



# Vestas and the Carbon Market

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# About Vestas

## History



**1898:**  
Blacksmith H.S.  
Hansen arrives in  
Lem



**1945:**  
**VE**stjysk **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.



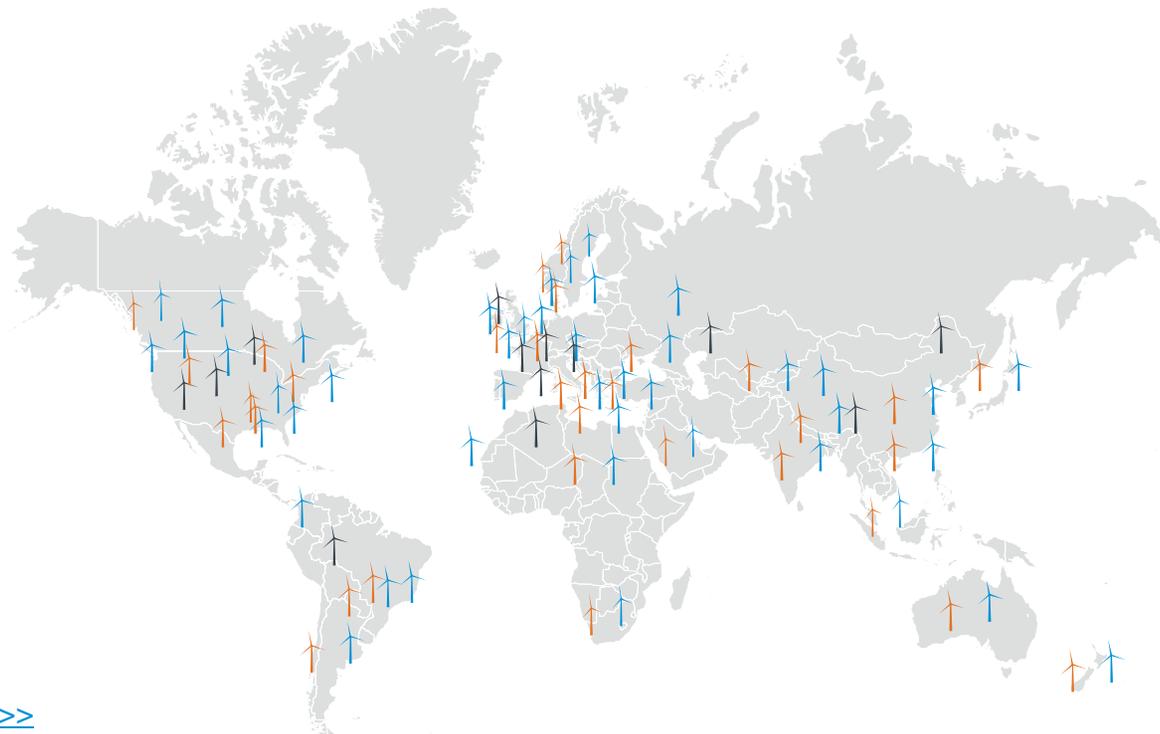
