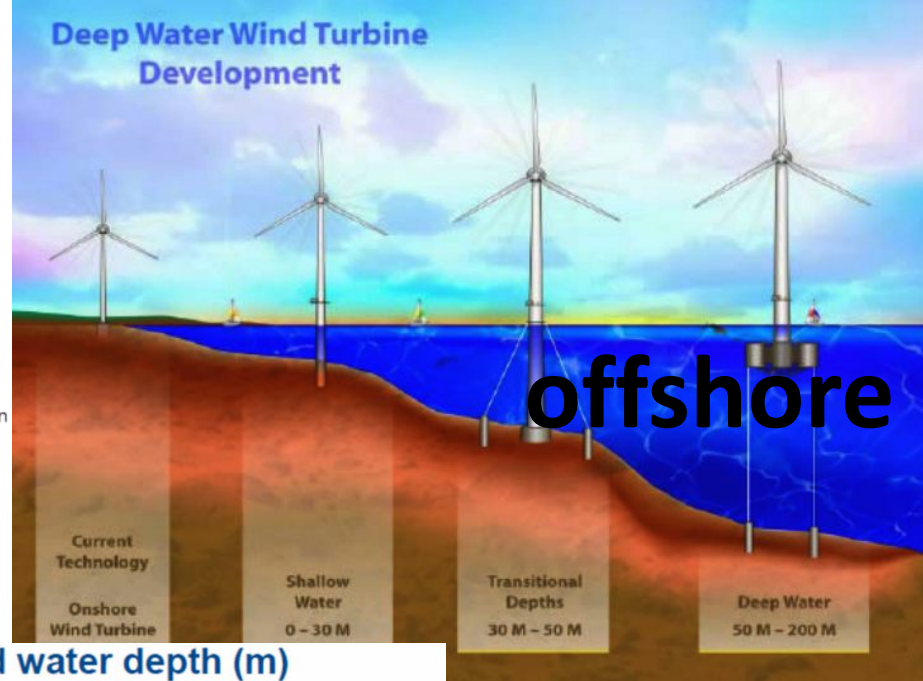
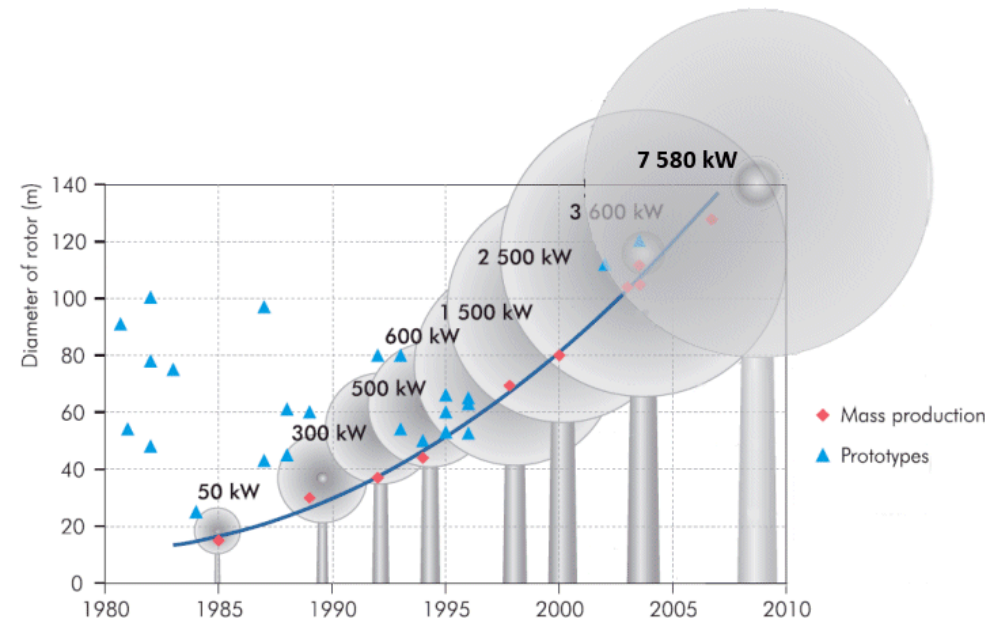


