



Vestas and the Carbon Market

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About Vestas

History



1898:
Blacksmith H.S.
Hansen arrives in
Lem



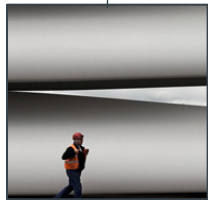
1945:
VEstjysk **ST**aalteknik
A/S becomes **VESTAS**



1979:
First turbine after
agricultural vehicles, etc.



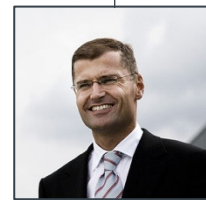
1987:
Vestas
Wind Systems A/S



1991:
Turbine no. 1,000



2004:
Merger: NEG
Micon & Vestas



2005:
Ditlev Engel, CEO



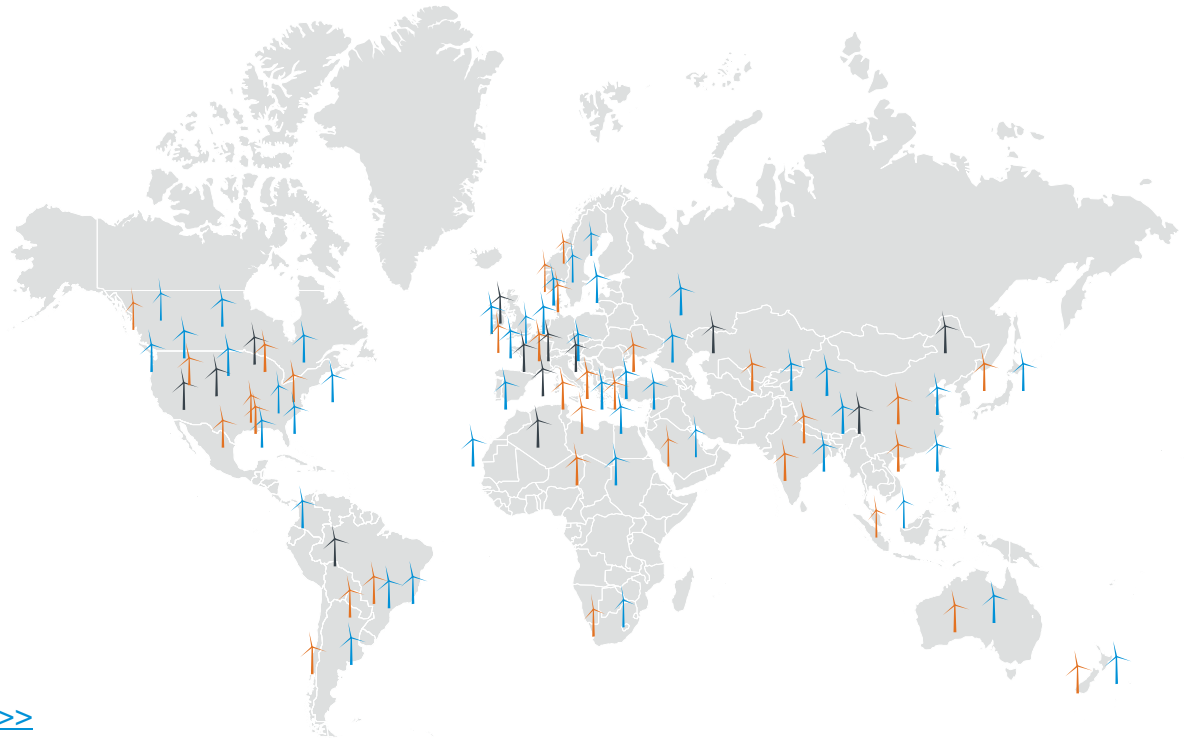
2010:
Wind. It means
the world to us.

About Vestas

Vestas at a glance

Today, we have installed over **44,500** turbines in **67** countries across **five continents**.

