



Presented by:

**Renewable Energy Alaska Project
Alaska Energy Authority
Alaska Center for Energy & Power**

*in
association
with*

Distributed Wind Energy Association

<div>ALASKA WIND INTEGRATION WORKSHOP AGENDA</div> <div>Fairbanks Pipeline Training Center Thursday, Mar. 20, 2014</div>		
8:00am	Registration	
MORNING SESSIONS		
9:00-9:55am		
	Wind-Diesel 101 Rich Stromberg, Alaska Energy Authority	
9:55-10:10am	BREAK	
10:10-11:00am	Wind Diesel 201 Rich Stromberg, Alaska Energy Authority	
11:00-11:30am	Report from Sweden’s Winterwind Conference Doug Vaught, V3 Energy LLC & Update on US. Dept. of Interior High Penetration Modular System Initiative Brian Hirsch, National Renewable Energy Laboratory	
11:30-2:00pm	LUNCH & TOURS Power Systems Integration Lab Cold Climate Housing Research Center	
2:00-3:15pm	HOMER Modeling 101 Dr. Peter Lilienthal , HOMER Energy	Data Collection & Reporting Josh Craft, Alaska Energy Authority
3:15-3:30pm	BREAK	
3:30-5:00pm	HOMER Modeling 201 Dr. Peter Lilienthal , HOMER Energy	MET Tower Set up Rich Stromberg, Alaska Energy Authority
5:15-6:00pm	Evening Tour of Golden Valley Electric Association’s BESS Battery System	

Friday, Mar. 21, 2014		
8:00am	Registration	
8:30-9:00am	STATUS OF ALASKA WIND SYSTEMS Josh Craft, Alaska Energy Authority	
9:00-9:30am	STATUS OF WORLDWIDE WIND-DIESEL Joseph Owen Roberts, National Renewable Energy Laboratory	
9:30-9:45am	BREAK	
PANEL #1 9:45-11:15pm	REMOTE SYSTEMS ARCHITECTURE: DESIGN & CONCEPTS Moderator: Rich Stromberg, Alaska Energy Authority	
	9:45-10:45	Larger Rotors: Design & Considerations Trevor Atkinson, Northern Power Systems
		O & M: What Small Operators can Learn from the Big Guys Steve Gilbert, Alaska Village Electric Cooperative
		Secondary Loads Richard Wies, University of Alaska Fairbanks
	10:45-11:15	DISCUSSION
11:15-12:15pm	LUNCH	
PANEL #2 12:15-1:45pm	DIESEL ISSUES IN WIND-DIESEL SYSTEMS Moderator: John Handeland, Nome Joint Utility System	
	12:15-1:15	SCADA Systems Dan Rogers, Electric Power Systems Inc.
		Operations Considerations Bill Stamm, Alaska Village Electric Cooperative
		TBA
	1:15-1:45	DISCUSSION
1:45-2:00pm	BREAK	
PANEL #3 2:00-3:30pm	GETTING IT RIGHT: WIND FARM PLANNING Moderator: Steve Gilbert, Alaska Village Electric Cooperative	
	2:00-3:00pm	Resource Assessment Joseph Owen Roberts, National Renewable Energy Laboratory
		Eva Creek Wind Farm Mike Wright, Golden Valley Electric Association
		Turbine Choices Matt Bergan, Kotzebue Electric Association
	3:00-3:30pm	DISCUSSION
3:30-3:45pm	BREAK	
PANEL #4 3:45-5:15pm	ENERGY STORAGE OPTIONS Moderator: Marc Mueller-Stoffels, Alaska Center for Energy & Power	
	3:45-4:45	The Good, Bad & Ugly Abbas Akhil, Energy Storage Consultant
		Lithium Ion Batteries Dennis Meiners, Intelligent Energy Systems LLC
		Practical Applications for Islanded Grids Phil Maker, ACEP Affiliated Research Faculty/Power Systems Engineer, Remote Operations, PowerWater Corp., Darwin, Australia
	4:45-5:15	DISCUSSION

THURSDAY MORNING SESSIONS

WIND-DIESEL 101

(Rich Stromberg, Alaska Energy Authority)

This session will cover the basics of Wind-Diesel power systems, including an overview of wind, diesel technology and combined power systems, and some examples of current power systems. This introductory level course provides a basic level of understanding that will enable individuals to take an active role in the Wind-Diesel Workshop.

WIND-DIESEL 201

(Rich Stromberg, Alaska Energy Authority)

This session will provide an understanding of the role and operating principle of all the major components of a wind-diesel system, including control systems, secondary loads and voltage and frequency regulation.

