



Vestas

La eólica en el horizonte del 2020

15 de Junio de 2007
Javier Rodríguez Díez

Viento, Petróleo y Gas

Cambios en el marco regulatorio:

- Informe económico Stern
- ONU: 2009, Copenhague: cumbre mundial
- UE 20% ER para el 2020 (mín)

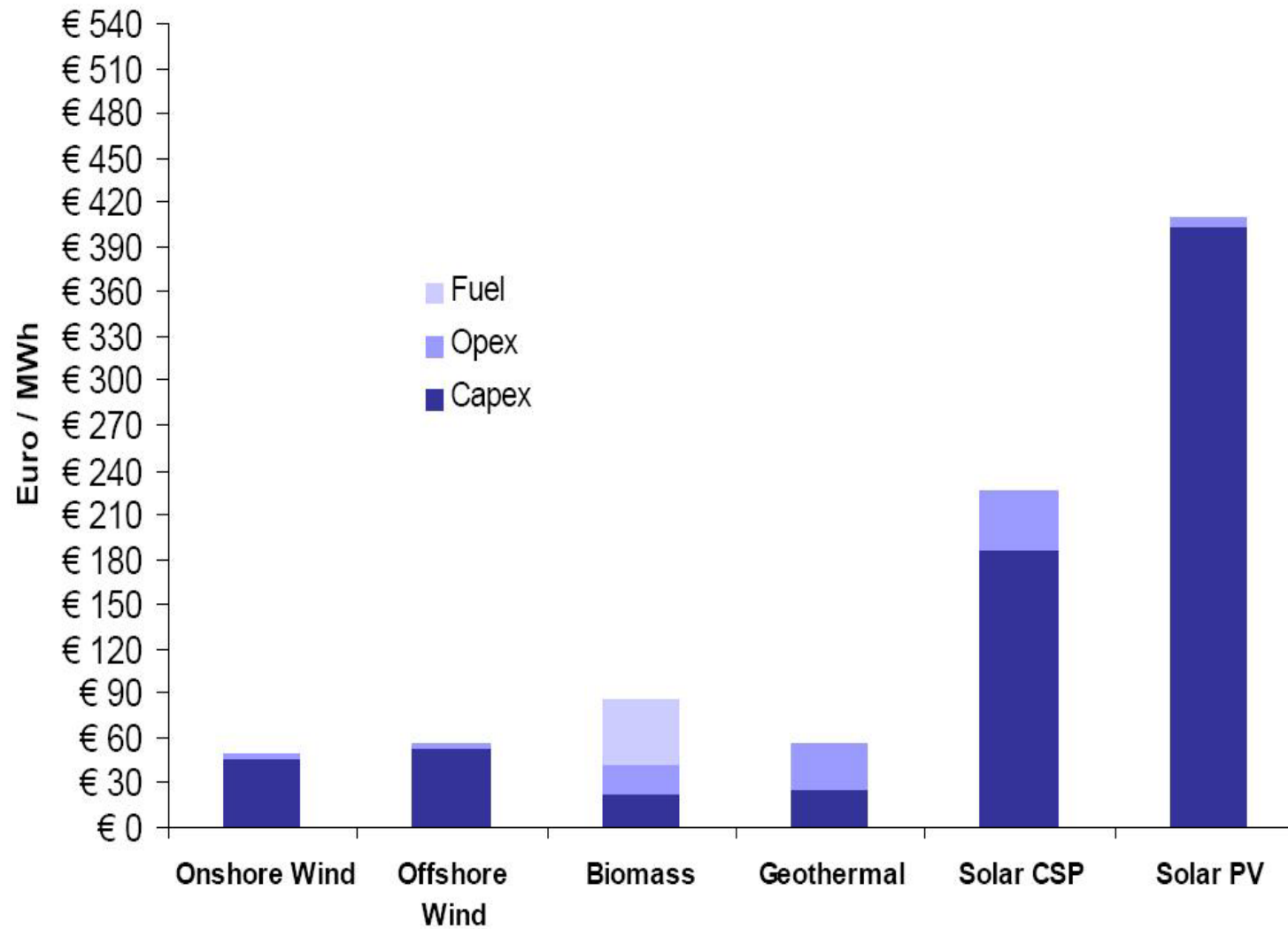


**Transcurridos 20 años, una V90-3.0
MW evitará la emisión al medio
ambiente de 233,000 toneladas de
CO₂.**

**Lo que equivale a un total de
emisiones de CO₂ de unos
27,500 ciudadanos de EU.**

Fuente: International Energy Agency, 2005

El viento: fuente de energía competitiva

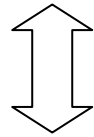


Fuente: "- Emerging Energy Research"- , Diciembre 2006

Objetivos UE- España: proceso dual

Nivel administrativo europeo:

Objetivo: 20% ERs en 2020

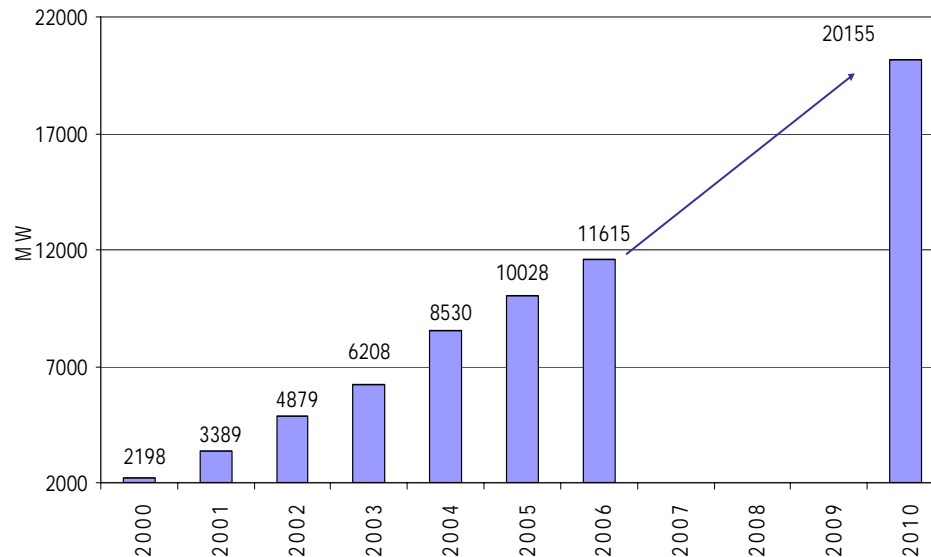


Nivel de los estados miembro:

Decisión nacional en objetivos y mix de ERs



Evolución de la energía eólica en España



Integración en la red

Statement of Compliance  Germanischer Lloyd

GL Wind Statement No. **NAR-GL-001-2007, Rev. 1**

This Statement of Compliance for Grid Support of the Wind Turbine

V80 – 2.0 MW VCS AGO 2, 50 Hz

is issued to **Vestas Wind Systems A/S**
Alsvej 21
8900 Randers
Denmark

This statement attests compliance with the normative references stated below concerning Grid Support by the Wind Turbine during grid failures. The Grid Support Assessment is based on the documents and full scale Low Voltage Ride Through Tests listed in the relevant Certification Reports referenced below; the test results as given in the attached Annex 2 and the technical specifications in Annex 1.

Certification Report number and title:

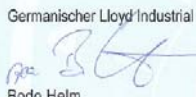
72881-13A, Rev. 1	26.04.2007	Grid Support
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Normative references: As given in Annex 1 including Grid Codes from Germany, Spain and Australia.

Changes in design are to be approved by Germanischer Lloyd otherwise this statement loses its validity.

Hamburg, 26th April 2007
TGe/MRat

Germanischer Lloyd Industrial Services GmbH

 
Bodo Helm i. V. Peter Dalhoff

By DAP German Accreditation System for Testing
accredited Certification Body for products
The accreditation is valid for the tests of certification
listed in this certificate