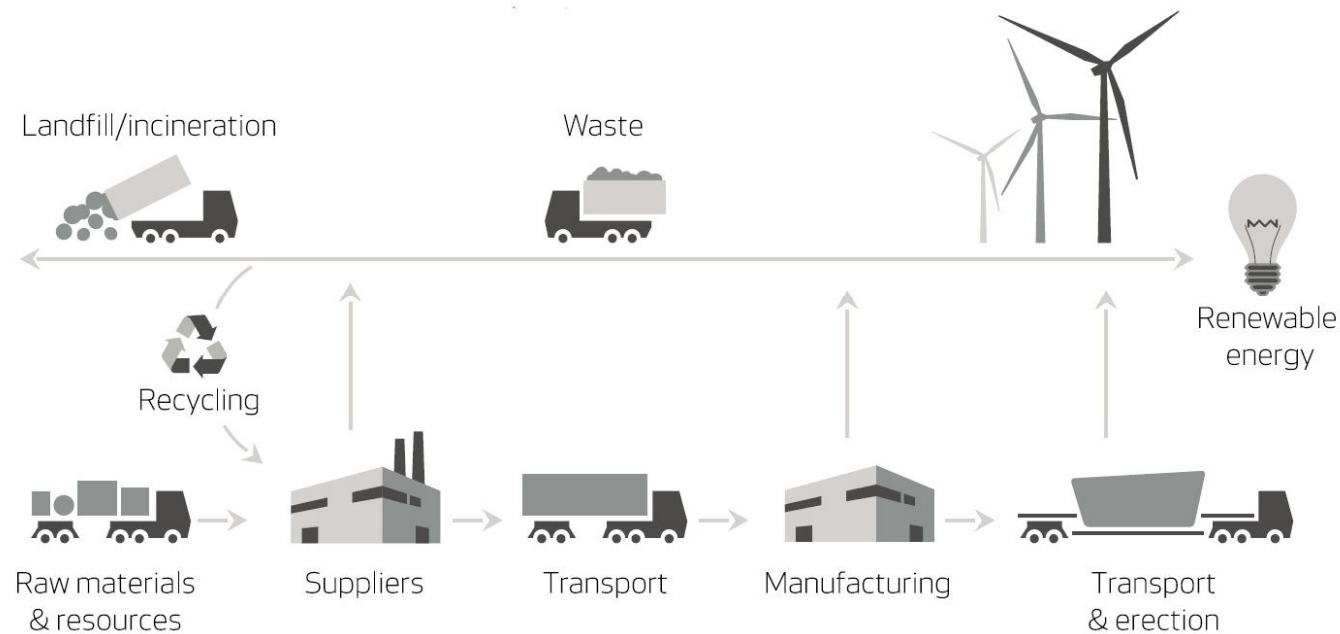
That means installing a turbine every 3 hours saving the world from over **40 million tons** of CO₂ every year.



