHAT	HOW	WHO
Inside	New integrant onboarding	When there is someone new in the meetings, provide space at the beginning to introduce him/herself.	Consortium meeting leaders & all
Outside	Accesible communication channels	Ensure we use different communication methods/channels (online and offline) to reach all ages and minority collectives.	

VISIBILITY

SCOPE	WHAT	HOW	WHO
Inside	Last but not least	Encourage the use of the hand risen reaction to coordinate participation in online meetings. Meeting coordinators should provide 5-10min at the end of every meeting to allow everyone who wants to participate and contribute to have a last chance.	Meeting leaders & all
Outside	Remarkable people in remarkable days	Ensure that OPTHYCS publishes on key international days like Women's Day, Women in Science Day, etc. and that we take the chance to show role models in energy, tech and science that are attractive for new generations.	Communication

Tables 1, 2 & 3: OPTHYCS Inclusion Action Plan Initiatives. Source: OPTHYCS Gender Action Plan

Women in OPTHYCS: Thoughts on the current situation

In this space, we talk to some of the women who are part of our project to get their opinion on the current situation of women in science. They are: **Violeta Bescós Roy**, Research Technician at Enagás; **María Brizuela Parra**, Head of Surface Engineering on Hydrogen, Materials & Processes at Tecnalia; **Paula Barbero**, Innovation Manager at Fundación Hidrógeno Aragón; and **Cristina López**, R&D Project Manager at Natran. Each of them gives us their point of view on the presence of women in predominantly male work environments. They also offer solutions to end this gender gap while encouraging young women and young women students who want to work in this field.




VIOLETA BESCÓS ROY

Research Technician at Enagás & Project Coordinator

Considering that men outnumber women in this sector, how do you feel about working in this environment?

Working in innovation within this sector is highly motivating and impactful for society, and I feel deeply grateful to have this opportunity. I recognise that this is possible thanks to the women who paved the way before us; their efforts have made this environment increasingly inclusive and open to change. The courage and perseverance of pioneering women in science have made the path more accessible for everyone. Today, we all understand that what truly matters is talent, commitment, and collaboration and that working in a diverse environment not only benefits women but alsostrengthens innovation by bringing together different perspectives, experiences, and approaches to problem-solving.

In your opinion, what measures could be taken to improve the presence of women in this specific sector?

I believe promoting visible role models from an early age is essential. From my experience volunteering with the Spanish program “Una ingeniera en cada cole” (“A Female Engineer in Every School”), which promotes engineering and scientific careers among young girls, I have seen how initiatives at early educational stages can inspire a passion for science. Through this program, we had interactive workshops at my daughter’s school alongside other engineer moms, encouraging all children to explore STEM from an early age. Encouraging interest in STEM from childhood is key to building a more diverse and talented workforce in the future and to eliminating remaining barriers, such as some gender stereotypes and the limited visibility of female role models. At the organisational level, mentoring initiatives and promoting female-led projects have proven valuable in fostering equality. Inclusive policies and genuine work–life balance measures are powerful tools to attract and retain female talent. Fortunately, many organisations now actively promote

these practices, which benefit not only women but entire teams and projects.

What advice would you give to encourage young women and/or women students who are interested in working in this field?

I would encourage them to trust their skills and pursue their interests with confidence. It can also be useful to seek networks of support with other women who share similar interests and careers. Ultimately, what matters most in the energy innovation sector is talent, curiosity, and teamwork. OPTHYCS shows that internationally diverse teams can deliver good results.

MARTA BRIZUELA

Head of Surface Engineering on Hydrogen, Materials & Processes at Tecnalia

Considering that men outnumber women in this sector, how do you feel about working in this environment?

Throughout my career, I have often worked in male-dominated environments, and I feel comfortable in them. Over the years, I have learned to navigate these spaces with confidence, and I value the collaborative relationships I have built with colleagues of all genders. That said, I am also aware that the gender imbalance is real and can influence dynamics and opportunities.

In your opinion, what measures could be taken to improve the presence of women in this specific sector?