中央氣象局風能 動力統計預報 發展回顧

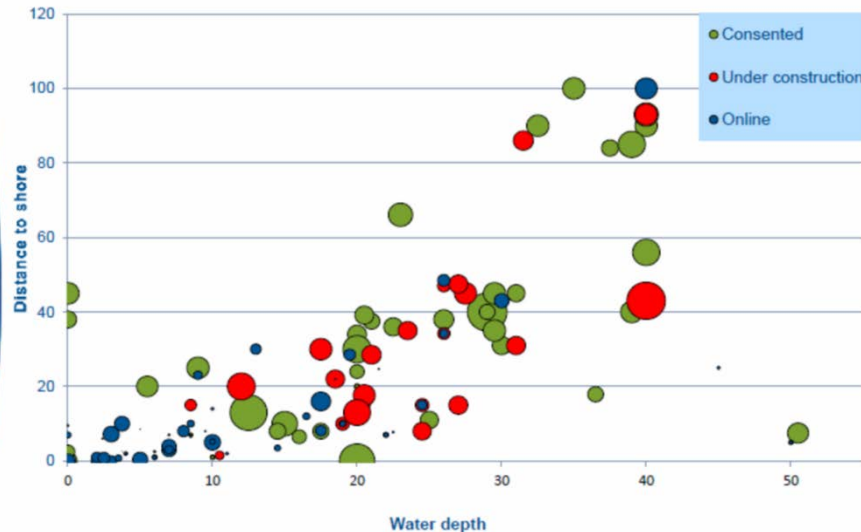
中央氣象局 科技中心
陳重功

2016-10-04

風機的風能產值與離岸設置技術



Distance to shore (km) and water depth (m) of wind farms



風機上的風速、風向觀測儀位置

風速、向
觀測值，
易受前端
風機轉動
產生之撓
流影響

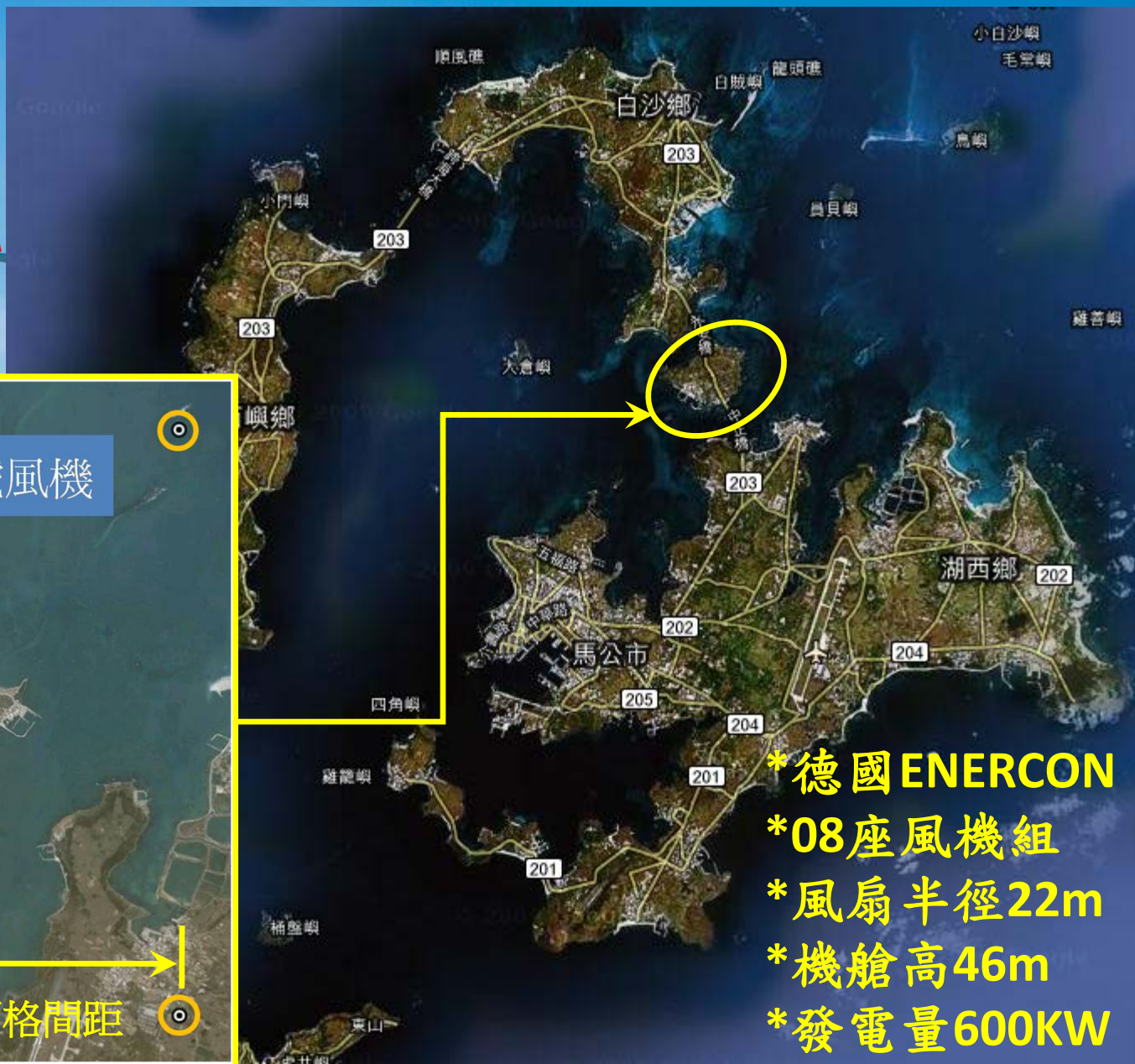
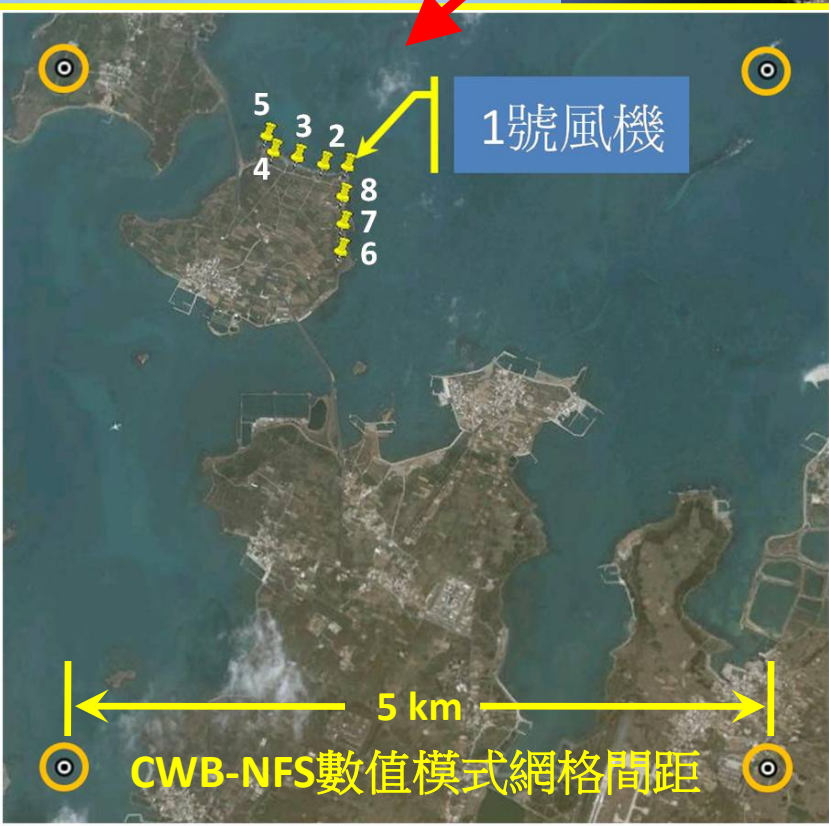
風速、風向
觀測儀



Gamesa G87-2.0 MW Wind Turbine

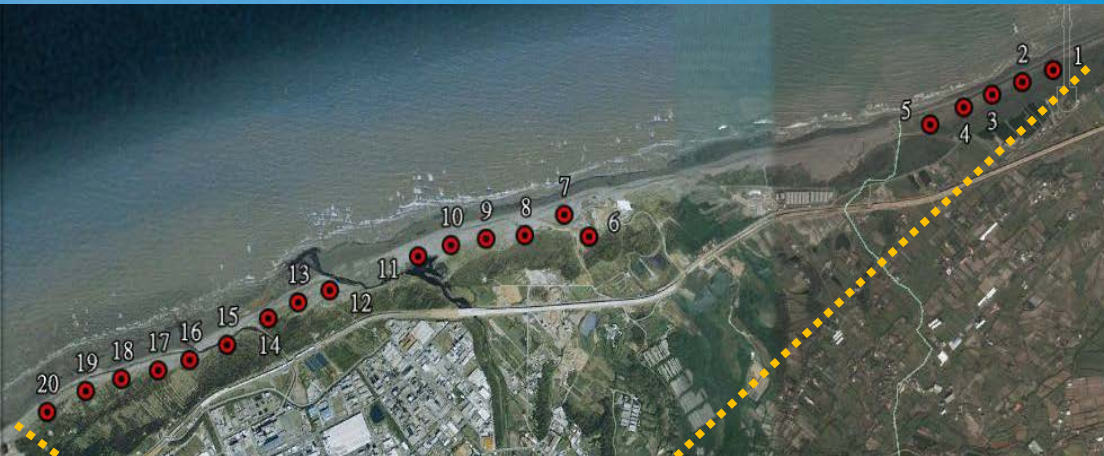
澎湖中屯風機組位置圖

東北季風
(冬半年)