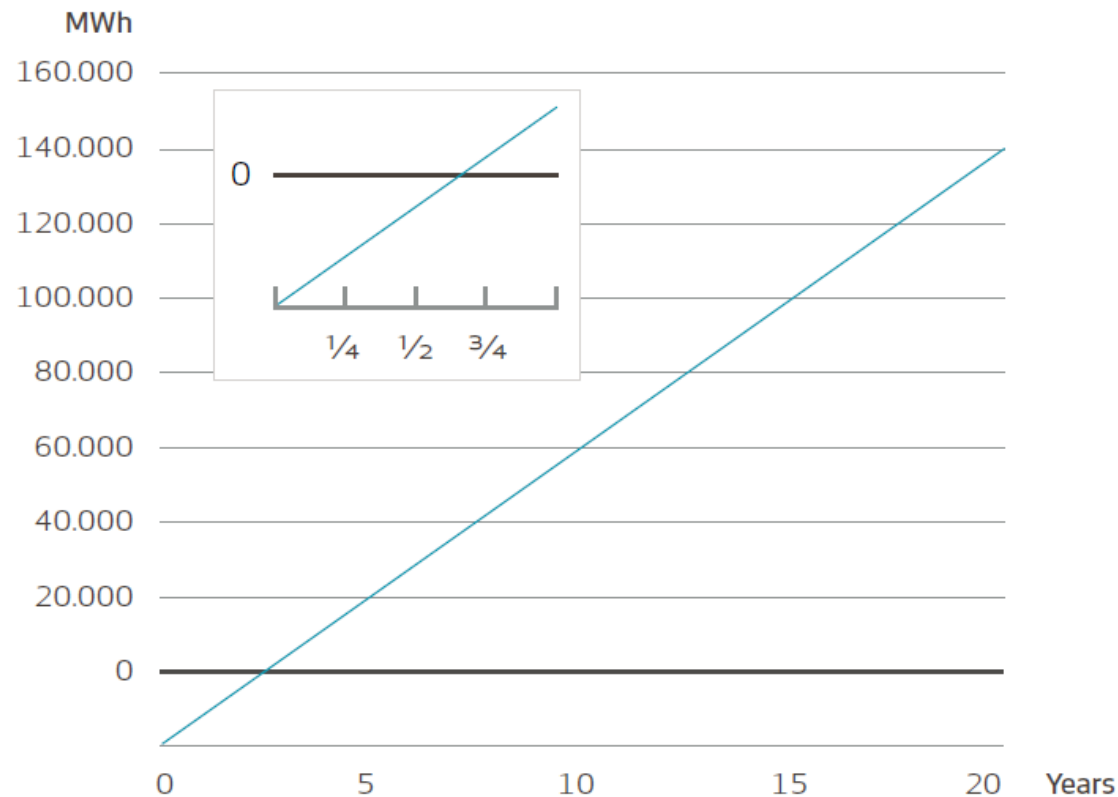
[Vestas' track record >>](#)

Life Cycle Assessment of a Wind Turbine

- ❖ surveys and evaluates the **environmental impact of the wind power plant** throughout its life cycle.
- ❖ assesses the **entire lifecycle of a wind turbine**:
 - Extraction & Manufacturing of raw materials
 - Production of wind turbines
 - Transportation, Erection, Operation, Maintenance, Dismantling and Disposal of the wind turbines, their foundation and the transmission grid.
- ❖ proves that wind power offers a **strong environmental performance** over the lifecycle of a wind turbine.



