



The Wind Power Research Centre
of
Shanghai Jiao Tong University

collaboration with

Dept. of Electric Power Engineering ,
NTNU



上海交通大学
Shanghai Jiao Tong University

Scope of the cooperation

 **NTNU**
Norwegian University of
Science and Technology

R & D

**Exchange of
students**

Collaboration in

**Exchange of
academic faculty**

**Hold workshops,
seminars**



Collaboration in research and development



- The exchange of academic and research materials subject to the mutual agreement of the parties.
- Applying for funding collaboratively and undertaking joint research projects
- Writing joint publications



The exchange of academic faculty and staff members

Staff exchange activities cover visits to either one of the two institutions for any of the following purposes:

- joint research;
- attachment of staff for purposes of curriculum development and review, attendance of courses and upgrading of teaching and research skills;
- participation in workshops, seminars, colloquia and other academic forums;
- co-supervision of Master's and PhD students.



Student mobility activities involve Master and PhD level students and cover visits to either one of the two institutions for any of the following purposes:

- participation in research
- involvement in study tours, such as summer school.



Arranging academic activities

- workshops, seminars, colloquia
- guest lectures with invitation of the partner



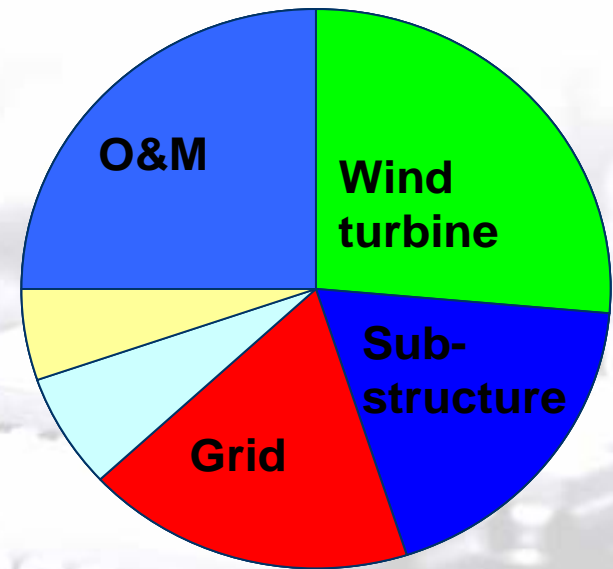
- Similar focus:
 - Electrical part of the wind energy (Generator- converter – transformation – transportation – integration)
 - Similar technology (VSC, DFIG, Full converters, energy storage (battery, pumped water))
 - fault-ride-through challenge of wind integration
 - The same tools used for modeling and studies (Matlab, FPGA)
 - Several PhDs on the similar topics and at same stage
 - Smartgrid/Microgrid





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Multidisciplinary Research Challenges



Cost distribution
of
offshore wind
farm
(example)

