

# Overview

- Introduction James Post & Mainwind BV
- Wind Energy: Big is Beautiful?
- Windmills from upgraded windparks
- Call to Action
- Financing barriers and opportunities
- Energy efficiency



# Introduction

- Background James Post
- Background Mainwind
- History windmills
- Trends for the future



# Wind Energy: Big is Beautiful?

- Bigger windmill = lower cost per kWh
- 1.5-2 MW is now the norm... -> 5 MW
- cost per kWh competitive with fossil fuel
- Mainstream moves toward offshore
- Big: more complicated to install/maintain



# Windmills from upgraded windparks

- History of used windmills
- Complete refurbishing ensures reliability
- all-in maintenance contract up to 15 year
- cost per kWh competitive with large units
- low investment: ~500 Euro per kW
- payback in just over ONE year!  
(calculated at 6 m/s)



# Call to Action

- Discussion on best wind park takes years
- Lead time windmills is now 2 – 3 years
- Upgraded/reconditioned windmill is immediately available
- Wind parks can be upgraded in the future; upgraded wind mills can be placed elsewhere
- Again: payback in just over ONE year!



# Financing barriers & opportunities

- Financing is feasible from IPP
- Local/regional financing is cheaper
- Support from development banks?
- Educate local banks
- step by step approach is preferred



# Energy Efficiency

- Energy efficient appliances & light bulbs
- Air conditioning heat recovery systems
- Solar water heaters
- Windmills distributed over islands mean smaller copper losses

**Bottom line:**

**RE and EE must go hand in hand**