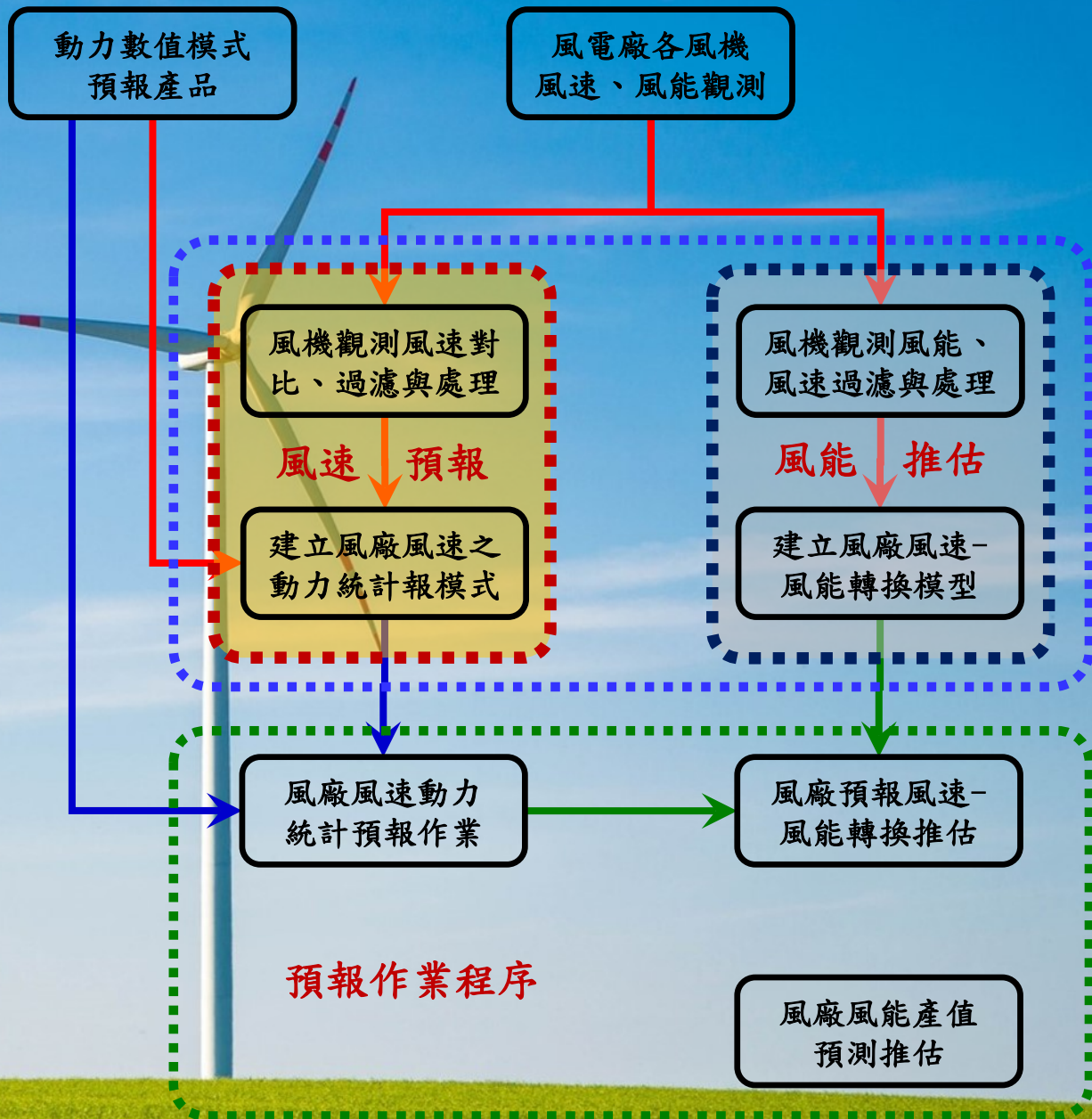


- *德國ENERCON
- *08座風機組
- *風扇半徑22m
- *機艙高46m
- *發電量600KW

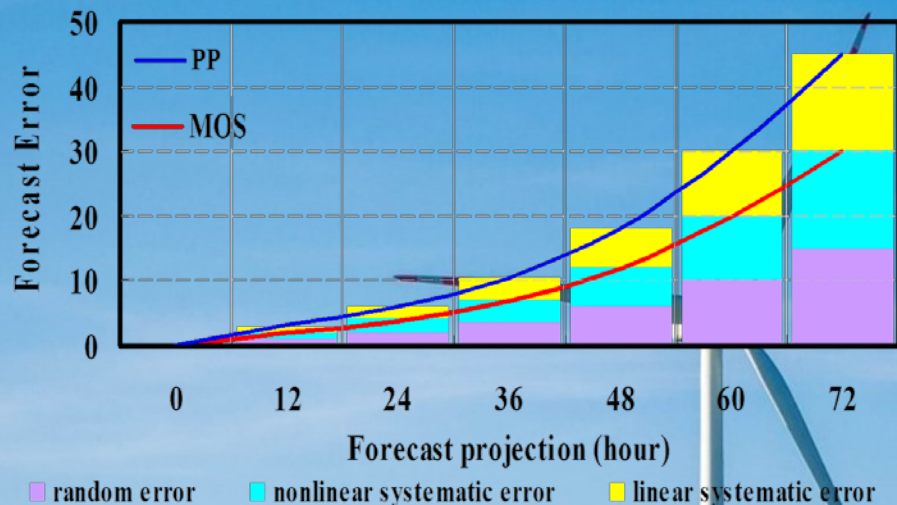
觀園風電機組位置分布



風能預報 模式建立與 預報作業流程



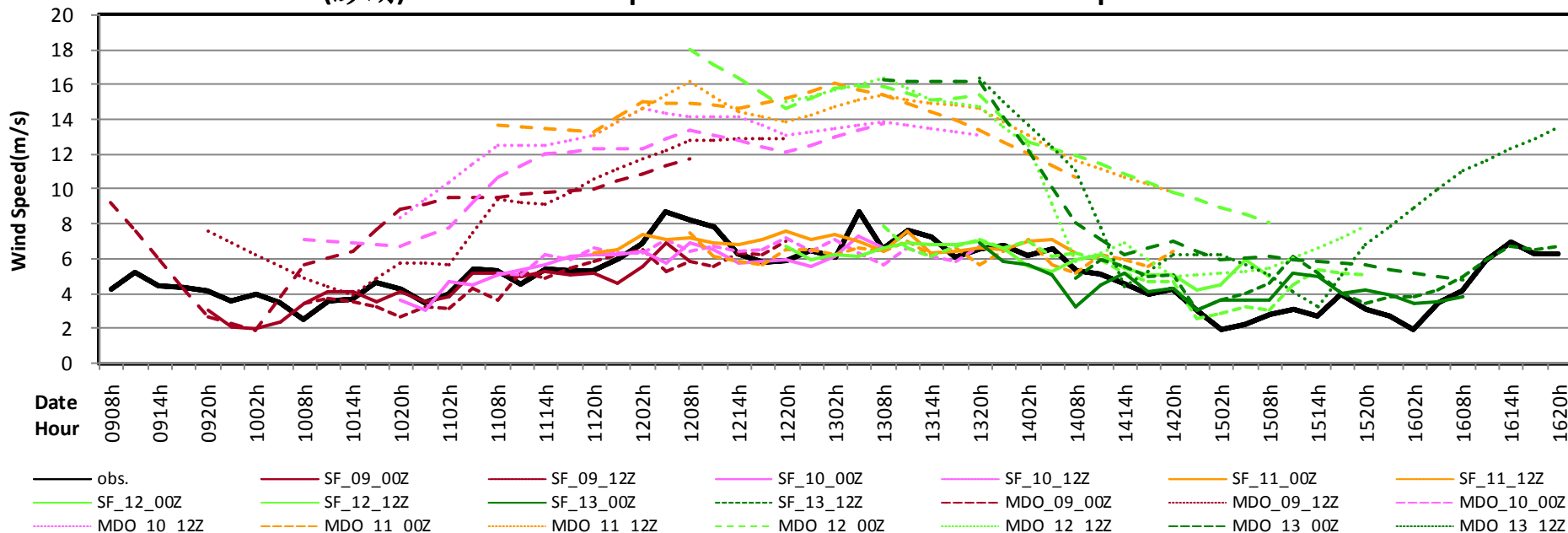
採用MOS模式的特徵- Why MOS?