The energy balance of a V90-3.0 MW is only 6.8 months

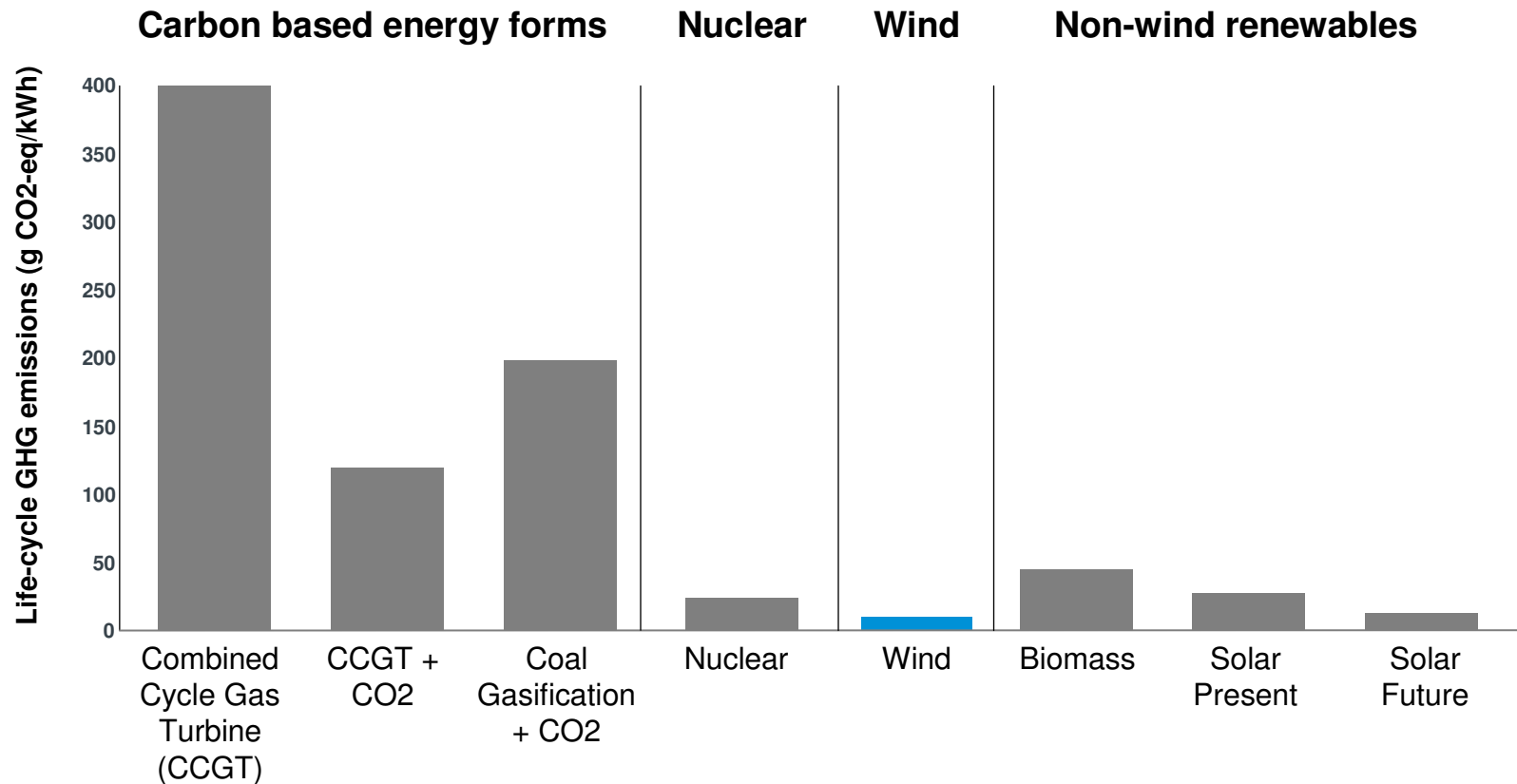


- ❖ It will generate approximately **280,000 mWh** during a **20 year period**.
- ❖ The average **energy balance** of a V90-3.0 MW is just **6.8 months**.

Why wind?

Wind is competitive environmentally

Wind continues to be the lowest life cycle greenhouse gas (GHG) emissions energy source.



