

Vestas Wind Systems A/S : Portfolio Report

Introduction

Vestas Wind Systems A/S, headquartered in Denmark, is currently the largest wind energy company in the world. It exclusively manufactures, sells, installs and services wind turbines worldwide.

The origin of Vestas is in a family-owned blacksmith shop started in 1898 by Hand Smith Hansen. The company itself was established in 1945 by his son Peder Hansen. The company began by manufacturing household appliances but soon moved to manufacturing agricultural equipment, and later industrial equipment such as intercoolers, hydraulic cranes and finally wind turbines. Since 1989, it has exclusively concentrated on the manufacture of wind turbines for electricity generation. ^[1]

Vestas operates in twenty-four countries with an employee-strength of over 21000. It has an installed capacity of around 92 GW in over 79 countries. The company has completed various M&A initiatives, a recent and significant one being a joint-venture with Mitsubishi Heavy Industries (MHI) to manufacture and sell offshore wind turbines. Vestas' revenues for 2018 is set to exceed Euro 10 billion. ^[2]

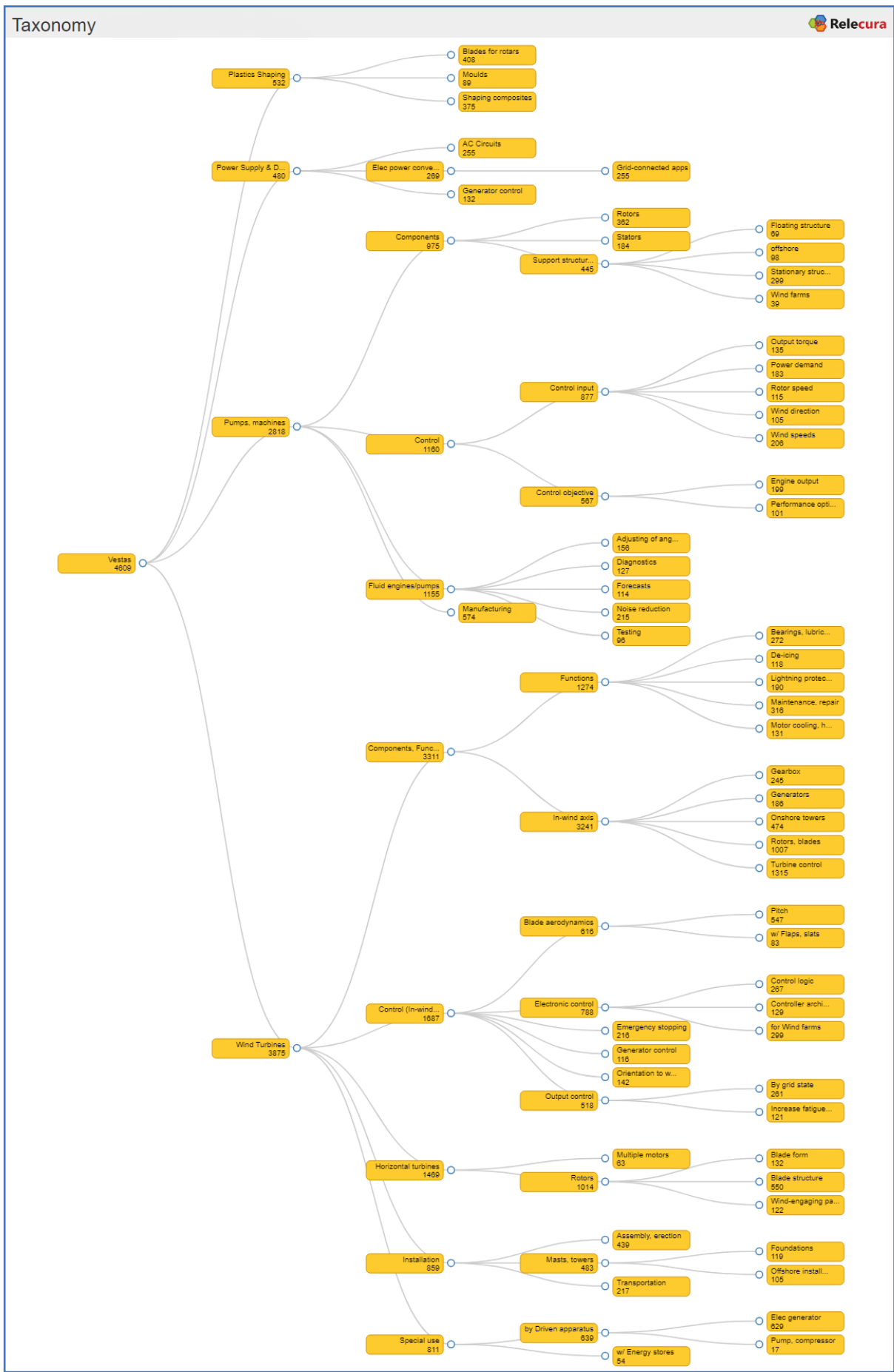
We take a closer look at the patent assets held by Vestas in this report, restricting the study to those currently in force. The report presents technology trends related to Vestas' patent portfolio. It includes a portfolio taxonomy and provides insights into various aspects of the overall portfolio.