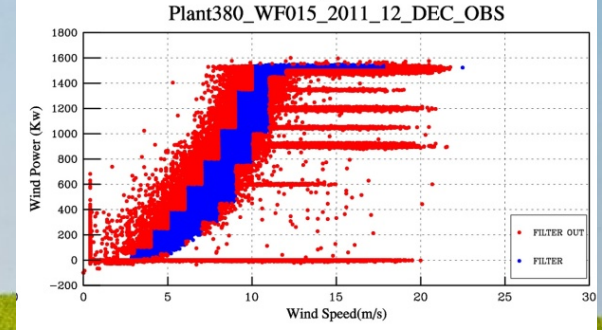
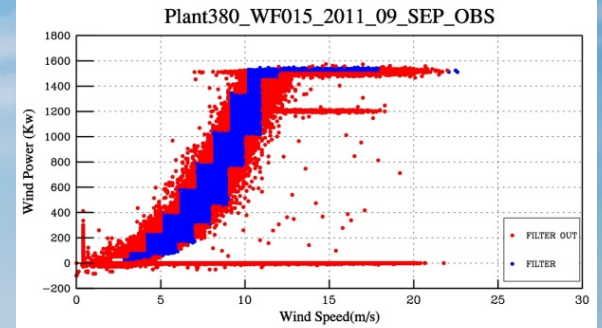
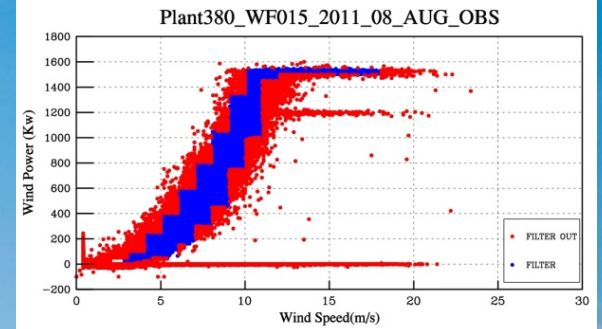
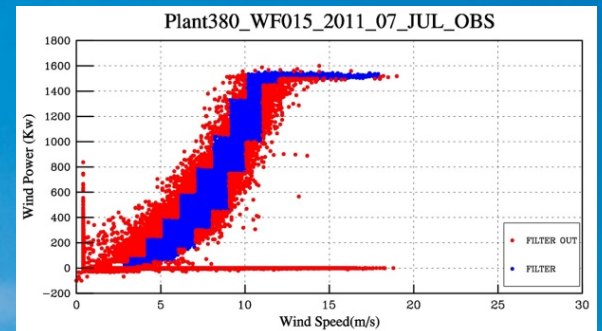
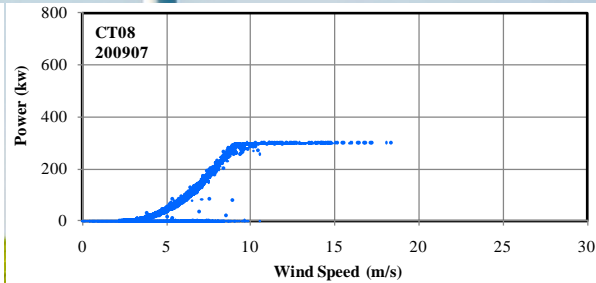
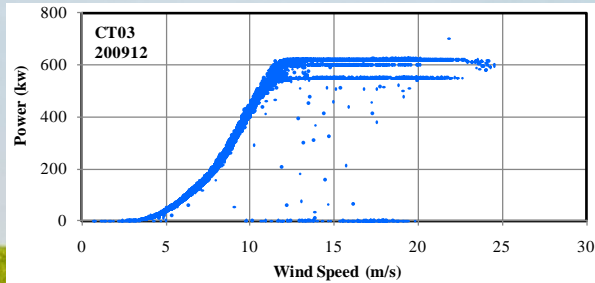
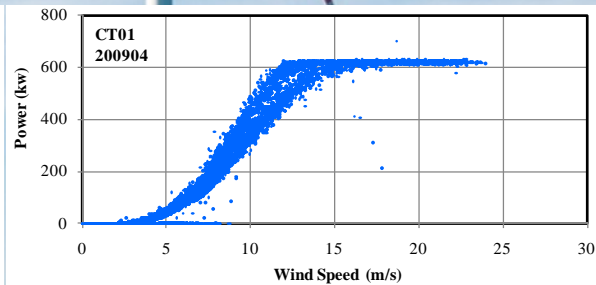
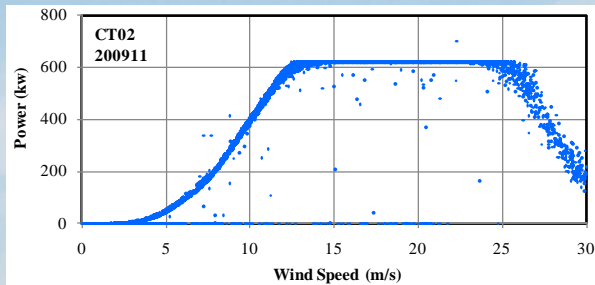
動力統計模式
預報誤差示意圖

CWB NFS MOS WDS
2010 Verification-澎湖

2010-Jan. 46735(澎湖) NFS MOS Wind Speed Guidance vs. NFS MDO Wind Speed

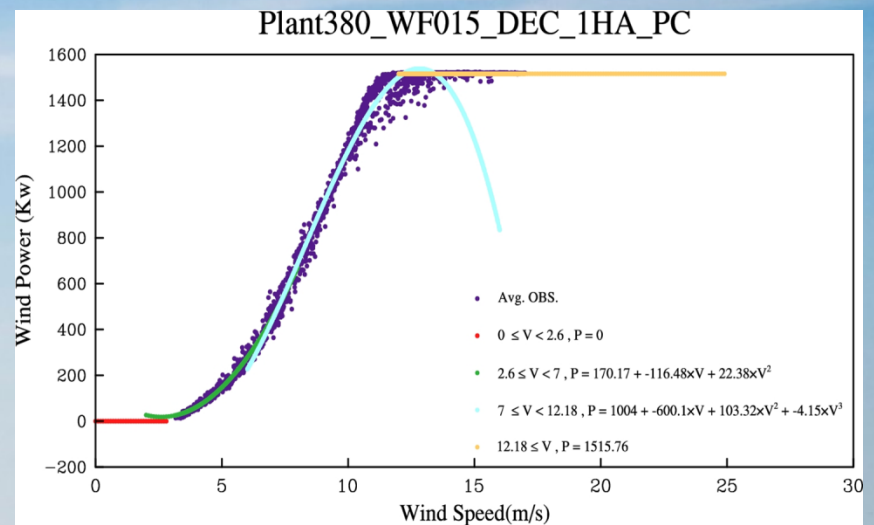
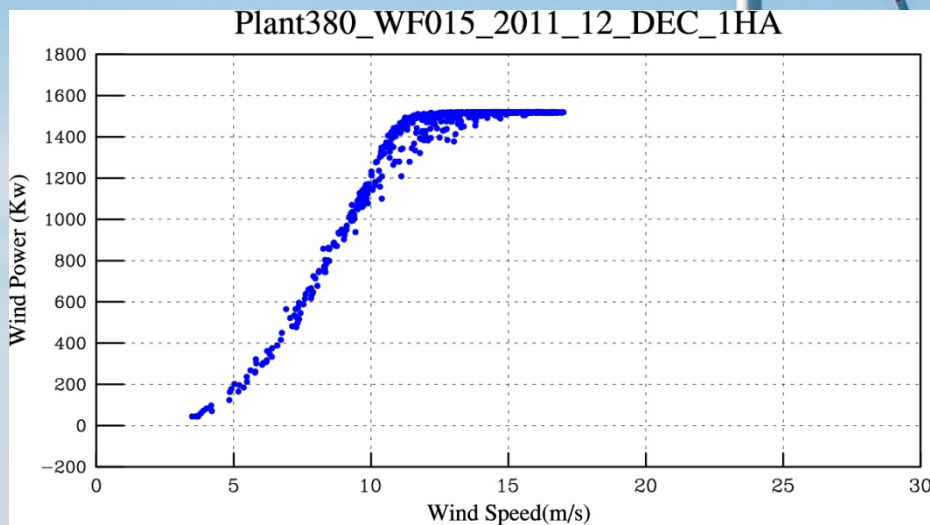
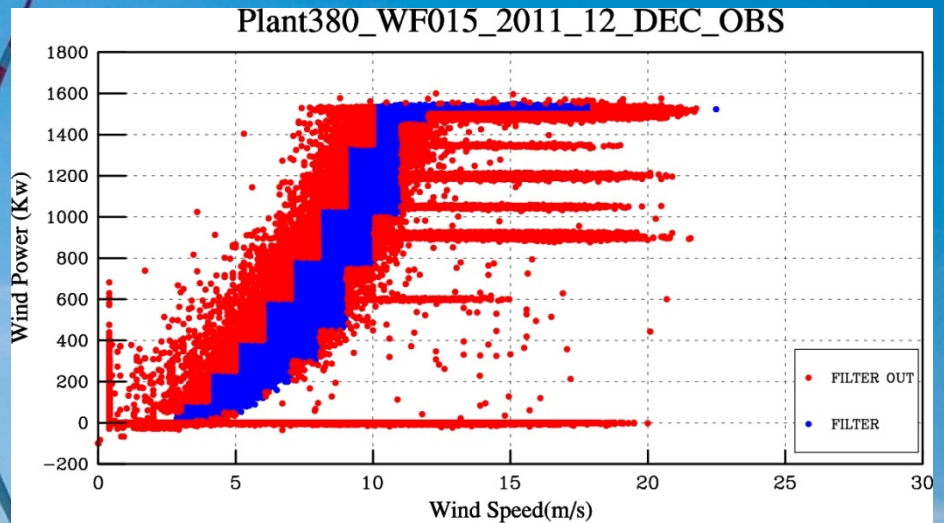