Source: Singapore IEW Conference Key Takeaways, November 2009

Vestas wind turbines reduce CO₂ emissions by more than 40 million tons per year

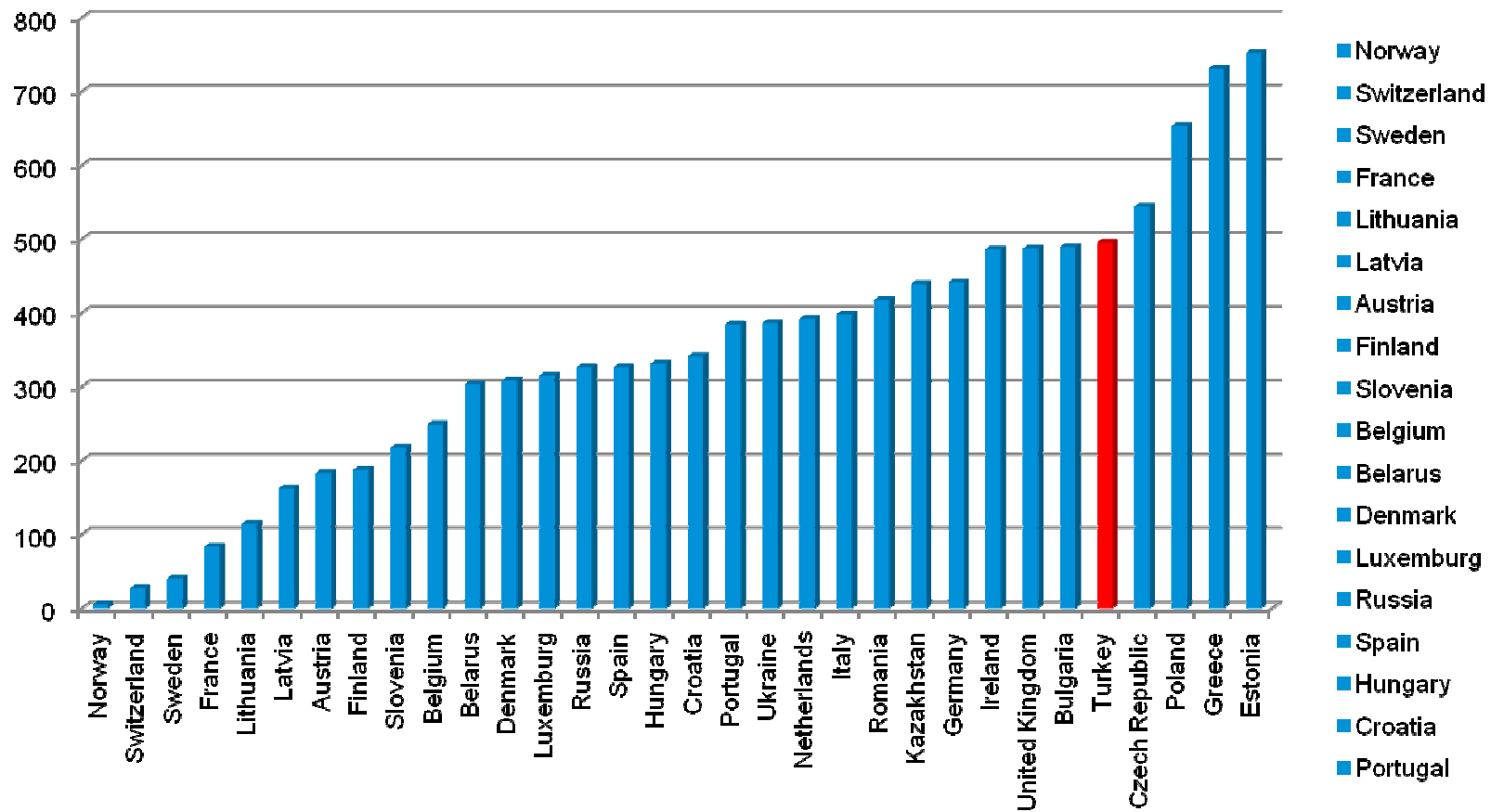
CO₂ emissions for 1 kWh electricity produced by:



❖ 280,000 MWh production during a 20 year period

❖ 230,000 tons of CO₂ saved compared to energy production at a coal-fired power plant

Emission Factors by Countries(gCO2/kWh)



