



**DEPARTMENT OF DEFENSE
SITING CLEARINGHOUSE
ANNUAL REPORT TO CONGRESS
CALENDAR YEAR 2012**

**Pursuant to Section 358(f) of the Ike Skelton National Defense Authorization Act
for Fiscal Year 2011, Public Law 111-383**

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DEPARTMENT OF DEFENSE SITING CLEARINGHOUSE

ROLES AND MISSIONS

During Calendar Year 2012 (CY12), the Department of Defense (DoD) continued to strive for an effective, consistent, transparent and timely process for evaluating the impact of renewable energy and associated bulk power transmission projects on military test, training, and operational missions. The core responsibility of the DoD Siting Clearinghouse (Clearinghouse), created by the DoD in 2010, and shaped by Congress in section 358 of the Ike Skelton National Defense Authorization Act for Fiscal Year 2011, is the maintenance and improvement of the Department's mission compatibility evaluation process.

The Clearinghouse is overseen by a Board of Directors (BOD) comprised of representatives from key offices within the Office of the Secretary of Defense (OSD), the Joint Staff and the Military Departments. The BOD is co-chaired by the Deputy Under Secretary of Defense for Installations and Environment, the Deputy Assistant Secretary of Defense for Readiness, and the Principal Deputy Director for Operational Test and Evaluation. The role and mission of the Clearinghouse is to conduct mission compatibility evaluations of structures filed with the Federal Aviation Administration (FAA), under section 44718 of title 49, U.S. Code (obstruction evaluation process), as well as other structures proposed for location under military training routes or special use airspace, or near test and training ranges whether the project is on private, State, tribal or Federal lands. As summarized in last year's report, the Clearinghouse has implemented a multi-faceted strategy to protect DoD mission capabilities from unacceptable risks to national security associated with energy-related projects.

PROJECT REVIEWS

In CY12, The Clearinghouse eliminated the large backlog of projects that shaped early activities and efforts, and established a more responsive and efficient routine. Projects are either formally evaluated through the FAA's obstruction evaluation (OE) system, or when informally requested by developers via the Clearinghouse web site. The Clearinghouse goal is to have its mission compatibility evaluations completed within 45 days of receipt of a developer's formal request, and within 30 days for a developer's informal request for a mission compatibility evaluation.

During CY12 the Clearinghouse oversaw the evaluation of 1,769 proposed energy projects submitted via the formal FAA OE process. Ninety-eight percent (1,730) of the projects were assessed to have little or no impact on military operations. The remaining thirty-nine projects of concern require further analysis, and the Department is working with the affected developers to identify and implement appropriate mitigation measures. Developers submitted an additional 86 projects for informal review, of which 31 raised mission compatibility concerns. Early informal review discussions with developers allow project modifications that alleviate the need for formal mitigation discussions.

The 1,730 projects cleared by the Clearinghouse represent a potential 38 gigawatts (GW) of renewable energy production. The wind-turbine developers played a major role in the large increase in U.S. green energy in CY12 – adding over 13 GW of nameplate wind-turbine capacity. This unprecedented one-year record in wind energy placed significant pressure on the

Clearinghouse address the impacts of wind turbines on military mission while remaining responsive to industry needs and U.S. green energy goals.

During CY12, the Clearinghouse did not designate any project it reviewed as an unacceptable risk to national security. Consequently, the Department has not filed a formal objection by the Deputy Secretary of Defense to the Secretary of Transportation, as provided in the Department's published procedures in part 211 of title 32, Code of Federal Regulations (CFR). However, the Clearinghouse has 10 projects that have entered formal mitigation discussions. To ensure mitigation effective discussion meetings, the Clearinghouse BOD established four Mitigation Response Teams (MRTs) during the year to manage mitigation discussions. The MRTs periodically report findings and recommendations to the BOD for action.

Finally, the Clearinghouse took advantage of section 358(g) to work closely with developers to resolve compatibility issues and to use developer funds to mitigate mission compatibility interference from wind-turbines. This statutory provision allows the Department to accept voluntary contributions from developers to pay for mitigation measures. Specifically, in CY12, the Clearinghouse and the Navy negotiated two agreements with developers that provides for developer monetary contributions for mitigation measures to protect air navigational aids and the Department's ability to provide air traffic control services at the Naval Air Stations (NAS) Kingsville and Corpus Christi, TX from the adverse effects of wind-turbines. These agreements facilitate the continued growth of wind energy generation along the Texas Coastal Plain while providing for the safety of student pilots at NAS Kingsville and NAS Corpus Christi.

