Exploring Synergistic Opportunities Between WREN and the UN CMS Energy Task Force

Karin Sinclair, National Renewable Energy Laboratory

Second Meeting of the Multi-stakeholder Energy Task Force

Host: UN CMS Energy Task Force

Location: Bonn, Germany

Date: September 15, 2017

Smøla Wind Farm, Norway. Photo from Bjørn Iuell, Statkraft
Outline

• WREN (Working Together to Resolve Environmental Effects of Wind Energy) background
  – WREN Hub
  – White papers
  – Outreach and engagement
• Opportunities for synergy.

An American bald eagle (middle right) was part of research being conducted at the National Wind Technology Center at the National Renewable Energy Laboratory (NREL). Birds were released to gather predetermined flight pattern data (top right) from a crate attached to an elevated man lift (bottom right). Photos by Lee Jay Fingersh and Karin Sinclair, NREL.
International Energy Agency (IEA) Wind Task 34

IEA Wind Program: 20 active countries plus Chinese Wind Energy Association, European Commission, and WindEurope

Rebranded: WREN

Objective: facilitate international collaboration to advance the understanding of the environmental effects of offshore and land-based wind energy development.
### Active Members

<table>
<thead>
<tr>
<th>Country</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Canada</td>
<td>Environment and Climate Change Canada</td>
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<tr>
<td>France</td>
<td>EDF R&amp;D</td>
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<tr>
<td>Ireland</td>
<td>BirdWatch Ireland</td>
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<td>Netherlands</td>
<td>Rijkswaterstaat—Department of Water Quality</td>
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<td>Norway</td>
<td>Norwegian Institute for Nature Research</td>
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<tr>
<td>Portugal</td>
<td>STRIX, Environment and Innovation</td>
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<tr>
<td>Spain</td>
<td>Spanish National Research Council</td>
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<tr>
<td>Sweden</td>
<td>Swedish Energy Agency; Vindval</td>
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<tr>
<td>Switzerland</td>
<td>Federal Office of Energy</td>
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<tr>
<td>United Kingdom</td>
<td>Marine Scotland Science—Marine Laboratory</td>
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<tr>
<td>United States</td>
<td>National Renewable Energy Laboratory; Pacific Northwest National Laboratory</td>
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October 2015
Bern, Switzerland

March 2015
Berlin, Germany

November 2016, Colorado, United States

June 2017
Gotland, Sweden

September 2017, Estoril, Portugal

December 2013
Trondheim, Norway
Primary Activities

• **WREN Hub**: publicly available knowledge management system

• **White papers**: cover topics in which information is not readily available within the existing literature that are useful to meet the member country information needs

• **Outreach and engagement**: utilizing a variety of strategies.

Radio-tagged golden eagle. 
*Photo by Randy Flament, NREL 23585*
WREN Hub
http://tethys.pnnl.gov/

Collaborate:
- Support WREN meetings
- Develop white papers
- Join collective work space

Engage:
- Share research information
- Track ongoing research
- Connect to social media
- Manage events calendar
- Convene topical webinars

Access Information:
- Access environmental effects information
- Find experts
- Search linked databases
- Compare country-specific information

Hub
Tethys–WREN Hub

Tethys is a knowledge management system that actively gathers, organizes, and disseminates information on the environmental effects of marine and wind energy development.

Annex EV
Addressing environmental effects of marine energy internationally

WREN
Resolving conflicts between wind and wildlife internationally

Please contact us if you would like to make suggestions or contribute information or documents to Tethys.

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White Papers

Current topics

• Adaptive Management White Paper (published 2016)

• Considerations for upscaling individual effects of wind energy development toward population-level impacts on wildlife (submitted to journal in early 2017)

• Environmental risk-based management

• Cumulative effects analysis

• Green versus green (reconciling climate mitigation, water savings, and other global environmental benefits with local impacts on wildlife and habitat)

• Interrelationships of all topics.

Male greater sage-grouse on a lek in Wyoming. Photos by LuRay Parker, Wyoming Game and Fish Department, (top) NREL 20645 and (bottom) NREL 20646
Adaptive Management White Paper

The WREN Hub site* for the Adaptive Management White Paper contains the following items:

- Summary of the report
- Link to the white paper
- Fact sheet describing the white paper
- Translated to French; more translations in the future.

Outreach and Engagement

Activities:
• Short science summaries
• Webinar series
• Fact sheets
• Conferences/meetings
• Targeted workshops
• Expert forums.

Researchers conducting bat fatality monitoring at a wind energy facility. Bat carcass being recorded for future data analysis.

Short Science Summaries

- Summaries provide an overview of research

- Recent summary focuses on harbor porpoises (*Phocoena phocoena*), a small and abundant cetacean species

- Most concerns about offshore wind energy and harbor porpoises are associated with construction activities (pile driving in particular).

Eleven webinars have been held to date
Topics: birds, bats, marine mammals, tools, models, and other research
Webinars cover international perspectives
All are recorded and posted on WREN Hub

Map as shown within WREN Webinar #2 presented by Dr. Ross McGregor, senior ornithologist, Natural Power Consultants, on a presentation entitled “Results of Ornithological Analysis for a UK Offshore Wind Farm”


WREN Webinars: http://tethys.pnnl.gov/environmental-webinars
Products and Presentations

Products include:
• Manuscripts for journals
• Fact sheets
• Slide decks
• Tethys stories

Presentations to different audiences, such as:
• Industry groups
• Scientific conferences:
  • National Wind Coordinating Collaborative Research Meeting
  • Conference on Wind Energy and Wildlife Impacts
• European Wind Energy Association
• Multistakeholder groups
• Conservation organizations.
Opportunities for Synergy

- Coordinate activities
- Cross-reference networks
- Create partnership
- Knowledge sharing (WREN Hub)
- Webinar series
- Outreach and engagement
- Contribute/review white papers.
Questions?

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IEA Wind Task 34
http://www.ieawind.org/task_34.html

WREN Hub
http://tethys.pnnl.gov/

A flock of black-tailed godwits (Limosa limosa) fly past Cahore Wind Farm in southeast Ireland.
Image by Oran O’Sullivan

Notice: The IEA Wind agreement, also known as the Implementing Agreement for Co-operation in the Research, Development, and Deployment of Wind Energy Systems, functions within a framework created by the International Energy Agency (IEA). Views, findings and publications of IEA Wind do not necessarily represent the views or policies of the IEA Secretariat or of all its individual member countries.