



## **MEMORANDUM OF UNDERSTANDING** **Establishment of the Wind Turbine Radar Interference** **Mitigation Working Group**

**Between the Following U.S. Federal Government Agencies**

**DEPARTMENT OF DEFENSE (DOD)**  
**DEPARTMENT OF ENERGY (DOE)**  
**DEPARTMENT OF HOMELAND SECURITY (DHS)**  
**FEDERAL AVIATION ADMINISTRATION (FAA)**  
**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)**

### **I. PURPOSE.**

- A. This Memorandum of Understanding (MOU) establishes a general framework of cooperation and coordination between the forenamed agencies. Its purpose is to mitigate the technical and operational impact of wind turbine projects on critical radar missions. The goals of the Interagency effort include:
- a. Develop near (5 years), Mid (10 Years), Long term (20 years) mitigation solution recommendations. These will be primarily technology driven but will also extend to policy and legislative proposals as necessary
  - b. Determine funding requirements to implement workable solutions and include a process for each MOU participant to fund execution of specific near, mid and far term mitigation as outlined in Section II

### **II. REQUIREMENTS**

- A. Whereas the DoD, DOE and the DHS have been tasked by internal management and in some cases, additionally by Congress, to identify wind turbine/radar interference mitigation solutions; their representatives will:
- a. Take the lead in the organization of an Interagency team modeled after the former Interagency Field Test & Evaluation program
  - b. Coordinate the development of agency budgets and the commitment of funding required for studies, field tests or other agreed to expenditures based on the principle of cost-sharing commensurate with meeting agency equity needs

155-1452

- B. Whereas DOE has proposed that Federal Agencies having a stake in resolving the wind turbine radar interference issue should develop a common vision and framework to coordinate activities; DOE will:
  - a. Commit senior Departmental oversight and leadership
  - b. Align this effort with the other interagency team member requirements.
  - c. In collaboration with the Interagency team, manage the construction of an Interagency Renewable Energy Compatibility & Integration Strategy
    - i. The Strategy is to be composed of near, mid, long term mitigation and integration components
- C. DOE Co-lead the effort to educate the wind industry on radar interference issues, support the development of appropriate radar mitigation technology, and promote wind industry funding to validate and deploy measures that adequately mitigate radar interference caused by wind energy facilities.
- D. Whereas FAA and NOAA have critical radar systems that are also threatened by wind turbine interference and need to identify workable and affordable mitigation measures, they will;
  - a. Commit senior Departmental oversight and leadership
  - b. Participate in the budget process by helping to identify required studies, field tests or other agreed to expenditures based on the principle of cost-sharing commensurate with meeting their equity needs
- E. The Interagency team will collaborate as appropriate with;
  - a. The Air Domain Awareness Board (ADAB) in the identification and development of solutions that would help them resolve any threatened mission requirements
  - b. The DoD/FAA National Air Surveillance (NAS) Modernization Working Group, the joint working group responsible for addressing common NAS information assurance needs

Now, therefore, the MOU signatories agree that the undertaking shall be implemented with the following stipulations.

### **III. STIPULATIONS (Subject to applicable Federal laws, regulations, and policy)**

- A. Management of the Interagency effort will be conducted as follows:
  - a. An executives level Senior Steering Group (SSG) composed of members from each of the agencies to oversee and ensure:
    - i. Conduct progress reviews at least quarterly to ensure that the spirit and purpose of the MOU is being satisfactorily pursued
    - ii. Development of a 5 year plan for studies, field tests or other agreed to activities on which agency funding requirements can be determined based on the principle of cost-sharing commensurate with meeting the respective agency equity needs
    - iii. Development of a yearly progress report to be submitted to their agency heads at the end of each calendar year. The report should include objectives for the following years

- iv. **Appointing and tasking of a subordinate working group composed of a representative from each agency, as appointed by the SSG, that will carry out taskings as assigned by the SSG. The working group may, as they determine necessary, be augmented by non-voting participants whose services may include:**
  - a. **Technical – Scientists, engineers and other recognized technical subject matter experts**
  - b. **Policy – Agency policy analysts**
  - c. **Budget - Agency budget development analysts**
  - d. **Operational – Analysts knowledgeable in radar employment**
  - e. **Other analysts and administrative support**

