

台電彰化外海離岸海氣象觀測資料研發應用

執行單位

國立成功大學 能策中心

計畫主持人

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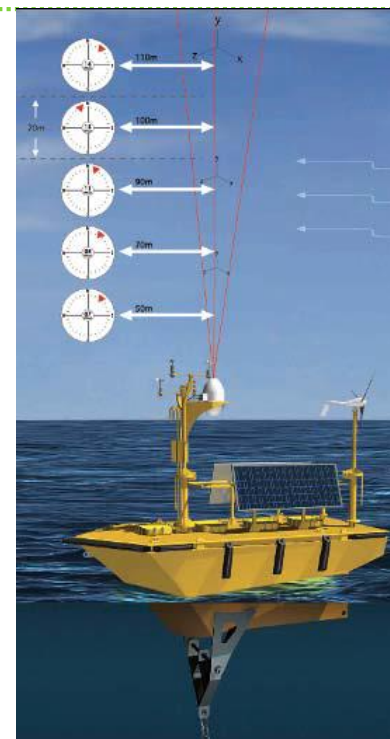
- 本研究計畫基於台電彰化外海離岸海氣象觀測塔維運量測所得之資料，並以浮動式光達、固定式光達等觀測設備執行數據品質驗證，結合國家實驗研究院高速網路與計算中心先進資料管理及分析實力，進行風場運維服務大數據資料網路平台之加值服務。

■ 全球第一套商業化浮動式光達設備：

1. WindSentinel 由加拿大 AXYS Technologies Inc. 開發生產
2. NCKU-WindSentinel 是亞洲首套浮動式光達設備
3. 曾參與永傳、上緯與台電公司離岸風場量測作業
4. 建立浮動式光達的移動監測技術
5. 海氣象觀測塔資料與浮動式光達量測資料驗證分析
6. 逐步建立離岸海氣象監測數據資料庫



Fig 1. 浮動式光達本體與風速測量高程



國立成功大學能源科技與策略研究中心已獲得台電再生處委託執行台電彰化外海離岸海氣象觀測塔維運量測及資料研析之兩年合作計畫，期間觀測所得寶貴海象及氣象資料應善加應用，以發揮更全面且更深入之延伸效益；本整合型計畫架構為

1. 風場數據比對驗證及品質管理，擬規劃與荷蘭ECN合作，引進歐洲海氣象觀測塔經驗及技術，以確保量測數據品質，並可利用成功大學能策中心的浮動式光達、固定式光達等其他海氣象觀測設備執行數據品質認證。
2. 風場運維服務巨量資訊網路平台，結合國家實驗研究院高速網路與計算中心先進資料管理及分析實力，進行風場運維服務大數據資料網路平台之增值服務。

據以提早提出因應與改善的研究建議，供台灣發展離岸風力之基礎研究及政策方向參考，；以上子計畫架構形成台灣離岸風場運轉維護一個完整的研計畫。

Development and Application of TPC Offshore Meteorological and Oceanographic Mast Data

Execution Unit

RCETS., National Cheng Kung Univ.

Project Director

Professor Ta-hui Lin

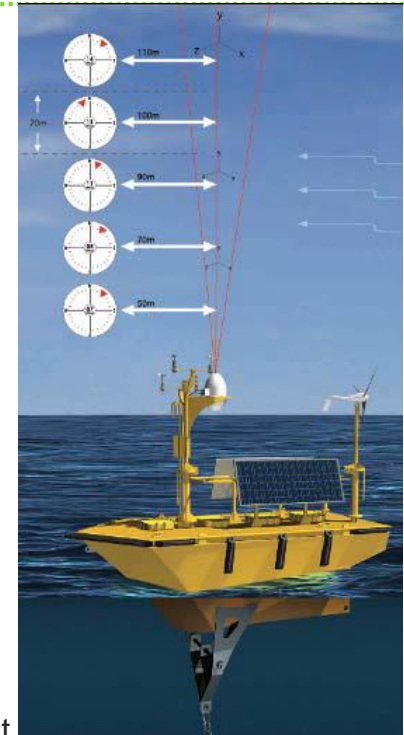
- The main purpose of this proposal is to play a more comprehensive and more in-depth extension of benefits on TPC offshore meteorological and oceanographic mast data.

■ **The world's first wind resource assessment buoy capable of accurately gathering wind data at turbine hub-height and across the blade span.:**

1. WindSentinel manufactured by AXYS Technologies Inc.
2. No.1 in Asia and the 3rd WindSentinel in the World.
3. Located the best offshore wind farm sites



Fig 1. Floating LiDAR Mainframe & Measurement



- The main purpose of this proposal is to play a more comprehensive and more in-depth extension of benefits on TPC offshore meteorological and oceanographic mast data. The Research Center for Energy Technology and Strategy of National Cheng-Kung University has received a two-years cooperation program from Department of Renewable Energy of Taipower to carry out the Changhua offshore meteorological mast, maintenance, measurement and data analysis. The structure of this integrated project as follows:
 1. Wind farm data comparison, verification and data quality management, we plan to cooperate with the Energy Center of Netherlands for introducing the European offshore meteorological mast experience and technology to ensure that the measured data quality. We can also use the floating LiDAR or fixed LiDAR to perform TPC offshore mast data quality certification.
 2. Wind farm operation and maintenance services big data information network platform, combined with the National Center for High-Performance Computing of National Applied Research Laboratory to ensure advanced ability for data management, analysis, and the wind farm operation and maintenance services big data services. The results will advice on the development of offshore wind and provide the policy reference.

The above subprojects structure forms a complete research program for the O&M of the offshore wind farms in Taiwan.