逐月澎湖中屯(下)與 桃園觀園(左)； 風速與風能記錄分布



Power Curve分析

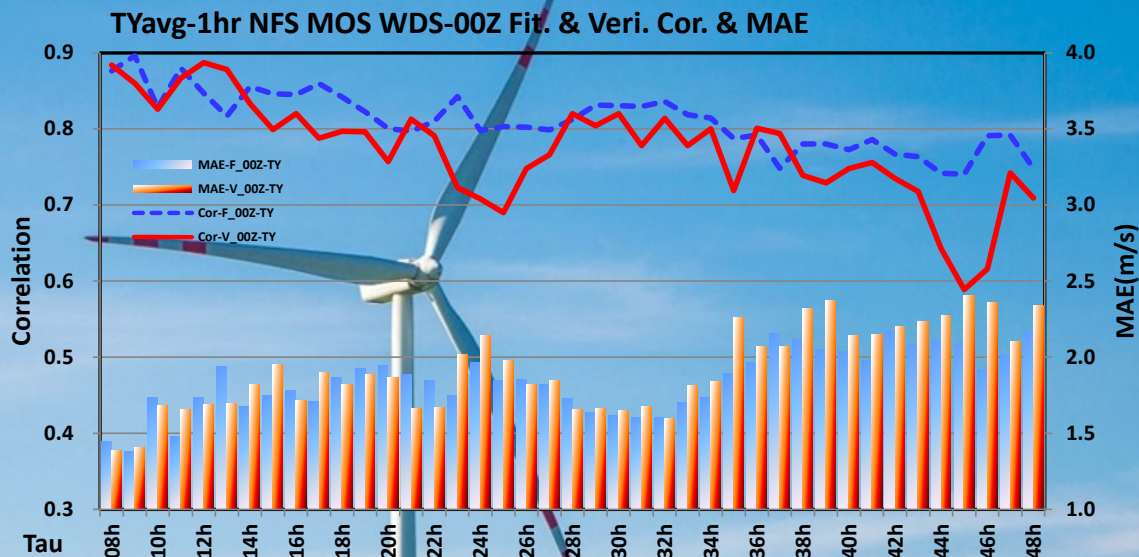
- 原始資料分配
- 與逐時平均分布
- 風速、風能轉換函數



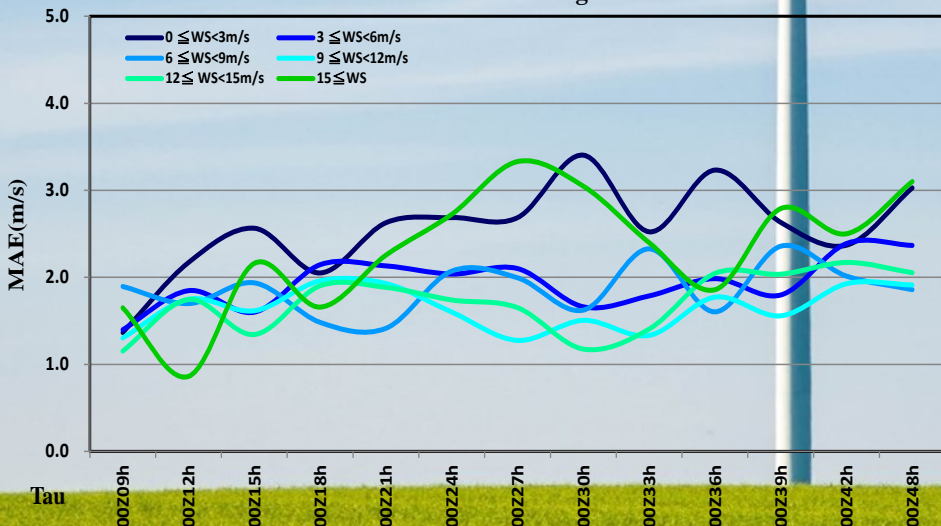
MOS TY-WDS (Fit. & Veri.)