REPORT FROM SWEDEN'S WINTERWIND CONFERENCE

(Doug Vaught, V3 Energy LLC)

Doug will give a report from the recent 2014 WinterWind Conference in Sweden in particular covering icing/de-icing technologies, and annual energy production loss due to icing and icing forecasting.

US. DEPT. OF INTERIOR HIGH PENETRATION MODULAR SYSTEM INITIATIVE

(Brian Hirsch, National Renewable Energy Laboratory)

Brian will give an update on the Remote Community Renewable Energy (RCRE) Partnership – an initiative being led by the US Department of Interior and the National Renewable Energy Laboratory to develop a high penetration modular system for wind-diesel and solar PV hybrids. This is a growing partnership, beginning in Alaska but with outreach to "islanded" energy systems globally, that will include remote communities, utilities, other end users, industry and the private sector, government at all levels, university researchers, system integrators, and others.

THURSDAY AFTERNOON SESSIONS

HOMER MODELING 101: MODELING SIMPLE WIND-DIESEL SYSTEMS

(PETER LILIENTHAL, HOMER ENERGY)

This session will demonstrate how to use the HOMER modeling software to predict the performance of simple Wind-Diesel Systems. It will also demonstrate how to use HOMER's economic optimization and sensitivity analysis to identify during the feasibility stage and conceptual design stage of project development the correct wind power capacity to install, and whether it makes sense to add electrical storage. This presentation will address only the basic functions and is designed for those unfamiliar with the HOMER software.

HOMER MODELING 201: MODELING LARGER WIND-DIESEL SYSTEMS

(PETER LILIENTHAL, HOMER ENERGY)

This presentation will explore the economic impacts of the additional issues that arise in systems with more than one diesel generator. It will also focus on how these systems can most effectively meet their operating reserve requirements for reliable operation. It will also explore the various roles that secondary thermal loads and different types of storage can play under different wind penetration scenarios. The results will be applicable across a wide range of system designs and locations.

MET TOWER SET UP TRAINING

(Rich Stromberg, Alaska Energy Authority)

This training session will include a hands-on demonstration of how to assemble and raise a small MET Tower as well as program the data logger. Attendees will be able to participate in assembly and programming.

DATA COLLECTION AND REPORTING

(Josh Craft, Alaska Energy Authority)

This session will provide an overview of the basics of wind data collection and reporting, using data to improve performance and software options.

FRIDAY SESSIONS

STATUS OF ALASKA WIND SYSTEMS

(Josh Craft, Alaska Energy Authority)

This session will give an overview on the state of Alaska's Wind Power Systems.

STATUS OF WORLDWIDE WIND-DIESEL SYSTEMS

This session will give an overview of the state of and trends in Wind-Diesel Systems worldwide.

REMOTE SYSTEMS ARCHITECTURE: DESIGN & CONCEPTS

(Moderator: Rich Stromberg, Alaska Energy Authority)

This session will discuss newer technologies available for Alaska wind energy systems and share learnings from system operators on how best to operate and maintain wind systems to meet current performance goals and long-term system sustainability.

DIESEL ISSUES IN WIND-DIESEL

(Moderator: John Handeland, Nome Joint Utility System)

This session offers an opportunity to focus on the diesel side of wind-diesel. It is often easy to focus on the challenges affiliated with the wind turbines themselves. However, in an integrated system the diesel gen-set offers great opportunity for improved performance. Technologies exist which have the potential to increase diesel efficiency at lower loads. This expert panel will discuss the impacts that wind has on diesel and how they might be mitigated.

GETTING IT RIGHT: WIND FARM PLANNING

(Moderator: Steve Gilbert, Alaska Village Electric Cooperative)

Accurate estimates of costs and potential power production are keys to success in building any wind farm. This session will discuss best practices in designing wind power projects, including modeling, logistics, and turbine selection

ENERGY STORAGE OPTIONS

(Moderator: Marc Mueller-Stoffels, Alaska Center for Energy & Power)

Finding cost effective, reliable energy storage is a critical component for the successful integration of high contribution renewable energy into conventional diesel microgrids. This final panel will look at technologies from batteries to flywheels that are in use today, new technologies under development, and discuss practical applications of energy storage systems for islanded grids.

THANK YOU TO OUR ORGANIZERS AND SUPPORTERS!



Thank you to all who have made the 2014 Alaska Wind Integration Workshop possible, particularly to the organizing team: Josh Craft, Gwen Holdmann, Marc Mueller-Stoffels, Stephanie Nowers, Chris Rose, Rich Stromberg, and a special thank you to the Fairbanks Pipeline Training Center for hosting.