# About Vestas

## Vestas at a glance

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

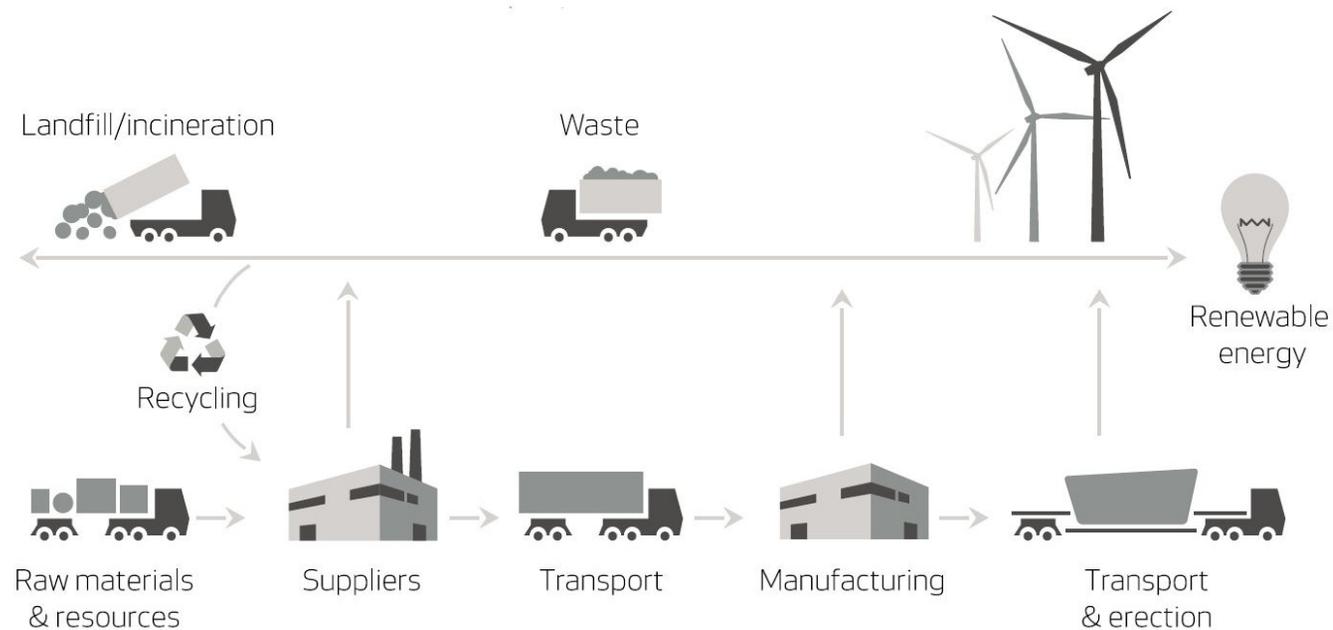
That means installing a turbine every 3 hours saving the world from over **40 million tons** of CO2 every year.



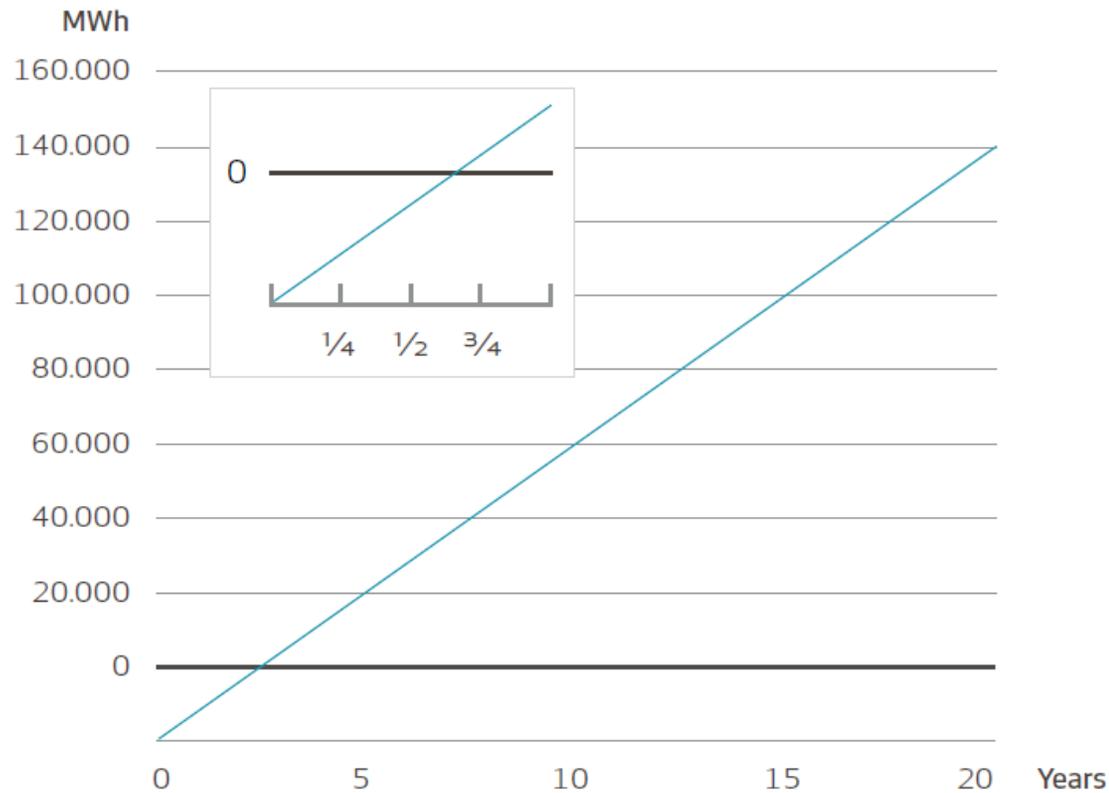
[Vestas' track record >>](#)

