



Case Study

Ayse Yilmaz



EPSRC & NERC InDustrial CDT
for Offshore Renewable Energy | www.idcore.ac.uk



Background

Ayse graduated from a Masters in Chemical Engineering at UCL in 2021 during the COVID pandemic. She wanted to stay in London, so spent a year working part time in a café while looking for her next step. She received an offer for a software engineering job which just didn't feel right, and then she found IDCORE...

IDCORE

Although Ayse had undertaken a 4th year module on energy engineering as part of her first degree, she knew little about the offshore renewables sector when she applied. The research she undertook for her interview really piqued her interest, particularly the potential role for green hydrogen in the sector.

The first year of the programme was a steep learning curve for someone with a Chemical Engineering background, but the course is well designed, adjusting expectations based on who you are, and with the support of others in her cohort she made it through. Everything was new, particularly learning about electrical machines, but it all provided really helpful context that has since given her credibility within her sponsoring company.

She has really enjoyed the interdisciplinary aspects of the course that give an appreciation for the wider system and help understand the contexts that others are working in, and a group project looking at energy systems in other countries pushes you to take interest in what happens in the rest of the world compared to the UK.

The highlight of my time at IDCORE so far was the trip out to see the Seagreen offshore windfarm at Nigg. We got to see the size and scale of the jacket foundations they are using. It was great see the physical scale of the industry I am engaged with. The COVID pandemic meant that I missed the opportunity to do this during my first degree.

I've also enjoyed being part of a cohort - it has become a 'safe space'. There's always someone who knows how to solve a problem, and there are always listening ears when you need to have a rant. I really value their support.

Ayse Yilmaz



Dec 24

Project

Ayse's project is with SSE Thermal, working within the project development team on the Aldbrough Hydrogen Pathfinder project, a joint venture with Equinor. The project is still in the development phase, which creates a number of uncertainties. If it receives financial approval, construction will not begin until after Ayse has completed her EngD.

As a result, Ayse's project has a very broad scope. While this provides freedom, it also presents challenges in defining a clear project direction. She does not anticipate that a digital twin will be the project's final outcome. Instead, her work focuses on bridging the gap between the development and practical implementation of adoption strategies for digital twins in the green hydrogen sector.

The biggest challenge Ayse faced during her first year with SSE was integrating academic research into a corporate setting and fostering engagement. However, this has been greatly eased by the supportive and friendly people at SSE, as well as the excellent support she has received from IDCORE, particularly from Katrina, the Centre Administrator.

Ayse's project has become one that is helping us to understand what kind of digital capabilities we need for the future. Whilst she is part of one specific project team, the real benefit of her work is going to be in understanding projects as 'archetypes' - learning lessons in specific contexts and then applying them more generically. Examples of this include modelling emissions and how these feed into permitting processes, or trading forecasts of when and where you would want to supply hydrogen.

There's always a need for academia to support industry, but there is a disjoint between academic findings and their application in practice, particularly in a digital context. This needs collaboration, something which IDCORE is good at creating. Ayse's project is a case in point. Supervising her is also helping me to extend my network of trusted relationships with academia.

Sally O'Brien, Senior Project Manager, SSE Thermal



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