TY-avg觀測風速分類MAE逐時分布比較

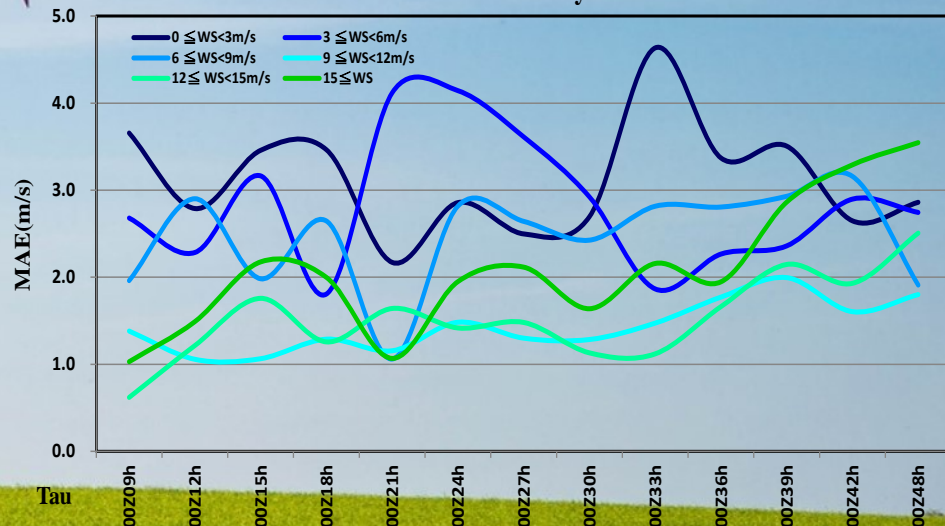
Fit. : 2008~2010
Veri. : 2011



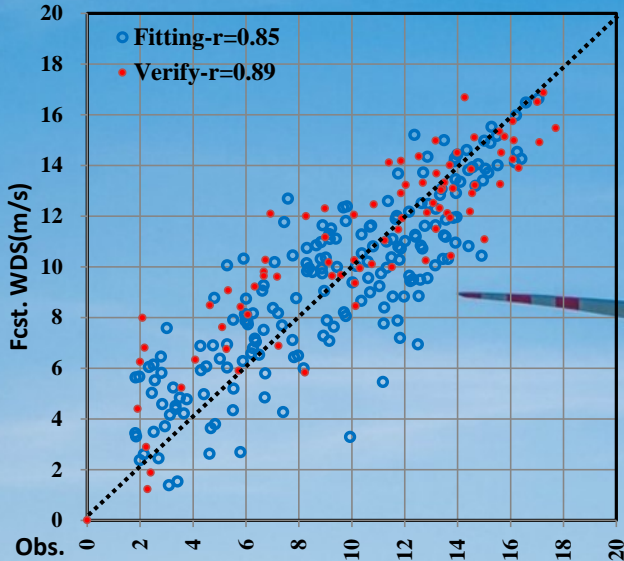
NFS MOS WDS-TY vs. Obs-TY MAE Fitting



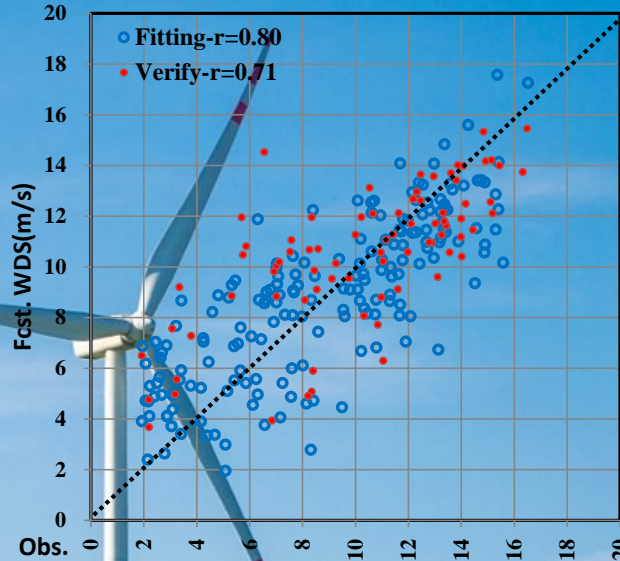
NFS MOS WDS-TY vs. Obs-TY MAE Verify



NFS MOS 00Z12h WDS vs.
20LST TY-WDS - Winter

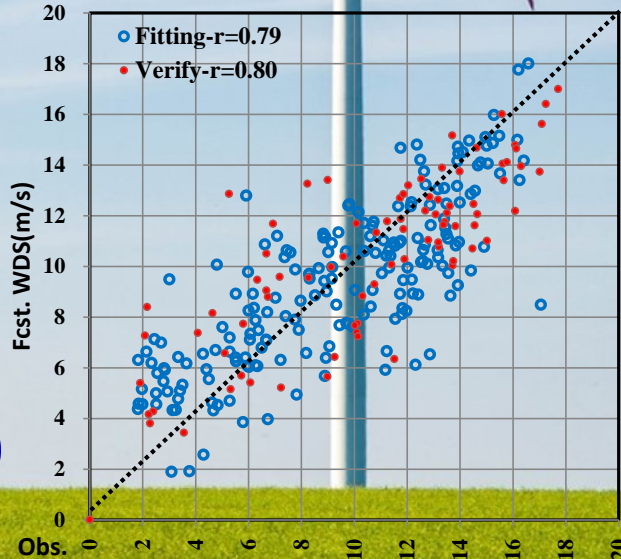


NFS MOS 00Z24h WDS vs.
08LST TY-WDS - Winter

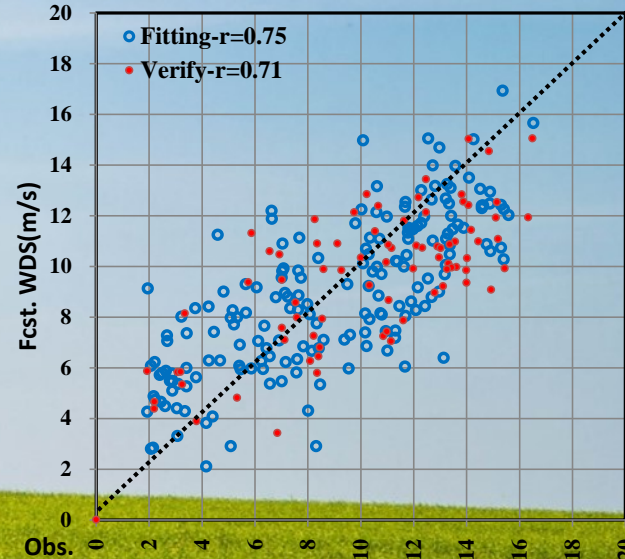


**MOS TY-WDS
(Fit. & Veri.)
逐時預報與
觀測對應散布**

NFS MOS 00Z36h WDS vs.
20LST TY-WDS - Winter



NFS MOS 00Z48h WDS vs.
08LST TY-WDS - Winter



**Fit. : 2008~2010
Veri: 2011**

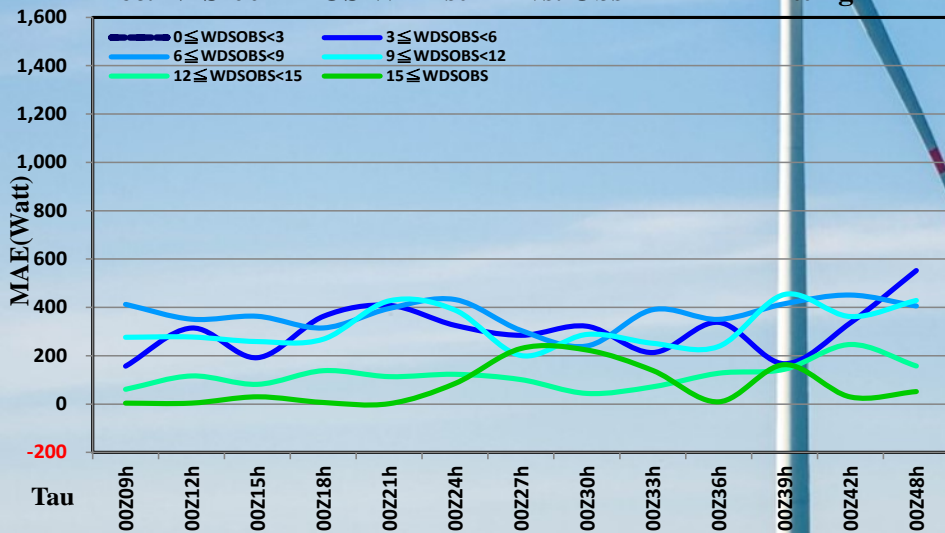
Wind Power Est. (Fit. & Veri.)

