Energy Science and Technology

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1974 – 2016

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Closed

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TI
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Active Power Controls from Wind Power: Bridging the Gaps

National Renewable Energy Laboratory (NREL), Golden, CO.; Ela, E; Gevorgian, V; Fleming, P; Zhang, Y C; et al. **Active Power Controls from Wind Power: Bridging the Gaps**. (Jan 1, 2014).

Highlighting: Off | Single | Multi

AB

Abstract (summary) Translate

This paper details a comprehensive study undertaken by the National Renewable Energy Laboratory, Electric Power Research Institute, and the University of Colorado to understand how the contribution of wind power providing active power control (APC) can benefit the total power system economics, increase revenue streams, improve the reliability and security of the power system, and provide superior and efficient response while reducing any structural and loading impacts that may reduce the life of the wind turbine or its components. The study includes power system simulations, control simulations, and actual field tests using turbines at NREL's National Wind Technology Center (NWTC). The study focuses on synthetic inertial control, primary frequency control, and automatic generation control, and analyzes timeframes ranging from milliseconds to minutes to the lifetime of wind turbines, locational scope ranging from components of turbines to large wind plants to entire synchronous interconnections, and additional topics ranging from economics to power system engineering to control design.

SU

Indexing (details) Cite

Subject	ACTIVE POWER CONTROL; SYNTHETIC INERTIAL CONTROL; PRIMARY FREQUENCY CONTROL; AUTOMATIC GENERATION CONTROL; NATIONAL RENEWABLE ENERGY LABORATORY; NREL; NATIONAL WIND TECHNOLOGY CENTER; NWTC; Wind Energy
Classification (CC)	17: WIND ENERGY
Title (TI)	Active Power Controls from Wind Power: Bridging the Gaps
Author (AU)	Ela, E; Gevorgian, V; Fleming, P; Zhang, Y C; Singh, M; Muljadi, E; Scholbrook, A; Aho, J; Buckspan, A; Pao, L; Singhvi, V; Tuohy, A; Pourbeik, P; Brooks, D; Bhatt, N
Corporate/institutional author (CA)	National Renewable Energy Laboratory (NREL), Golden, CO.
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Updates (UD)	2014-02-17
Database	Energy Science and Technology (1974 - current)

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Inventor	INV	inv(Choulis, stelios)	In patent documents only.
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Author affiliation	AF	af(ETH Zuerich (Switzerland))	Displays in Author field. Not available in all documents.
Availability	NT	nt(medium: ed) nt(available in full text)	
Classification[1]	CC	cc(wind energy) cc(17: wind energy)	Terms from multiple classification schemes may occur.
CODEN	CODEN	coden(apamfc)	
Conference information	CF	cf(nrel N/4 2013)	Includes conference title and conference number if available
Conference title	CFTI	cfti(offshore wind power conference)	Searches conference title only
Conference number/type	CT	ct(conf-911182)	
Date revised	DREV	drev(2014-02-06)	This is the date OSTI created or revised a record
Document title	TI	ti(“active power controls from wind power”)	Includes alternate title (OTI) and subtitle, but not Publication Title (PUB).
Title only	TIO	tio(“active power controls from wind power”)	Searches only the Title, not subtitle or alternate title.
Alternate title	OTI	oti("wind power forecast*")	Includes title, alternate title, subtitle and original language of document title, if available. Field code TI also searches the Alternate title.
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Grant number	GI	gi(AC36-08GO28308)	Standard and non-standard DOE contract numbers
Sponsoring organization	GI	gi(usdoe pre/1 "office of energy efficiency")	
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Issue	ISS	iss(4)	Also searchable via the Look Up Citation tool

Field name	Field code	Example	Description and Notes
Journal title	JN	jn(comptes rendus physique) jn(applied physics letters)	Includes periodical title; Look-Up list available under Publication title
Language	LA	la(french)	The language in which the document was originally published
Summary language	SL	sl(german)	Language of abstract
Notes	NT	nt(medium: ed)	
Pagination	PG	pg(154)	
Patent publication country	PBC	pbc(wo)	
Patent number	PN	pn(901298712987)	
Patent assignee	AP	ap(dow chemical) ap(us dept energy) or ap(usdoe) or ap(doe)	
Application country	PA	pa(us)	
Application number	PA	pa(8496843)	
Publication date	PD	pd(20140101) pd(>=20130405) pd(20080901-20080930)	Date range searching supported. Also searchable via the Look Up Citation tool.
Publication year	YR	yr(2012-2014)	
Publication title[1]	PUB	pub(toxic air pollutants)	Title of publication where document originally appeared. Also searchable via the Look Up Citation tool.
Publication type	PSTYPE	Pstype(technical report)	
Publisher	PB	pb(national renewable energy laboratory)	Records may contain the publisher name and/or the publisher country.
Publisher location	PBLOC	Pbloc(united states)	
Report number	RP	rp(NREL/TP-5D00-60574)	Primary or secondary report numbers
Source details	SRC	src(Conference Fossil Energy Materials)	Source details
Subject[1]	SU	su(automatic generation) su.exact("national wind technology center")	Contains descriptors from controlled vocabulary
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