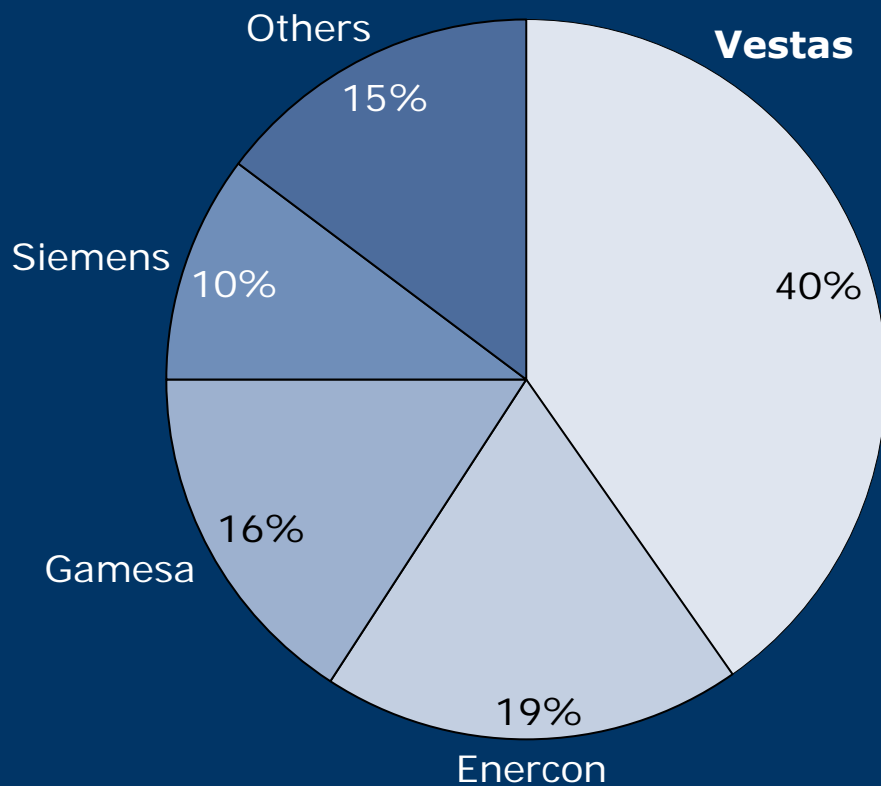
 Deutscher
Akkreditierungs-
Rat
DAP
DPT-ZS 3443.00

Germanischer Lloyd Industrial Services GmbH
Business Segment Wind Energy
Steinbock 9
20459 Hamburg
Germany

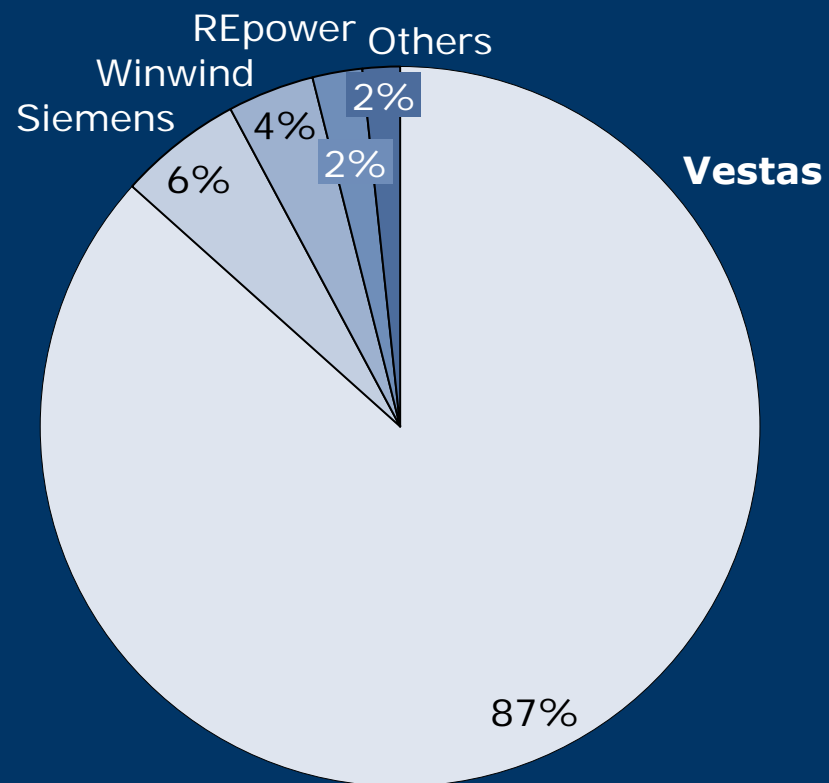
The latest edition of the "General Terms and Conditions of Germanischer Lloyd Industrial Services GmbH, Business Segment Wind Energy" is applicable. German law applies.

Mejora del rendimiento unitario

**Cuota de mercado
AE > 1.5 MW**



**Cuota de mercado
AE > 2.5 MW**



Source: BTM Consult, World Market Update 2006

*Hoy, las turbinas son ¡100 veces más eficientes
que hace 10 años!*



*Una sola turbina
moderna,
es una pequeña central*

La producción anual de la
V90 3MW equivale al
consumo medio anual de
aprox. 2.500 hogares

Viento, petróleo y gas