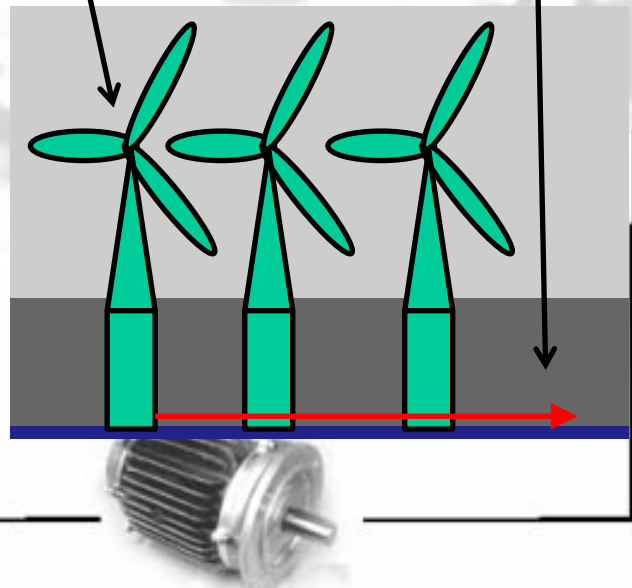
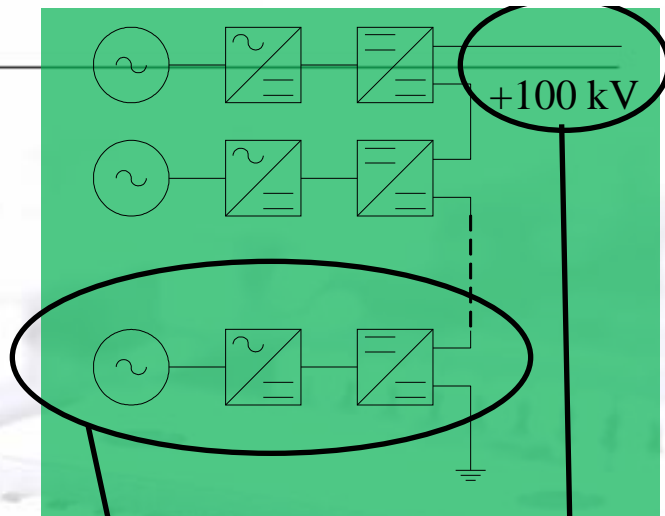
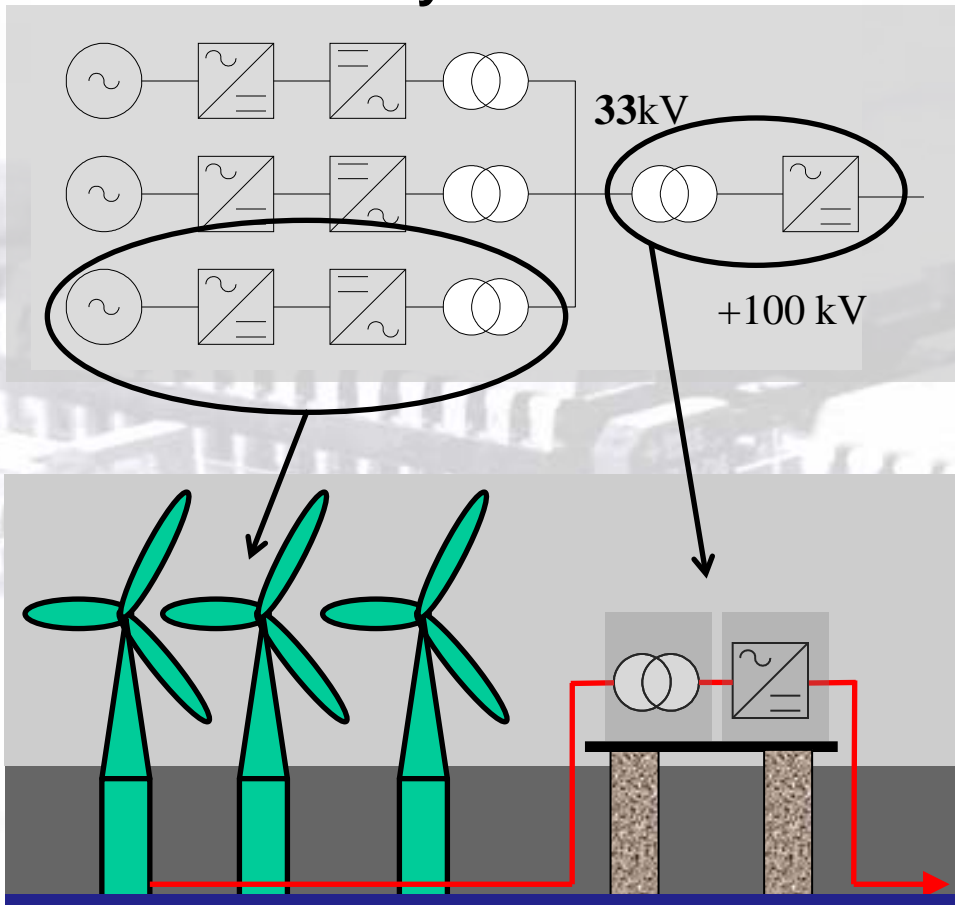
Our focus: **Red** and **green** sectors





DC grid solutions for offshore wind farms avoiding need for large sub-station

Conventional system



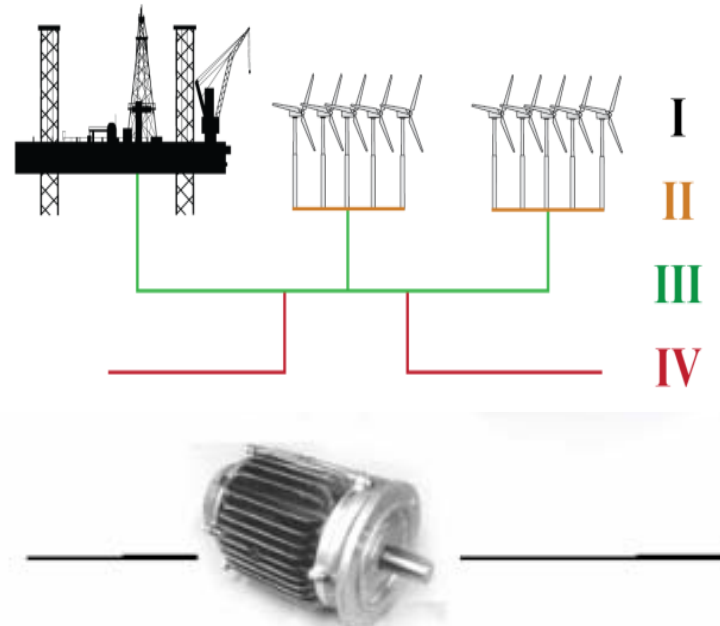


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Research Projects

 NTNU
Norwegian University of
Science and Technology

- Control system of wind turbine
 - Energy converter and control
- Integration of large scale wind farms
 - Grid-friendly wind farm (converter types)
 - Offshore wind farm
 - Collector and transmission grid
 - Onshore grid connection
- Balancing
 - Intermittency challenging



Next steps

- Make teams of PhD-students at SJTU and NTNU with similar focus
- Find options for exchange stays
 - Financing
 - Flexible duration of exchanges (weeks to months)
- Define joint research activities and apply funding
- Joint publications
- Exchange of material available





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Thank you !