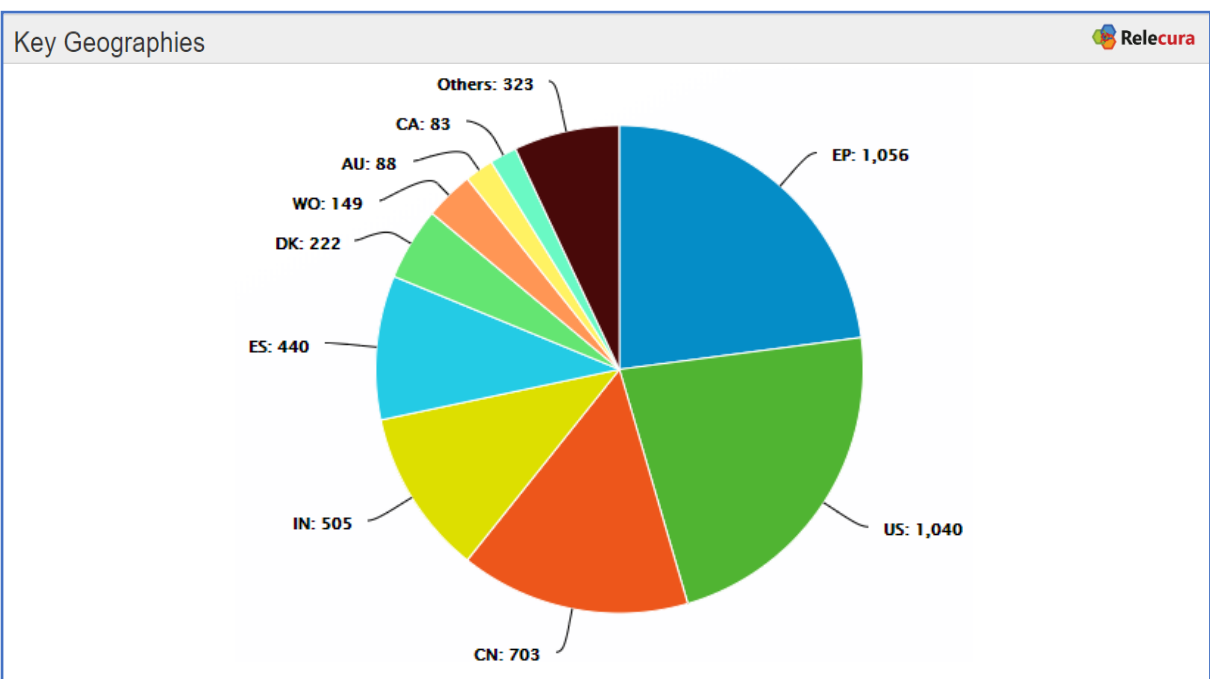
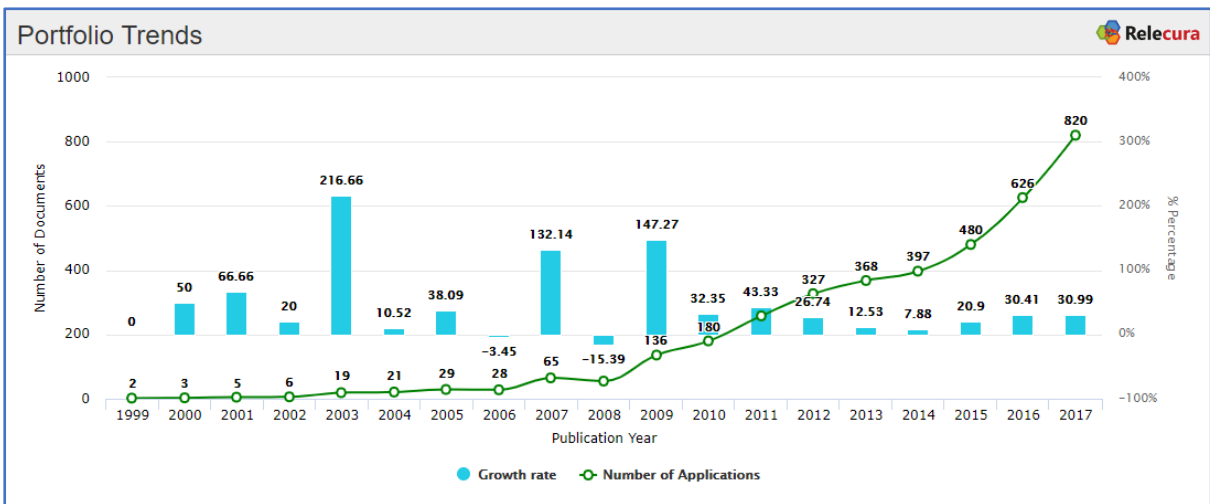
