HyTrEc2

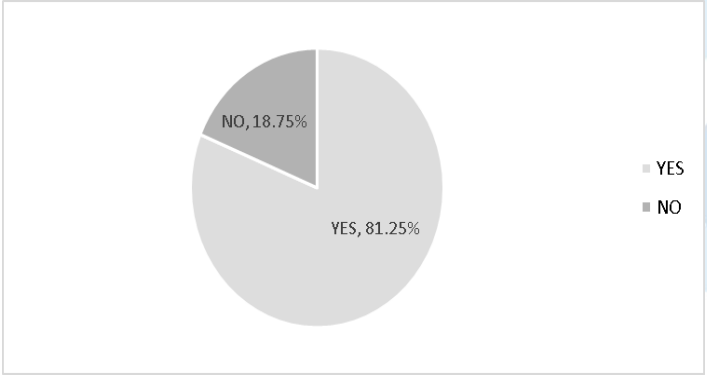
Hydrogen **Tr**ansport **Ec**onomy for the North Sea Region **2**

Chris Ashe

The Impact of Green Hydrogen on Skills Development, Employment and Value Added

Does the company need to train workers for hydrogen or fuel cell activities?

The technological advances in green hydrogen and demographic change have a great work and society reshaping potential, generating a growing demand for higher levels and new sets of skills.



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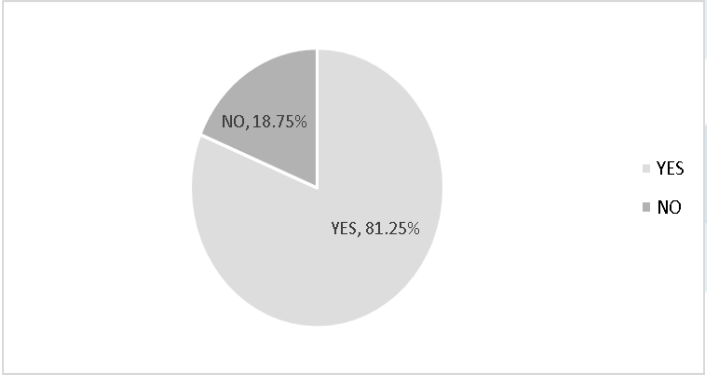


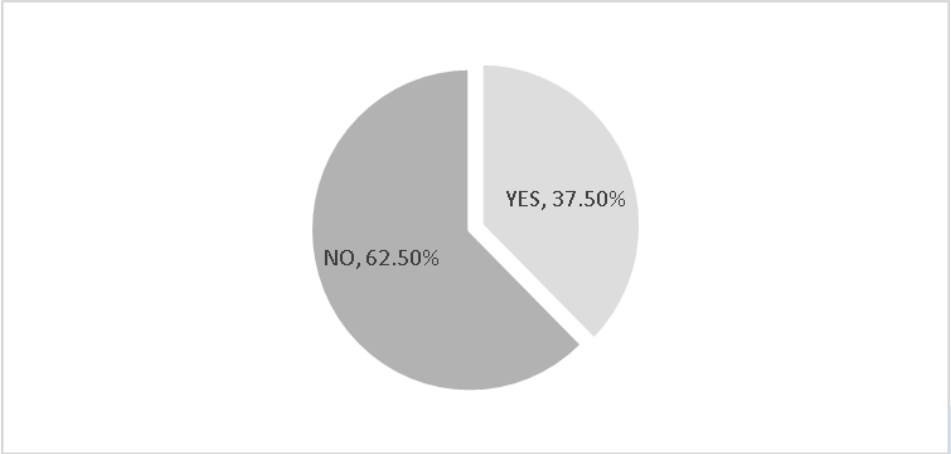
Training & Education

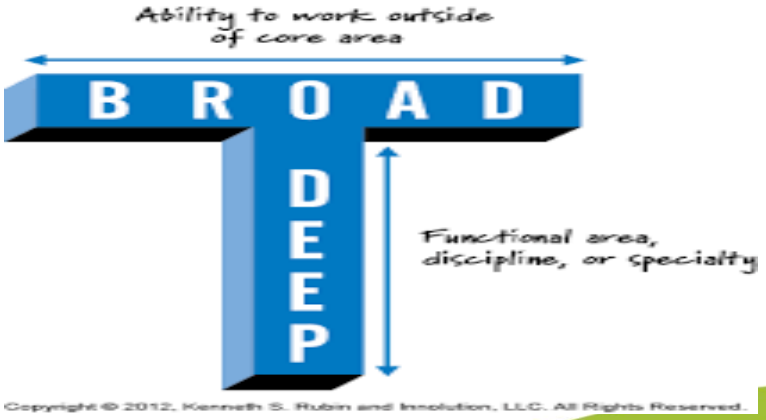
In terms of aspects of training, regulatory / security / safety aspects appear to be the most important for the development of a knowledgeable workforce.

