

Title (en)
WIND TURBINE WITH MIXERS AND EJECTORS

Title (de)
WINDTURBINE MIT MISCHERN UND EJEKTOREN

Title (fr)
EOLIENNE DOTÉE DE MÉLANGEURS ET D ÉJECTEURS

Publication
EP 2220365 A1 20100825 (EN)

Application
EP 08873518 A 20080923

Priority
US 2008011016 W 20080923

Abstract (en)
[origin: WO2010036216A1] A Mixer/Ejector Wind Turbine ('MEWT') system is disclosed which routinely exceeds the efficiencies of prior wind turbines. In the preferred embodiment, Applicants' MEWT incorporates advanced flow mixing technology, ejector technology, aircraft and propulsion aerodynamics and noise abatement technologies in a unique manner to fluid-dynamically improve the operational effectiveness and efficiency of prior wind turbines, so that its operating efficiency routinely exceeds the Betz limit. Applicants' preferred MEWT embodiment comprises: a turbine shroud with a flared inlet; a ring of stator vanes; a ring of rotating blades (i.e., an impeller) in line with the stator vanes; and a mixer/ejector pump to increase the flow volume through the turbine while rapidly mixing the low energy turbine exit flow with high energy bypass wind flow. Unlike gas turbine mixers and ejectors which also mix with hot core exhaust gases, Applicants' preferred apparatus mixes only two air streams (i.e., wind): a primary air stream which rotates, and transfers energy to, the impeller while passing through the turbine; and a high energy bypass flow or 'secondary ' air stream which is entrained into the ejector, where the secondary air stream mixes with, and transfers energy to, the primary air stream. The MEWT can produce three or more time the power of its un-shrouded counterparts for the same frontal area, and can increase the productivity of wind farms by a factor of two or more. The same MEWT is safer and quieter providing improved wind turbine options for populated areas.

IPC 8 full level
F03D 1/04 (2006.01)

CPC (source: EP KR US)
F03D 1/04 (2013.01 - EP US); **F03D 3/00** (2013.01 - KR); **F03D 13/20** (2016.05 - EP US); **F05B 2210/16** (2013.01 - EP); **F05B 2240/13** (2013.01 - EP); **F05B 2240/133** (2013.01 - EP); **F05B 2260/96** (2013.01 - EP); **Y02E 10/72** (2013.01 - EP); **Y02E 10/74** (2013.01 - EP)

Cited by
US11002242B2; WO2017011893A1

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)
AL BA MK RS

DOCDB simple family (publication)
WO 2010036216 A1 20100401; WO 2010036216 A8 20100603; AU 2008362202 A1 20100401; CA 2679562 A1 20100323; CN 101849102 A 20100929; EP 2220365 A1 20100825; JP 2012503731 A 20120209; KR 20110044828 A 20110502

DOCDB simple family (application)
US 2008011016 W 20080923; AU 2008362202 A 20080923; CA 2679562 A 20080923; CN 200880016922 A 20080923; EP 08873518 A 20080923; JP 2011527785 A 20080923; KR 20097022229 A 20080923