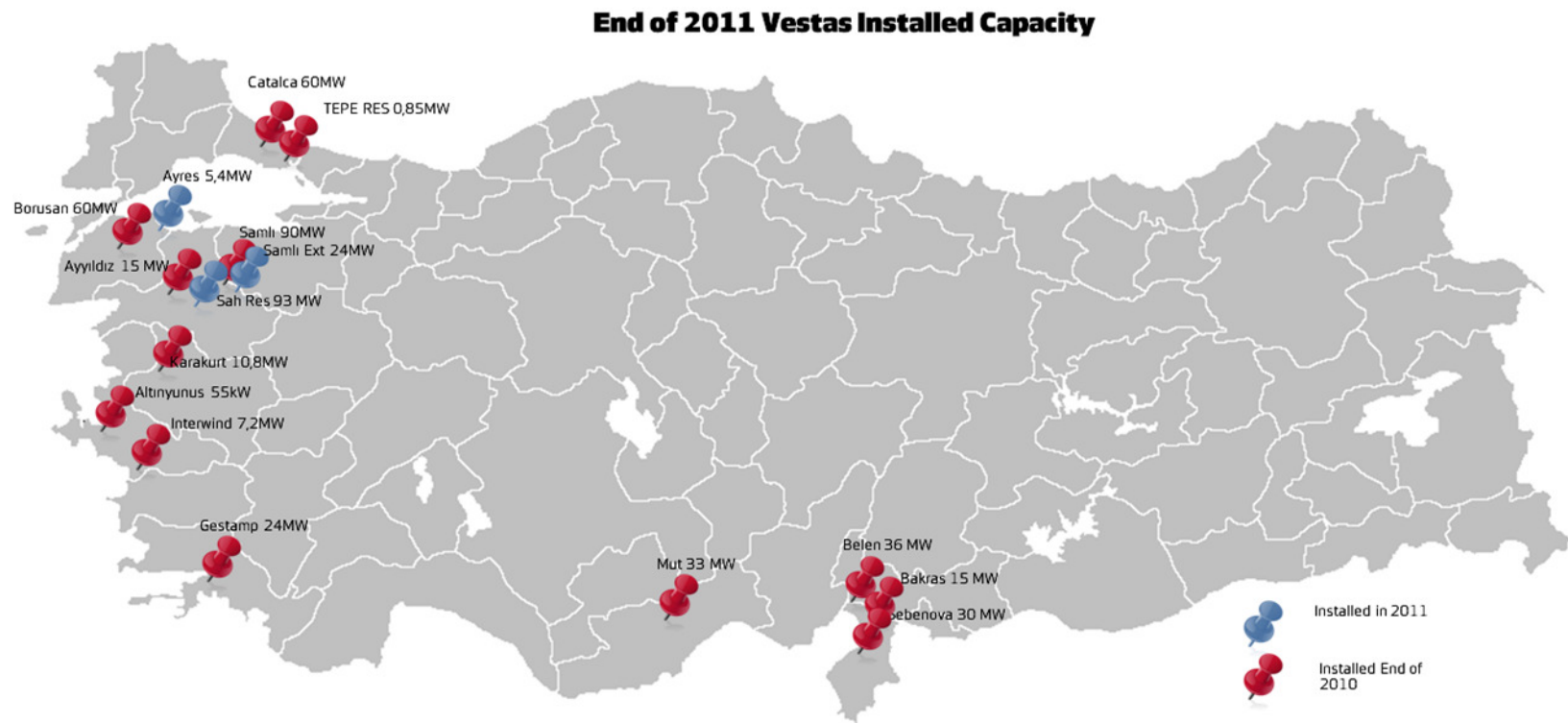
* Source : International Energy Agency, 2010.

Vestas' Contribution to Emission Reductions


❖ **503,25 MW** installed power by the end of 2011

❖ **1.250.000 MWh** in 2011

❖ over **600.000 tons CO₂** emission reductions



Turkey Carbon Markets & Wind

- ❖ 56 listed wind projects in Gold Standard Registry
- ❖ 37/56 projects are validated/registered
- ❖ 56 listed projects listed in Gold Standard Registry  over 5.000.000 tons CO₂
- ❖ Additional income from carbon credits are essential for feasibility of renewable energy projects
- ❖ Turkey would benefit from CDM markets, post Kyoto the contribution margin of carbon credits would be higher.

	Without VER	@ 5 Eur/ton VER	@ 6 Eur/ton VER	@ 7 Eur/ton VER
Equity IRR (%)	9,73%	10,19%	10,28%	10,38%

Summary of Project investment analysis without and with VER financing

**Example of carbon credits contribution to Project IRR.*

Social Initiatives of Vestas

❖ WindMade

- the first global consumer label identifying organisations and products that use wind power in their operations or production
- increase globally the use of wind power
- contribute to the prevention of climate change
- promote resource efficiency and energy security



Wind. It means the world to us.™