# 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

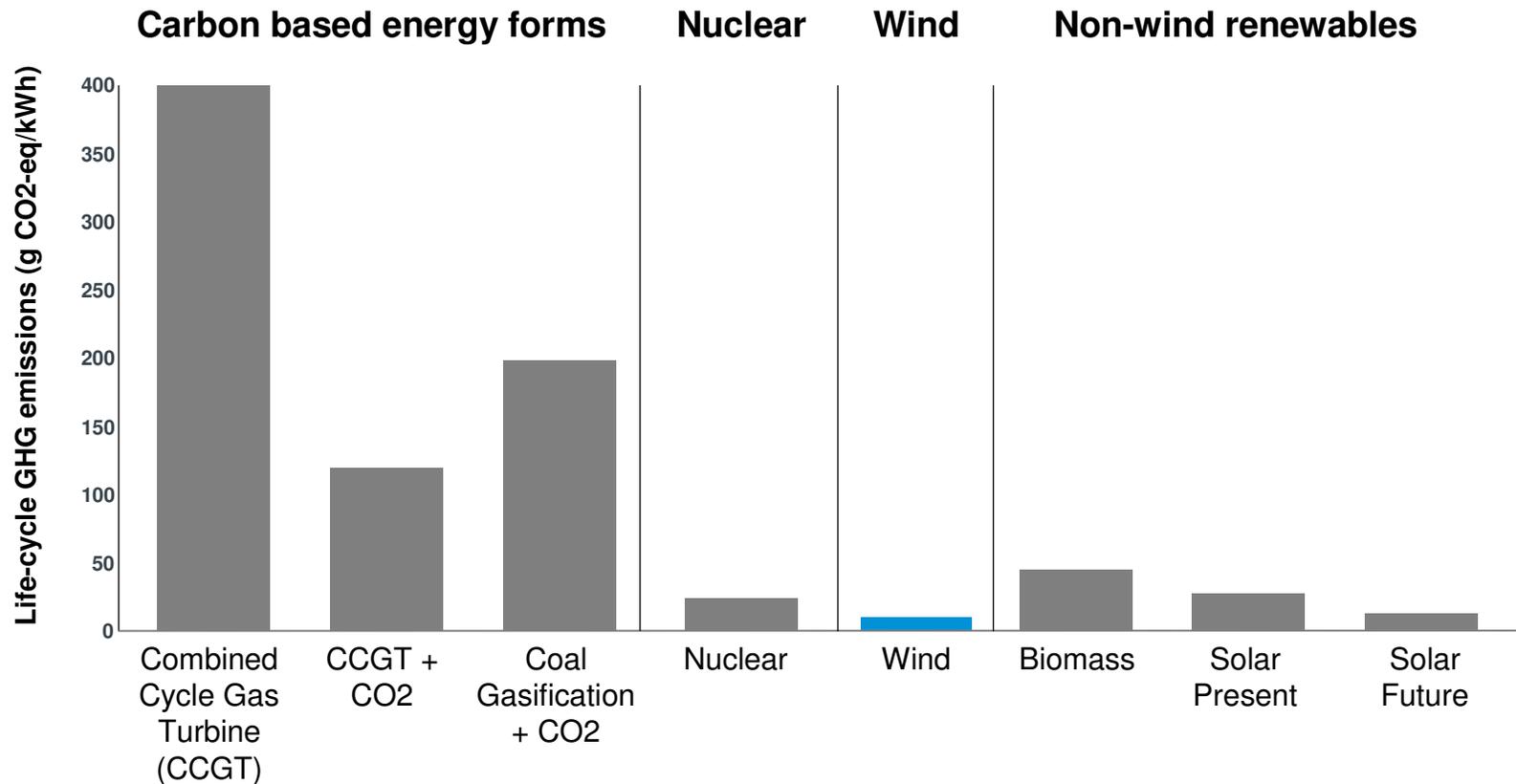


- ❖ It will generate approximately **280,000 mWh** during a **20 year period**.
- ❖ The average **energy balance** of a V90-3.0 MW is just **6.8 months**.