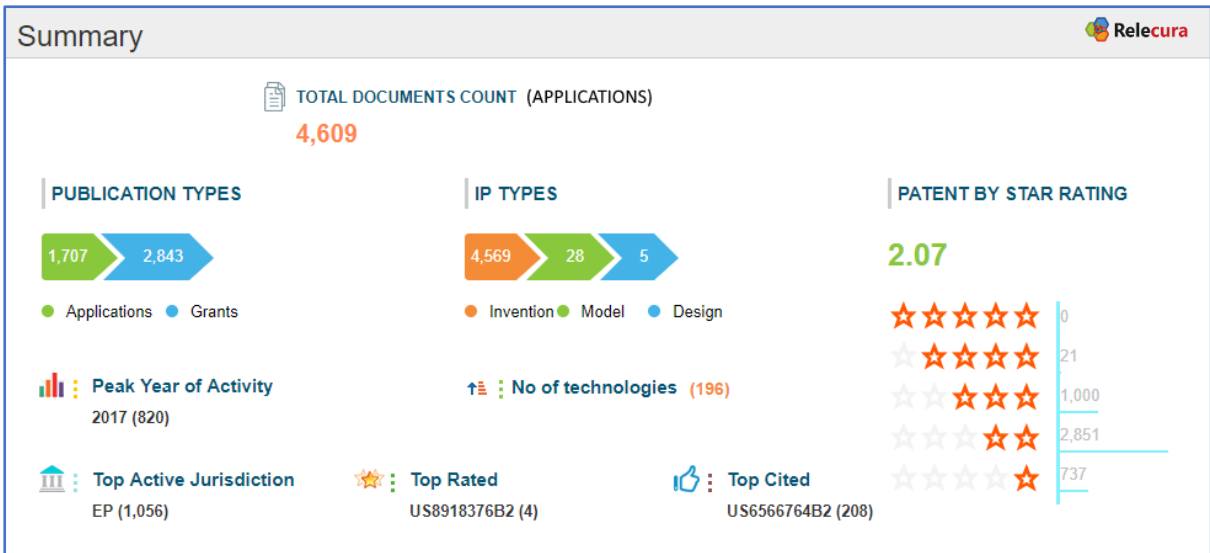
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Sources