的TY-avg觀測風速分類MAE逐時分布比較

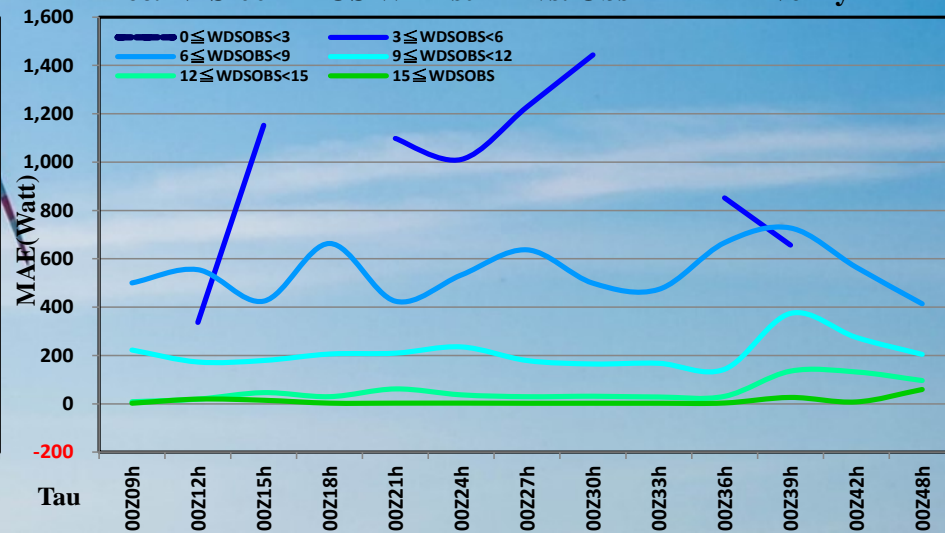
Fit. : 2008~2010

Veri. : 2011

Dec. NFS-00Z MOS WP Est-TY vs. Obs-TY MAE Fitting

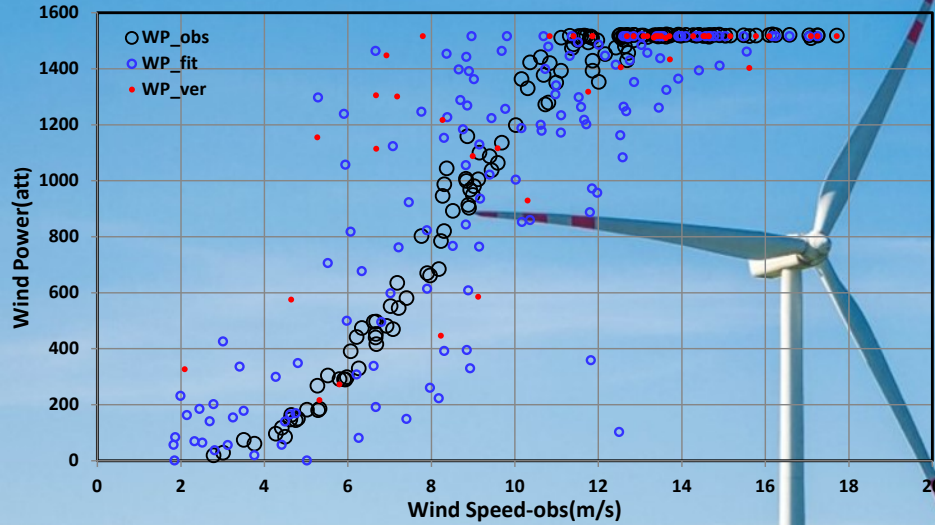


Dec. NFS-00Z MOS WP Est-TY vs. Obs-TY MAE Verify

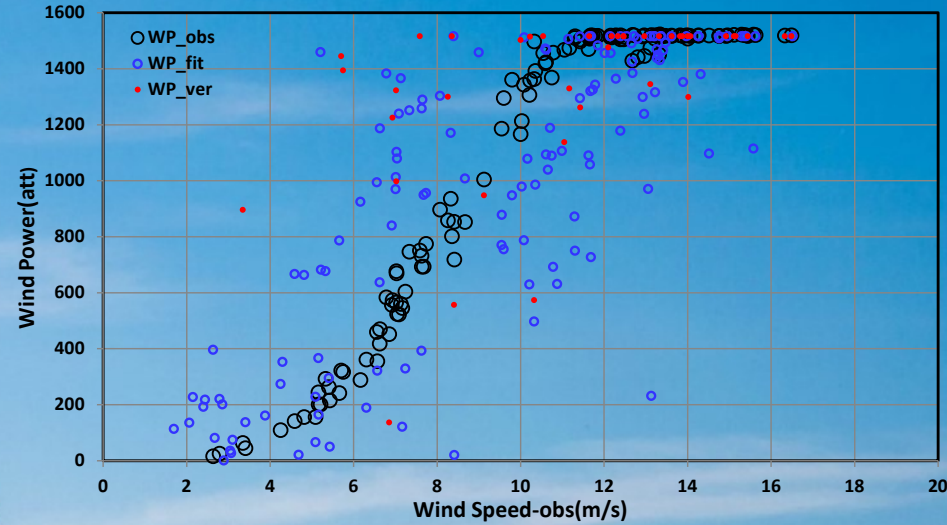


TY Wind Power Est. 逐時預報與觀測對應散布 - (Fit. & Veri.)

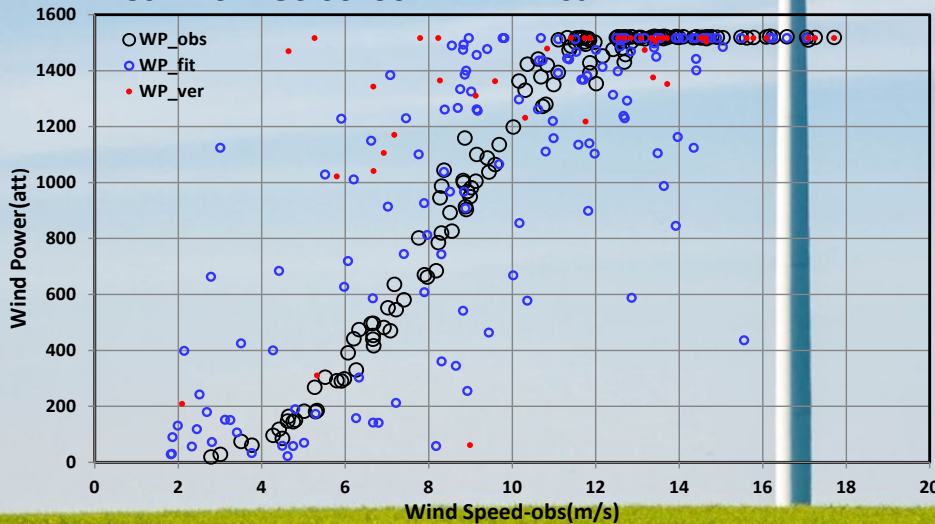
Dec. NFS MOS 00Z12h TY-WP Est.



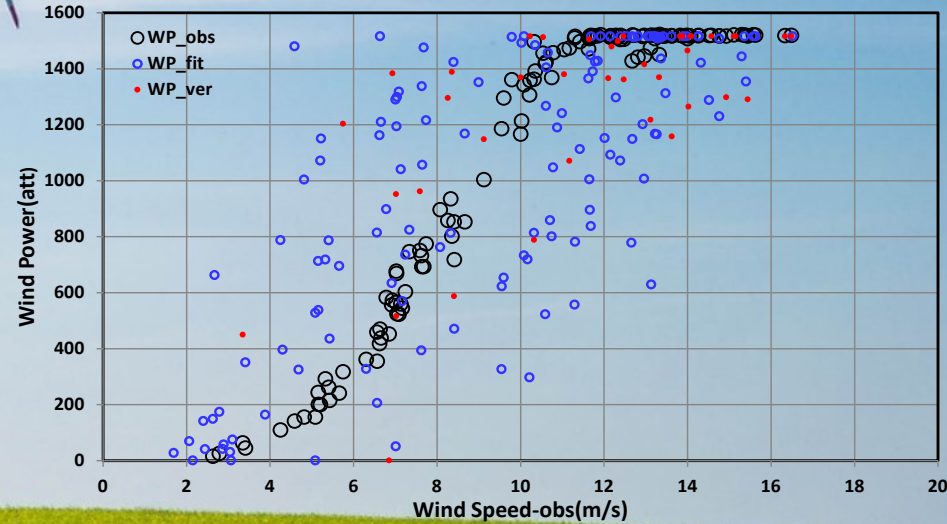
Dec. NFS MOS 00Z24h TY-WP Est.