# 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 CO<sub>2</sub> emissions by more than 40 million tons per year

CO<sub>2</sub> emissions for 1 kWh electricity produced by:

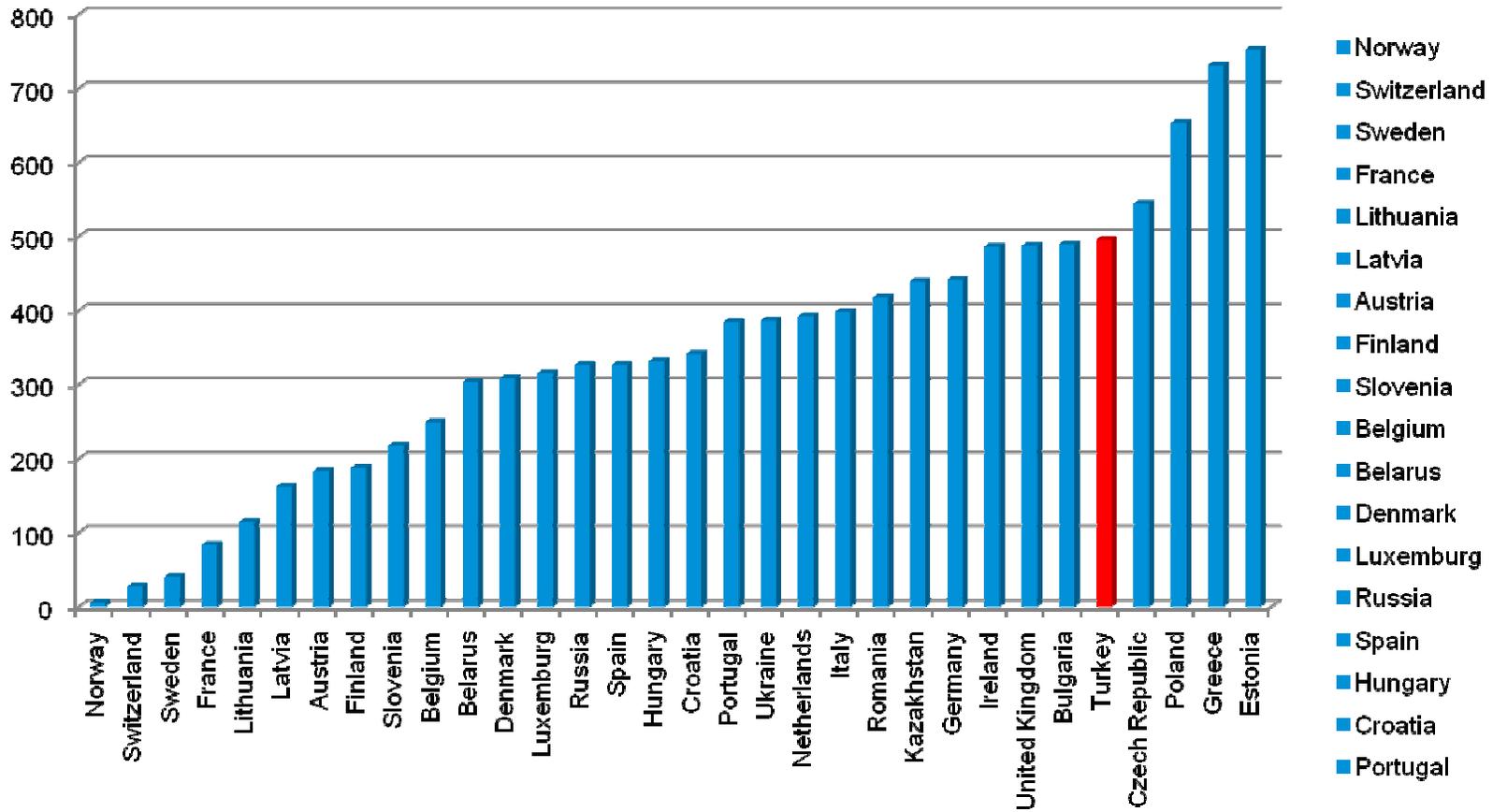
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❖ 280,000 MWh production during a 20 year period