Improving the presence of women in the sector requires action at several levels. Early exposure to STEM subjects is crucial, as well as providing visible female role models

who show that successful careers in science and technology are achievable. Equally important are organisational measures: unbiased recruitment processes, mentorship and sponsorship programs, flexible working conditions, and clear career-development pathways. When companies and institutions commit to inclusion intentionally, they create environments where women not only join the field but also stay and thrive.

What advice would you give to encourage young women and/or women students who are interested in working in this field?

My main advice is: trust your abilities and follow your curiosity. STEM fields offer incredible opportunities for impact, creativity, and lifelong learning.

PAULA BARBERO

Innovation Manager at Fundación Hidrógeno Aragón

Considering that men outnumber women in this sector, how do you feel about working in this environment?

This situation is not new. From the moment you enrol in an engineering degree at university, the underrepresentation of women in technical fields is something that we have historically struggled with, and that has only begun to change in recent years.

And a good example of this change is the OPTHYCS project, in which half of the work packages are led by women, and the project coordinator is a woman. For me, it has always been an extra motivation, and I can proudly say that I am surrounded by highly professional, well-trained female colleagues who also exercise positive leadership.

In your opinion, what measures could be taken to improve the presence of women in this specific sector?

There are many proposals, depending on the area in which they are developed:

o At the root of change: Early promotion of STEAM skills among girls and teenagers. Organisations have the opportunity to lead initiatives and play an active role. In the Aragon Hydrogen Foundation, we foster STEAM education by hosting school visits and participating in public-oriented events such as the 'European Researchers' Night', 'Science Week', and the 'Women and Girls in Science Week'. As institutions, we have a responsibility to share knowledge and lead by example, inspiring future generations to engage with science and technology.

o On the path to training: Giving visibility to female role models, seeking them out. They exist, but they are often part of teams in which the senior researcher or team leader is a man.

o In the professional environment: Mentoring and leadership training programmes aimed at women in the sector, so that they can take on these senior researcher or team leader positions. Support networking for female professionals.

o In HR departments: Flexible working, hybrid working models. Inclusive selection processes and incentives for companies that demonstrate parity and diversity in technical teams.

What advice would you give to encourage young women and/or women students who are interested in working in this field?

This sector allows you to connect your technical vocation to contribute to improving the quality of life and combating climate change. Make them see that their work is valuable, necessary and very relevant. And that, furthermore, the gender perspective is not a disadvantage, but an added value.

Do not wait to find a job offer that matches your profile 100%. If you are interested, apply, trust your abilities, and continue learning. Perfection is not necessary, but rather the ability and motivation to overcome the challenges that arise.

CRISTINA LÓPEZ

R&D Project Manager at NaTran

Considering that men outnumber women in this sector, how do you feel about working in this environment?

The first word that comes to my mind is: powerful. I've never been intimated with the idea that "engineering is for men". It can indeed be a bit surprising to be in a meeting with very few women, but I also think that things are changing and more women are entering the sector. Moreover, this does not mean that we cannot assume responsibilities and roles: as seen in the OPTHYCS project, the project coordinator was a woman, and many other WP and tests were piloted by women. We have an important role to play in the sector!

In your opinion, what measures could be taken to improve the presence of women in this specific sector?

First of all, I have the feeling that at least in the energy sector, things are evolving; right now, the ratio between women and men is more equitable. During my studies, 40% of the promotion were women. And I can also see this within my company. Indeed, since 2015, NaTran has had the AFNOR Diversity label, which recognises our commitment to diversity. Our new agreement 2025-2028 on professional equality between women and men is also a strong commitment by NaTran in favour of feminisation.

That said, I also think that it is worth it to share different successful careers in different events, organised either by the company or by different organisations.

What advice would you give to encourage young women and/or women students who are interested in working in this field?

I would advise them first of all to find their passion and find a job where they feel enthusiastic, and to follow their intuition. Personally, I chose an energy career because I wanted to play a role in the energy transition, and because I loved maths and science. They won't be disappointed !

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