

Reducing Decision-Making Uncertainties in Energy Hub Implementation via Participatory Design

Background and Objective:

Integrating hydrogen storage into Energy Hubs is essential for advancing sustainable energy systems, but faces complex challenges due to operational, financial, and informational uncertainties. This study will examine how these uncertainties influence decision-making and stakeholder acceptance in hydrogen-based Energy Hubs. It will also explore stakeholder strategies for mitigating these uncertainties and suggest improvements to boost collaboration and efficiency.

Tasks:

1. Case Study Analysis:

- Analyze a real or hypothetical scenario of hydrogen-based EH integration.
- Discuss the uncertainties and challenges faced by the stakeholders.

2. Stakeholder Strategies:

- Assess the effectiveness of strategies used by stakeholders to address uncertainties.
- Propose enhancements to improve decision-making and stakeholder cooperation.

3. Recommendations:

- Develop actionable recommendations to refine decision-making processes and stakeholder engagement.
- Consider participatory design methods for co-creating solutions with stakeholders.

Deliverable: Conduct interviews and participatory workshops to delve into challenges and gather insights on hydrogen-based Energy Hubs. Produce a comprehensive report with summaries, scenario graphics, and a development roadmap. Support will be provided throughout the project, including funding for creative tools like movies and motion graphics, and access to workshops and our network of partner companies, contingent on the quality of work progress.

Details: Ideal for MSc students in Design for Interaction, Strategic Product Design, or Integrated Product Design with an interest in systemic approaches. Starting in 2024, Dutch proficiency is beneficial.

Application: Email m.hasankhani@tudelft.nl with a project example that showcases your skills as a design researcher and your motivation for this project.