- [1] [Vestas](#) [Wikipedia]
- [2] [Vestas](#) [Company Website]
- [3] [Vestas](#) [Market Quote]

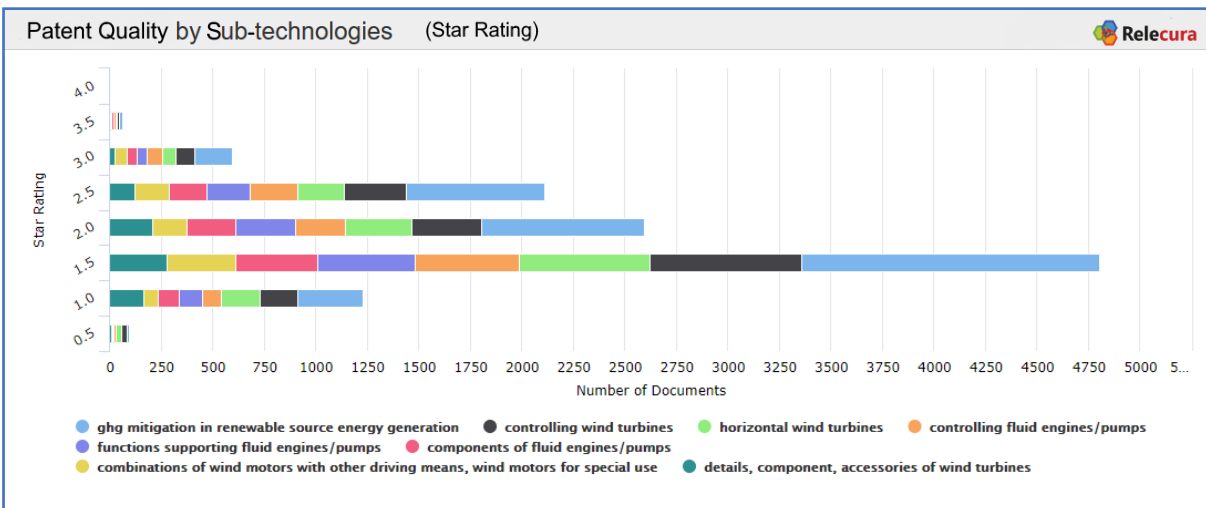
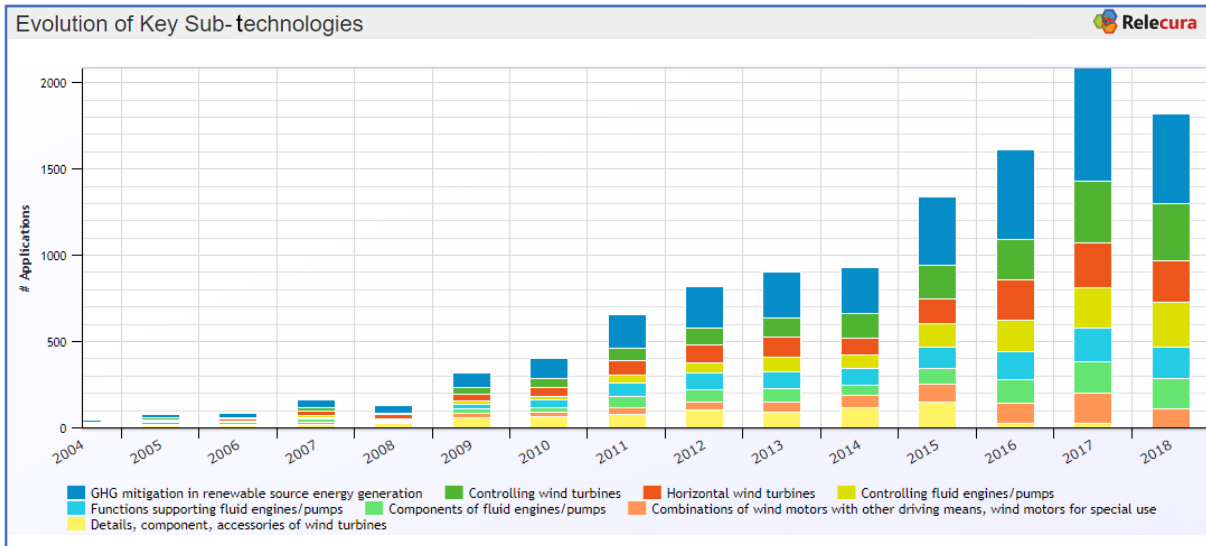




Key Technologies		
Technologies	# Applications	
Wind Turbines	3867	
Reduction & Transmission of Greenhouse Gases	3442	
Non-Positive Displacement Machines/Pumps	2818	
Greentech - Industrial and Goods Processing	860	
Miscellaneous Technologies	574	
Plastics Shaping	494	
Power Supply & Distribution Circuits	443	
Plastics Shaping for Articles	418	
Power Controllers & Regulators	374	
Manufacturing Plastic Articles	252	