#### **IV. MUTUAL UNDERSTANDINGS.**

- A. **This MOU defines the general terms upon which the signatories will cooperate. Performance by each Party under the terms of this MOU is subject to the availability of appropriated funds and personnel resources through their respective funding procedures. This MOU is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds or transfer of anything of value, between Parties to this MOU will be handled in accordance with applicable laws, regulations, and procedures. Such endeavors mandated by the SSG will be outlined in separate agreements, such as work plans or statements of work, which shall be made in writing by representatives of the Parties and shall be independently authorized by appropriate statutory authority.**
- B. **This MOU may be modified or amended by mutual agreement of all parties in writing.**
- C. **This MOU may be terminated at any time by mutual written agreement of the Parties, or by any Party upon 90 days written notice to the other Parties.**
- D. **This MOU will remain in force for a period of five years from the date of its execution.**

V. **POINTS OF CONTACT.** The following individuals will be the working level points of contact for this MOU:

**DEPARTMENT OF DEFENSE**

William Van Houten  
Deputy, DoD Siting Clearinghouse

**DEPARTMENT OF HOMELAND  
SECURITY**

Unappointed

**DEPARTMENT OF ENERGY**

Patrick Gilman  
Office of Wind and Water Power  
Technologies

**FEDERAL AVIATION  
ADMINISTRATION**

James Baird  
Surveillance Lead, NAS EA Division

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

Judson Stailey  
Lead Meteorologist, Office of the Federal Coordinator for Meteorology Alternate

**EFFECTIVE DATE.** The parties have by their signatures on the following pages, executed this MOU as of this date:

---

**MEMORANDUM OF UNDERSTANDING**  
**Establishment of the Wind Turbine Radar Interference**  
**Mitigation Working Group**

**As the designated representative for the Department of Defense, I, by my signature,**  
**implement the foregoing Memorandum Of Understanding as of this date:**

**OCT 08 2014**



**John Conger**

**Acting Deputy Under Secretary of Defense**  
**Installations & Environment**

**MEMORANDUM OF UNDERSTANDING**  
**Establishment of the Wind Turbine Radar Interference**  
**Mitigation Working Group**

**As the designated representative for the Department of Homeland Security, I, by my signature, implement the foregoing Memorandum Of Understanding as of this date:**

\_\_\_\_\_

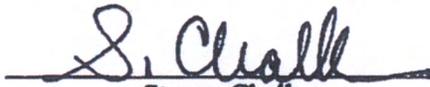
**As of the date of execution DHS has chosen not to sign the MOU**

\_\_\_\_\_

**MEMORANDUM OF UNDERSTANDING**  
**Establishment of the Wind Turbine Radar Interference**  
**Mitigation Working Group**

**As the designated representative for the Department of Energy, I, by my signature, implement the foregoing Memorandum Of Understanding as of this date:**

---



Steven Chalk

Deputy Assistant Secretary for Renewable Energy  
Office of Energy Efficiency and Renewable Energy

**MEMORANDUM OF UNDERSTANDING**  
**Establishment of the Wind Turbine Radar Interference**  
**Mitigation Working Group**

**As the designated representative for the Federal Aviation Administration, I, by my signature, implement the foregoing Memorandum Of Understanding as of this date:**

October 15, 2014

Michele Merkle

Michele Merkle

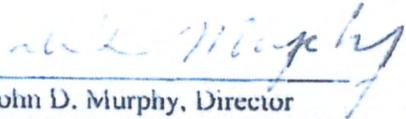
Director, NAS Systems Engineering Services (ANG-B) FAA NextGen Office

**MEMORANDUM OF UNDERSTANDING**  
**Establishment of the Wind Turbine Radar Interference**  
**Mitigation Working Group**

As the designated representative for the National Oceanic and Atmospheric Administration, I, by  
my signature,  
implement the foregoing Memorandum Of Understanding as of this date:

December 22, 2014

\_\_\_\_\_



John D. Murphy, Director  
Office of Science and Technology, National Weather Service

\_\_\_\_\_

\_\_\_\_\_