Dec. NFS MOS 00Z36h TY-WP Est.



Dec. NFS MOS 00Z48h TY-WP Est.

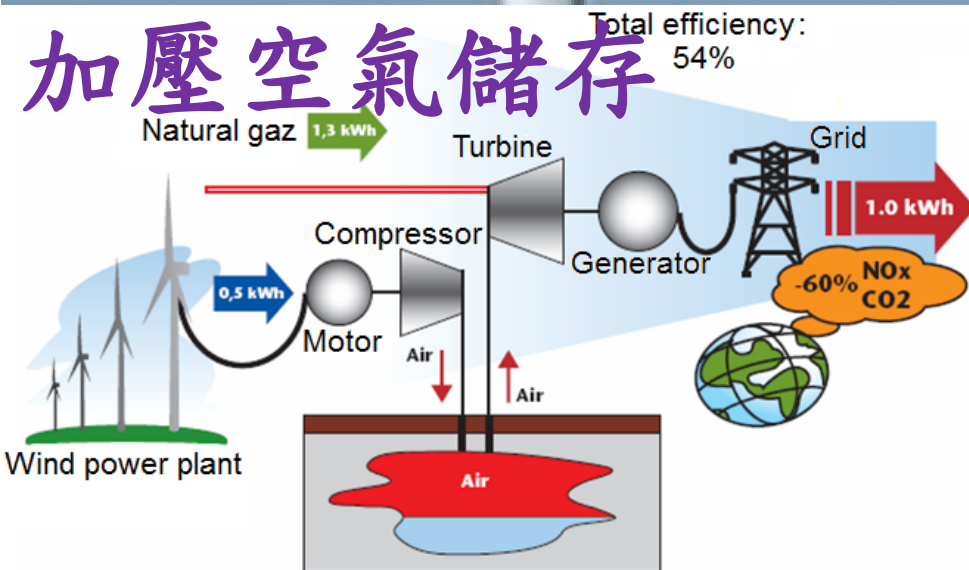


風電廠內的風機運轉產生繞流相互干擾



風能非隨時可用，如何儲存(較環保)?

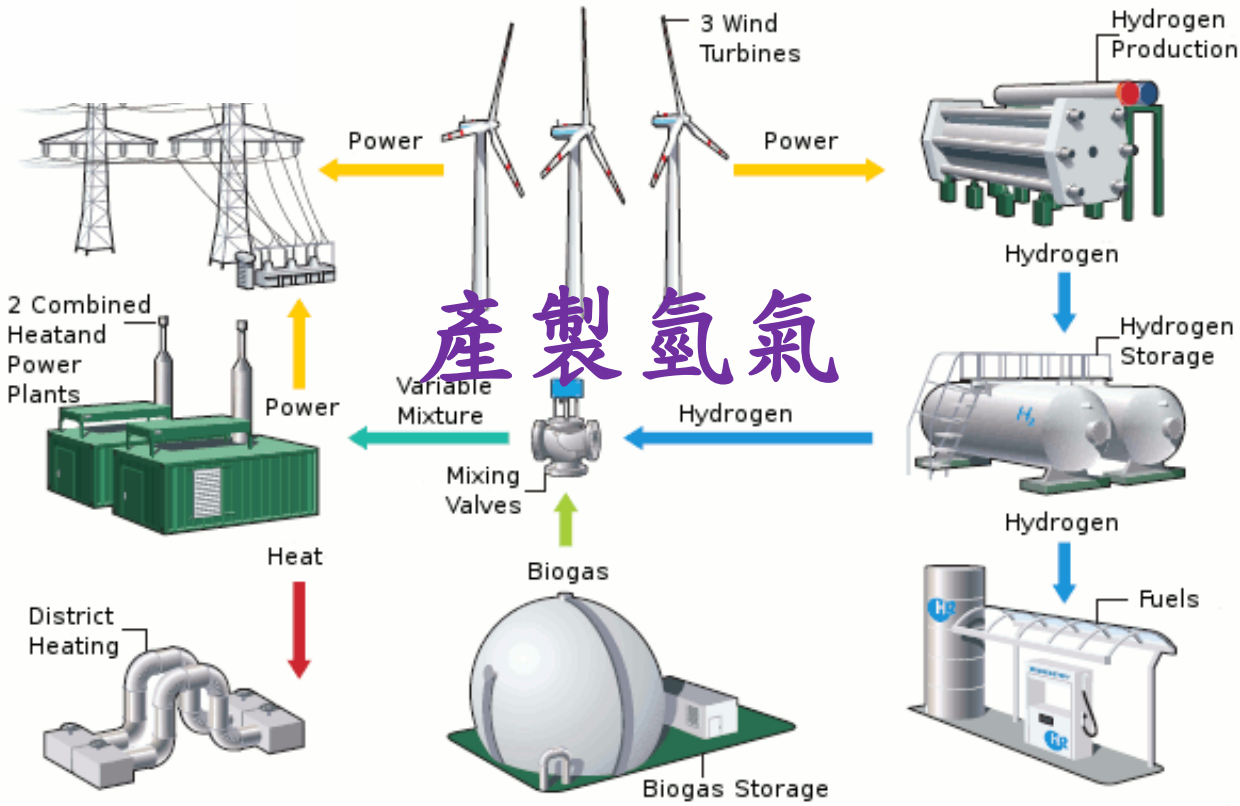
加壓空氣儲存

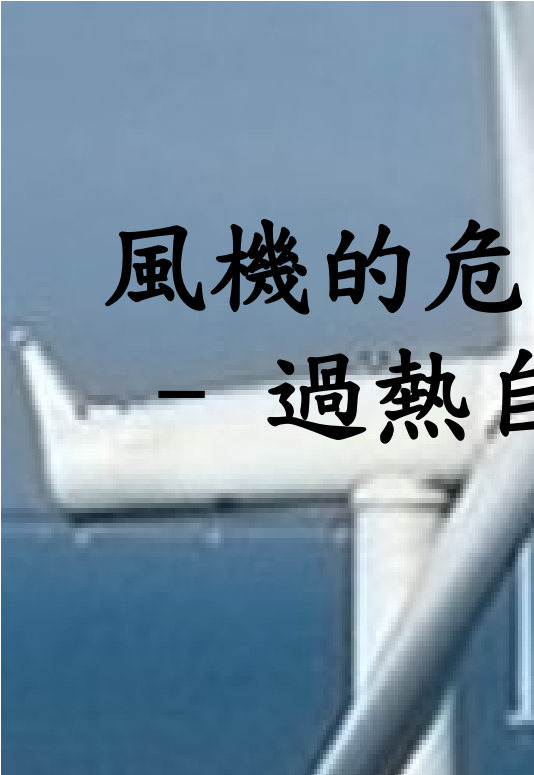


大型蓄電池



抽水入水庫 待水力發電





風機的危

— 過熱自

最新> 風力發電機起火 高度達67米無法滅火

最新消息

EBC **CTV**
東森新聞



記者:江筱惠/彰化

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BREAKING NEWS

風力發電機起火 高度達67米無法滅火



風機的危險狀況 — 閃電雷擊 —



風機的危險狀況

- 強烈風暴 -



梅姬颱風肆虐台灣，導致台電公司的台中港第十二號風機3支葉片斷裂。（圖／台電提供）



風機的多功能性



謝謝