Analysis of Key Technologies					
Technologies	Applications	Grants	Sub Technologies	Geographies	
wind turbines	1419	2400	ghg mitigation in renewable source energy generation (3319) , controlling wind turbines (1685) , horizontal wind turbines (1461) , controlling fluid engines/pumps (1160) , functions supporting fluid engines/pumps (1149)	EP (927) , US (855) , CN (625) , ES (378) , IN (334)	
greentech - reduction & transmission of greenhouse gases	994	2402	ghg mitigation in renewable source energy generation (3432) , controlling wind turbines (1498) , horizontal wind turbines (1302) , functions supporting fluid engines/pumps (1103) , controlling fluid engines/pumps (1090)	EP (922) , US (854) , CN (615) , ES (384) , DK (181)	
non positive displacement machines/pumps	911	1868	ghg mitigation in renewable source energy generation (2662) , controlling wind turbines (1316) , controlling fluid engines/pumps (1160) , functions supporting fluid engines/pumps (1155) , horizontal wind turbines (1117)	EP (739) , US (674) , CN (483) , ES (303) , DK (154)	
greentech - industrial and goods processing	256	592	ghg mitigation in renewable source energy generation (794) , horizontal wind turbines (601) , manufacturing fluid engines/pumps (503) , components of fluid engines/pumps (321) , other particular plastic or plastic-like articles (297)	EP (224) , US (197) , CN (150) , ES (86) , DK (77)	
miscellaneous technologies	69	496	ghg mitigation in renewable source energy generation (506) , metal working (423) , horizontal wind turbines (334) , other particular plastic or plastic-like articles (177) , components of fluid engines/pumps (176)	US (144) , EP (134) , CN (90) , ES (75) , DK (48)	

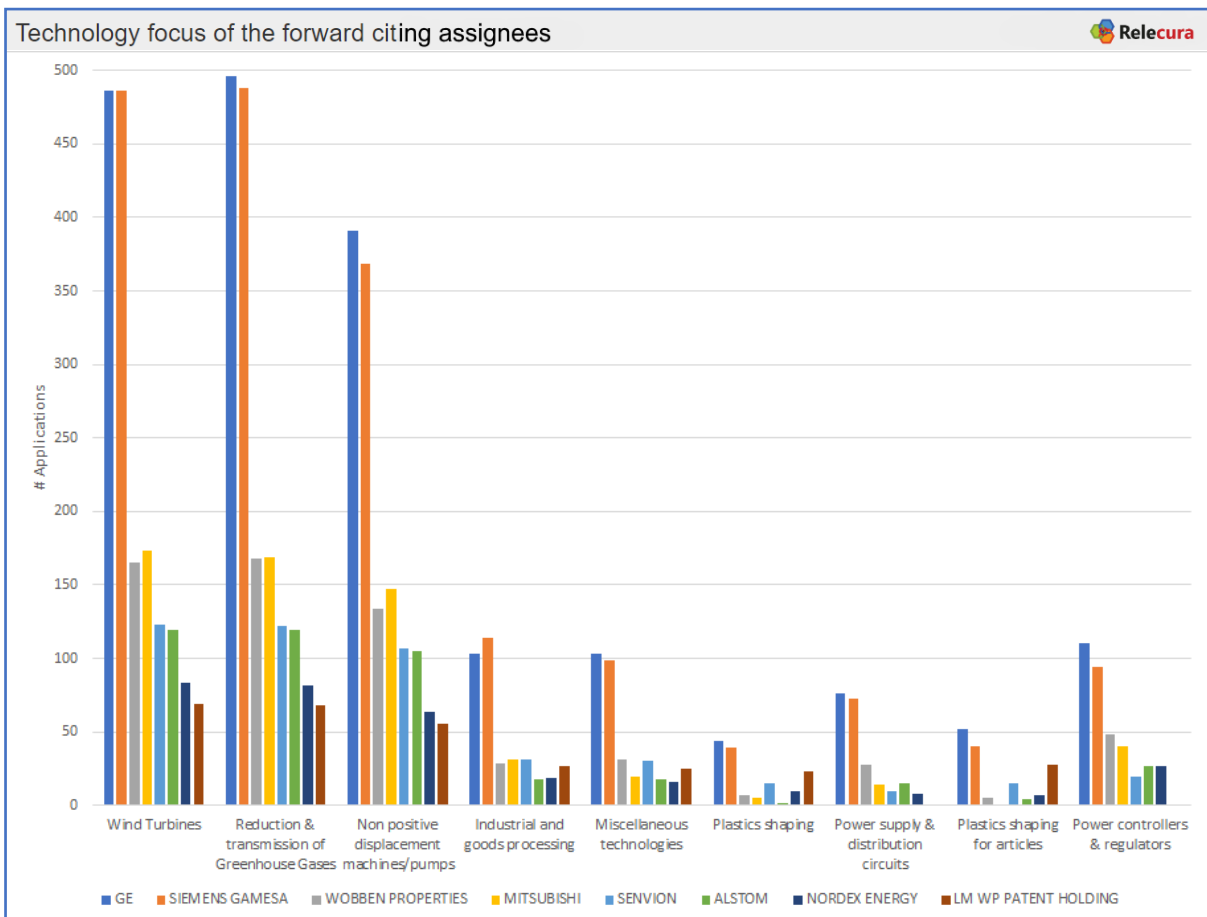
Key Sub-technologies		
Sub-Technologies	# Applications	
GHG mitigation in renewable source energy generation	3432	
Controlling wind turbines	1685	
Horizontal wind turbines	1457	
Controlling fluid engines/pumps	1160	
Functions supporting fluid engines/pumps	1155	
Components of fluid engines/pumps	975	
Combinations of wind motors with other driving means, wind motors for special use	810	
Details, component, accessories of wind turbines	789	
Manufacturing fluid engines/pumps	574	
Metal working	423	



