

44th Annual Frontiers of Power Conference 2011

**Stillwater, Oklahoma, USA
24-25 October 2011**

ISBN: 978-1-61839-278-7

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2011) by Oklahoma State University – Engineering Energy Laboratory
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact Oklahoma State University – Engineering Energy Laboratory
at the address below.

Oklahoma State University – Engineering Energy Laboratory
216 Engineering South
Stillwater, OK 74078-0321

Phone: (405) 744-5157

Fax: (405) 744-9198

www.okstate.edu

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

KEYNOTE ADDRESS

The OGE Energy 2020 Plan: An Innovative Approach to Meeting Tomorrow's Energy Challenges	1
<i>Jesse B. Langston</i>	

KEYNOTE ADDRESS

Future Energy: The Prospects for Renewables	N/A
<i>Stephen McKeever</i>	

TECHNICAL PAPERS

Benefits of Integrating Legacy and Present Day Protocols for Wind SCADA Systems	15
<i>Gagan Singh, Dan Spinner</i>	
Wind Farms with Kinetic Energy Release: A Control Perspective	28
<i>Yi Guo, Choon Yik Tang, John N. Jiang</i>	
Divining the Next Step: Community Wind for Oklahoma	N/A
<i>J. Scott Greene, Steve Stadler</i>	
Economic Feasibility Study of Installing a Wind Turbine Generator and Solar Photovoltaic System for a Large Industry in Kansas	38
<i>Aakash Amatya, Ward Jewell</i>	
Reliability Considerations for Balancing Authority Communications with Increased Variable Generation	50
<i>Elliott J. Nethercutt, Eric Rollison</i>	
Evaluation of Battery-Based Distributed Energy Storage Systems in Rural Applications	57
<i>Roy Mccann, Robert Winkelman, David Moody</i>	
Energy Storage Deployments at AEP	65
<i>Emeka Okafor</i>	
Using Smart Circuits to Enhance Efficiency & Reliability of Distribution Circuits	83
<i>Bret R. Goodwin</i>	
Adaptive Generation Control in a Smart Grid	112
<i>Sowmya Nellutla, Rama Ramakumar</i>	
Reliability Analysis and Modeling of Libyan Power System with Wind Power Generation	120
<i>Nouri Ali Daw, Rama Ramakumar</i>	
Optimization of Integrated Renewable Energy System – Micro Grid (IRES-MG)	131
<i>Preeti Mathema, Rama Ramakumar</i>	
An Overview of Doubly-Fed Induction Generator Models for Wind Energy Conversion Systems	141
<i>Navin Shenoy, Rama Ramakumar</i>	
Reliability Enhancement Using Direct-Drive Wind Energy Systems	148
<i>Reeba Sara George, Rama Ramakumar</i>	
Optimizing Options at Coal Fired Power Plants	158
<i>Michael Smiarowski</i>	
Common Ways Your Electrical Installation Does You Harm	165
<i>Robert A. Durham, Marcus O. Durham, Jason Coffin</i>	
Utilizing 3D in Substation Design	173
<i>Ron Wellman</i>	
Author Index	