❖ 230,000 tons of CO<sub>2</sub> saved compared to energy production at a coal-fired power plant

# Emission Factors by Countries(gCO2/kWh)



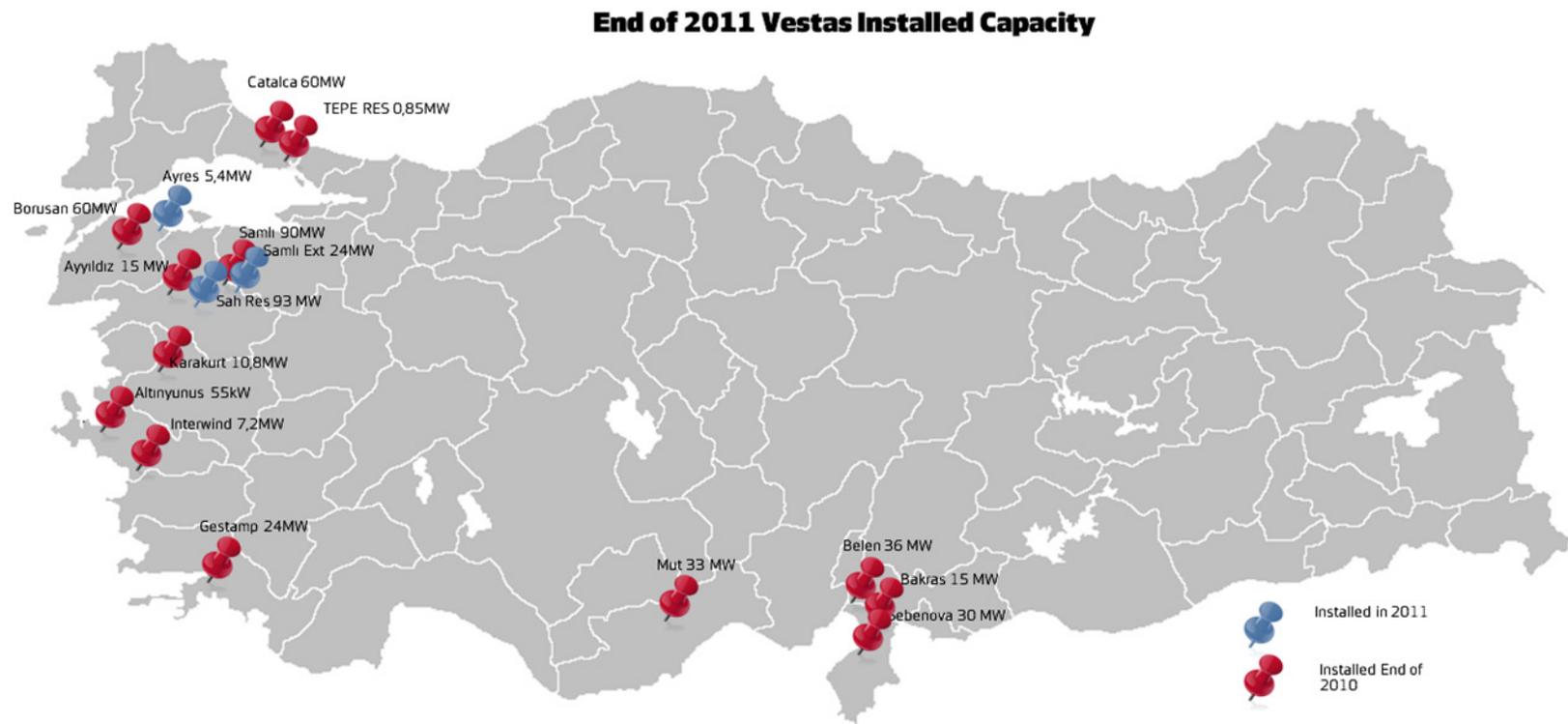
\* Source : International Energy Agency, 2010.

# 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 CO<sub>2</sub>** 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 CO<sub>2</sub>
- ❖ 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



WINDMADE™

**Vestas**®



**Bloomberg**  
NEW ENERGY FINANCE



**Wind.** It means the world to us.™