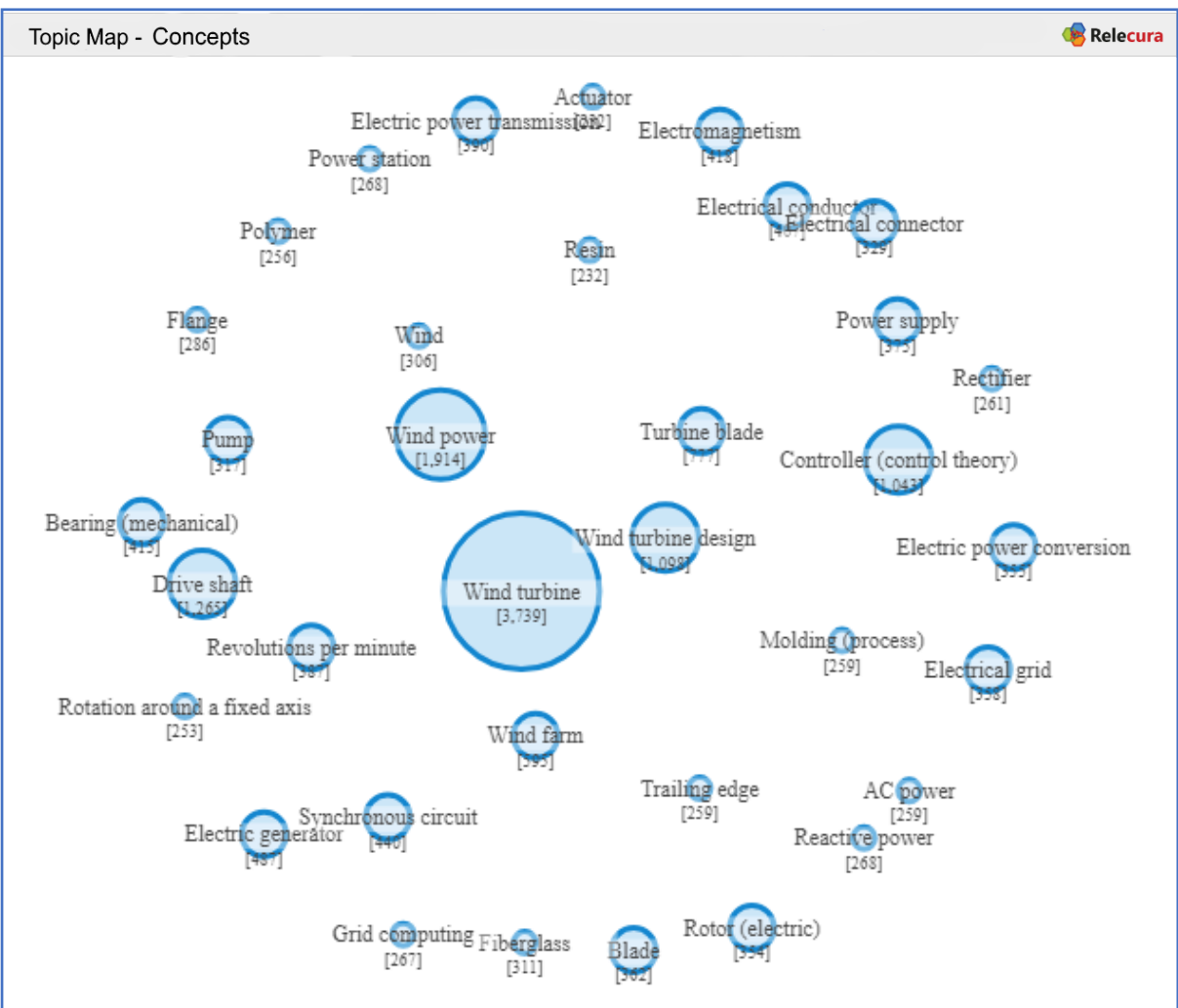
Key Patents in portfolio

Publication No.	Title	Inventor	Filing Date	Star Rating	#Fwd Citations
US8918376B2	Energy transaction notification service for presenting charging information of an electric vehicle	Ronald Ambrosio, Erica Haefner Ferro, Allan James Schurr, Paul Stuart Williamson	2008-08-19	4.0	95
US8725551B2	Smart electric vehicle interface for managing post-charge information exchange and analysis	Ronald Ambrosio, Allan James Schurr	2008-08-19	4.0	94
US7015595B2	Variable speed wind turbine having a passive grid side rectifier with scalar power control and dependent pitch control	Lorenz Feddersen, Eckardt Siebenthaler, Björn Andresen	2002-02-11	3.5	150
US7198471B2	Wind turbine blade	Ole Gunneskov, Nicholas Dudley Barlow, Mark Hancock, Tomas Vronsky	2004-08-13	3.5	98
US6566764B2	Variable speed wind turbine having a matrix converter	Anders V. Rebsdorf, Lars Helle	2001-05-23	3.5	208
US8348622B2	Wind turbine blades made of two separate sections, and method of assembly	Anton Bech	2004-06-30	3.5	80
US7207777B2	Methods of handling wind turbine blades and mounting said blades on a wind turbine, system and gripping unit for handling a wind turbine blade	Anders Greve Bervang	2004-07-30	3.5	81

Top Forward Citing Assignees	
FC Assignees	# Applications
GE	528
SIEMENS GAMESA	522
MITSUBISHI	182
WOBEN PROPERTIES	178