RISK ASSESSMENTS REQUESTED BY CONGRESS

LOSS OF MILITARY TRAINING ROUTES

Although the Clearinghouse is working to increase the energy industry's awareness of DoD's operating areas, the Research, Development, Test and Evaluation and training activities within Special Use Airspace (SUA) and military training routes (MTRs) designated for DoD use remain at risk from renewable energy project development. The Clearinghouse intensified outreach efforts to the industry in CY12, and the Clearinghouse has released detailed geospatial information in the form of "shape files" defining the SUAs and MTRs. In CY12, the Clearinghouse worked closely with developers in North Carolina and New Mexico to help resolve specific SUA and MTR conflicts. Additional efforts in combination with the Environmental Defense Fund and the Western Regional Partnership are raising nationwide industry awareness about compatibility challenges. The Clearinghouse is building on these successes, and outreach will be a significant focus area during CY13.

EFFECTS OF GLINT AND GLARE ON MILITARY READINESS

As was the case last year, no serious threats to military readiness have been identified due to glint or glare from concentrating solar technologies.

To understand the glint/glare associated with solar power tower type technology, the Clearinghouse hosted a technical interchange meeting (TIM) in CY12 that was attended by industry leaders and the Department of Energy's Sandia National Laboratory. Though serious

threats to military readiness caused by glint or glare from concentrating solar technologies appear remote, the visible and Infrared (IR) energy spectra associated with solar power towers warrants further investigation. The TIM focused on: 1) articulating the impact to military missions, 2) defining the design features of solar power towers that may minimize the visible and IR energy spectra “spoofing” of military systems, and 3) developing recommendations for the development of a Safe Distance Computation Tool and other forms of mitigation, such as visible and IR energy signature reduction. One novel concept from the TIM was shading the solar power tower’s receiver from view by airborne weapon systems.

EFFECTS OF ELECTROMAGNETIC INTERFERENCE ON MILITARY READINESS

During CY12, the Clearinghouse studied the impact of Electromagnetic Interference (EMI) from proposed extra high voltage (EHV) bulk power transmission projects used to transport renewable energy to urban areas. While it has long been known that electrical transmission lines generate EMI, the impact of 500 kV class transmission lines on sensitive testing activities is not well understood. Proposed EHV lines could impact specialized military testing activities at both the Nellis Test and Training Range, NV and the Buffalo Soldier Electronic Proving Ground at Ft. Huachuca, AZ. The Clearinghouse convened a TIM to address potential EMI impact to test range operations. Contributors included technical experts in military communications, radio frequency spectrum physics and field measurements, and EHV bulk power transmission system design, construction and operations. Further study will be needed in this area.

IMPACT OF RENEWABLE ENERGY DEVELOPMENT ON GROUND BASED RADARS

Throughout CY12, the Clearinghouse continued to work closely with the Department of Energy, the Department of Homeland Security, the FAA and the North American Aerospace Defense Command to ensure the protection of all 122 long-range air surveillance radars and navigational radars from renewable energy projects are located in their "field of view". These partners have invested \$8M in a co-lead effort to conduct field test evaluations of techniques and technologies to mitigate wind-turbine interference on ground based radars, as well as to improve knowledge of the impact of wind turbines on surveillance and navigation radars. The first two field tests were successfully executed during CY12. The remaining test will be completed in CY13. Some tested mitigation measured showed promise, in particular “in fill” radars and software upgrades. Both will require further investigation and validation. The Department also examined in CY12 the mission compatibility issues associated with the Over The Horizon Radar located in southeastern Virginia used in support of US Southern Command's counter drug detection and monitoring mission, and specialized radar used to test the operational characteristics of Naval aviation at NAS Patuxent River, Maryland.

THE CLEARINGHOUSE OUTREACH INITIATIVE

The Clearinghouse continued its aggressive outreach initiative in CY12. The Clearinghouse has formally presented information to the following organizations:

American Wind Energy Association	Solar Energy Industries Association	National Association of State Energy Officials
National Conference of	Desert Renewable Energy	Society of American

State Legislatures	Conservation Plan	Military Engineers
Environmental Defense Fund	Western Governors' Association	Western Regional Partnership

Further, the Clearinghouse updated its website by incorporating significantly new content, including a set of “Frequently Asked Questions” and a reference library.

INDEPENDENT ASSESSMENTS OF MISSION COMPATIBILITY ISSUES

In accordance with section 358(f)(2)(F), in CY12 the Clearinghouse completed an independent study by a noted university with extensive radar expertise to validate the potentially adverse mission impact of proposed renewable energy projects on mission capabilities at the Naval Air Weapons Station (NAWS) China Lake, and Edwards Air Force Base (AFB) in California, and Nellis AFB and the Nevada Test and Training Range in Nevada. Additionally, in coordination with the Clearinghouse, the Department of the Navy completed an independent assessment at NAS Patuxent River, Maryland. These independent studies validated the approach used to produce scientific data for the assessment of the adverse effects of renewable energy projects on military test missions.

In addition, this effort serves as a template for the development of other High Risk of Adverse Impact Zones (HRAIZ), where the introduction of energy infrastructure could have an adverse impact on military testing, training and operational capabilities that cannot be feasibly and affordably mitigated. The HRAIZ are intended to serve only as a risk management tool to identify, for industry state, tribal and local governments, and the public, those geographic areas where there is a high likelihood of adverse impact to national security.