

加速提升量測技術於台灣離岸風能產業發展藍圖

執行單位

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「加速提升量測技術於台灣離岸風能產業發展藍圖」計畫近程目標為建置台灣離岸與岸上風能資料庫、促成在地化風能量測維運標準、技轉與輔導風場開發分析技術、提供台灣風機設置指標，中程目標為促成國內廠商投資離岸風場開發，遠程目標為提升國內離岸風力技術能力達國際水準，與歐洲DemoWind Project 接軌。



與荷蘭ECN進行國際合作



離岸海氣象觀測塔與
浮動式光達量測



與挪威WindSim的技術交流



第二期能源國家型科技計畫
National Energy Program-Phase II

- 完成以國內現有風場量測方法及儀器設備型式為基礎，包括離岸海氣象觀測塔、陸域40公尺可移動式測風塔、固定式光達及浮動式光達，導入荷蘭ECN先進技術且成熟的離岸海氣象量測規範，及挪威WINDSIM AS公司所開發的風場資料管理分析及風能評估模擬軟體，以加速提升國內離岸風力開發進程，並延伸相關風場量測及評估技術的建立。
- 執行多場域離岸風場量測技術，進行海氣象觀測所需儀器設備安裝、運維、觀測及資料分析，建立台灣多場域風場風況資料與數據相互比較分析驗證機制。
- 經由與荷蘭ECN的國際合作，建立風場量測維運品質系統，導入適合國內的風場運維品質系統技術、離岸測風塔量測儀器設置標準、風場量測儀器驗證與校正技術與風場運維資料維護與儀器保養。
- 與挪威WINDSIM AS 公司合作，進行風場分析模擬技術轉移，可進行複雜風場模擬分析，基於CFD與邊界層氣象學分析區域風資源，達到所需風資源分析與評估、宏觀選址、風功率預測與風場布置最佳化等。

Taiwan Offshore Wind Accelerator Roadmap for Commercial Acceptance of Measurement Technology

Execution Unit: Research Center for Energy Technology and Strategy, National Cheng Kung University

Project Director: Ta-Hui Lin Professor

This project short-term target is to set up the Taiwan onshore and offshore wind power database, to facilitate the local wind power measurement standard and to improve the analysis skill of wind farm cultivation as the index of Taiwan wind turbines. Moreover, the mid-term target is to facilitate Taiwan wind power industry and long-term target is to promote Taiwan wind power technique to reach the world class as the member of DemoWind.



International cooperation with Dutch ECN



Offshore mast vs. floating LiDAR campaign



International cooperation with Norway's WindSim
第二期能源國家型科技計畫
National Energy Program-Phase II



- Achieved to utilize the Taiwan domestic wind farm measurement and various types of equipment, including offshore meteorological mast, movable onshore meteorological mast, fixed Light Detection And Ranging, (LiDAR) and offshore floating LiDAR system. To expedite Taiwan offshore wind power commercialization and facilitate the industry of wind farm measurement and assessment can be enhanced by Energy research Centre of the Netherlands (ECN) and WindSim AS. ECN is continually innovating, researching, optimizing and developing to deliver new wind energy processes and concepts and WindSim AS is the developer of the software WindSim which is a simulator based on Computational Fluid Dynamics (CFD) for prediction of local wind fields. There are three subprojects integrated by this main project.
- Developed the system of Taiwan multi-field wind farm measurement, analysis and verification using the nearshore and offshore wind power measuring technique and capability to install, maintain and operate meteorological /marine instrument.
- Set up the wind farm measurement quality system based on wind farm standard operation-maintenance technique transferred from ECN and the standardization of measuring tools installation, calibration, verification and database management.
- Transferred technique for wind farm analysis and simulation, which is supported by WindSim AS and accurately predict local wind fields, even in cases with complex terrain and complex atmospheric conditions.