Internal training	**81.80%**
Short professional training	81.8%
Short theoretical courses	72.70%
Long undergraduate programs at Universities	18.20%
Long courses at training centres	54.50%

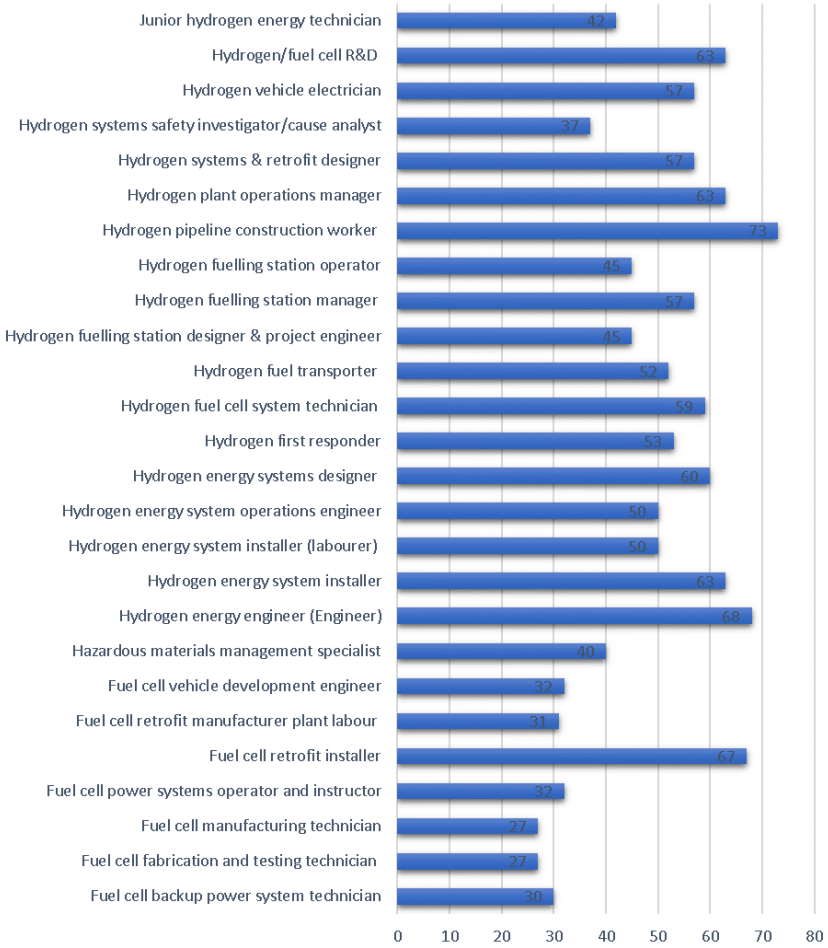
Skills Gaps

- Is it easy to find qualified/ skilled professionals operatives?
- The Skills of the future
- T-shaped Skills
- Competency requirements





Competency Requirements



Conclusions

- Hydrogen gas can successfully replace natural gas in many applications including industry, power generation, and domestic applications; simultaneously, hydrogen is also a clean alternative to conventional fossil fuel transport.
- Hydrogen safety training should be provided to all employees who handle hydrogen or materials from which hydrogen can be evolved
- Pathways will provide the foundation for vocational education and training strategies to ensure specialist skills and knowledge can be acquired in a timely manner, as several of these may have a long lead-in times towards competence

Conclusions

- The emergence of big data in the clean energy system presents new challenges for the energy sector, especially with the need for skills associated with the Industrial internet of things (IIOT) and hence the integration of meta skills with technical competencies.
- Just as there needs to be investment in infrastructure for a newer cleaner energy system, there needs to be intense investment in skills, and an uptake in more generic engineering courses at colleges and universities.

HyTrEc2 Supply Chain Development and Training

Develop the supply chain for green hydrogen transport and identify the training requirements and organisations that would benefit from training as well as identifying common rules and standards for the use of hydrogen in the transport sector.

HyTrEc2 Supply Chain Development and Training

- Training is a key element in supply chain development so that skilled jobs are created.
- Education and training needs to be broad based to cover a wide range of target groups and the delivery of pilot training programmes for a wide range of qualifications from technical level upwards.
- Training will reflect the different needs in the different parts of the NSR and in different target groups.
- This will be crucial so that the training needs of rural and isolated communities can be addressed. There will be training for emergency personnel and decision makers including public officials and politicians.