

# POWER cluster



## Need of Competencies for Offshore Wind Power

One of several obstacles to realise the potential of offshore wind power is access to specialized engineering competences.

Within the POWER cluster project, this problem has been addressed in a study of the types and number of engineering competences required to sustain a large scale expansion of offshore wind energy in the North Sea.

### Types of engineering competences

The types of engineering competences needed have been derived from the many technical obstacles that must be overcome for offshore wind power in the North Sea. The competences required are both deep competences within a knowledge field and integrated competences that combine two or more knowledge fields that are normally taught separately.

| Deep competences       | Integrated competences                             | Generalist  |
|------------------------|--|---|
| Mechanical engineering | Integrated mechanical engineering                  | Engineering competence integrated with project management |
| Electrical engineering | Integrated mechanical and electrical engineering   |   |
| Engineering physics    |  |   |
| Software engineering   | Integrated engineering competences and meteorology |   |
| Civil engineering      |  |   |

### Number of engineers needed

The number of engineers needed has been estimated for wind turbine manufacturers and utilities.

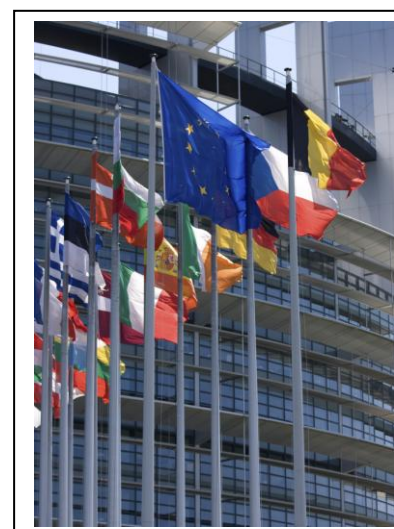
An additional 7 000 engineers are estimated to be needed by the wind turbine manufacturers until 2020 (for development of both onshore and offshore wind power). In the utilities, it is estimated that an additional 2 000 engineers are needed only for the development of offshore wind until 2020.

To these figures, it must be added a substantial number of engineers in other parts of the value chain. In total, the number of engineers needed may easily go beyond 10.000.

### Implications for universities

The realization of the potential of offshore wind power would clearly be facilitated by an expansion in the number and types of educational programmes at Universities. There are a handful of dedicated wind energy MSc programmes and new programmes are in the pipeline.

Yet, more Universities could assist by developing programmes for forming the described competences. Since most Universities do not have a research base which is large enough to offer many types of specialisations, the development of a European portfolio of specialized courses that are organizationally integrated and made easily available to students from many different Universities could be arranged.



### Partners involved

Chalmers University, SE

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European Union  The European Regional Development Fund

The Interreg IVB  
 North Sea Region  
 Programme



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