ALSTOM	127
SENVION	127
NORDEX ENERGY	86
LM WP PATENT HOLDING	73
HITACHI	67
ABB	62



Key Acquisitions of the portfolio Relecura		
Seller	# Applications	Technologies
IBM	69	data processing systems (30) , digital data processing (22) , data transmission (16) , greentech - smart grid (16) , control systems - general (14)
NEG MICON	17	greentech - reduction & transmission of greenhouse gases (666) , wind turbines (650) , non positive displacement machines/pumps (520) , greentech - industrial and goods processing (145) , miscellaneous technologies (134)
MODULAR WIND	15	greentech - reduction & transmission of greenhouse gases (15) , wind turbines (15) , miscellaneous technologies (14) , non positive displacement machines/pumps (13) , greentech - industrial and goods processing (9)
MITSUBISHI	6	greentech - reduction & transmission of greenhouse gases (6) , non positive displacement machines/pumps (6) , wind turbines (6) , ships (4) , cranes (2)
AVAILON	4	greentech - reduction & transmission of greenhouse gases (3) , non positive displacement machines/pumps (3) , wind turbines (3) , measurement - electric & magnetic variables (2) , aeroplanes, helicopters (1)
OCAS AS	3	aircraft equipment (3) , electric elements - aerials (3) , measurement by radio waves (3) , traffic control systems (3)



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