

**REPORT ON THE
MISSION COMPATIBILITY EVALUATION PROCESS
AND THE
DEPARTMENT OF DEFENSE SITING CLEARINGHOUSE
FOR CALENDAR YEAR 2014**

**Pursuant to Section 358(f)(1) of the
Ike Skelton National Defense Authorization Act for Fiscal Year 2011
(Public Law 111-383)**



**Office of the Under Secretary of Defense
for Acquisition, Technology, and Logistics**

March 2015

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Introduction

This report on the Department of Defense's (DoD) Mission Compatibility Evaluation Process (MCEP) is submitted for CY 2014¹ in response to section 358 of the Ike Skelton National Defense Authorization Act for Fiscal Year 2011 (section 358). The MCEP is executed by the DoD Siting Clearinghouse (Clearinghouse) under the oversight of a Board of Directors (BOD).² Section 358(f)(1) requires that a report be submitted to the congressional defense committees on the actions taken by the Department during the preceding year. The report shall include:

- (A) the results of a review carried out by the Secretary of Defense of any projects filed with the Secretary of Transportation pursuant to section 44718 of title 49, United States Code (49 U.S.C. 44718):
 - (i) that the Secretary of Defense has determined would result in an unacceptable risk to the national security, and
 - (ii) for which the Secretary of Defense has recommended to the Secretary of Transportation that a hazard determination be issued;
- (B) an assessment of the risk associated with the loss or modifications of military training routes and a quantification of such risk;
- (C) an assessment of the risk associated with solar power and similar systems as to the effects of glint on military readiness;³
- (D) an assessment of the risk associated with electromagnetic interference on military readiness, including the effects of testing and evaluation ranges;
- (E) an assessment of any risks posed by the development of projects filed with the Secretary of Transportation pursuant to section 44718 of title 49, United States Code, to the prevention of threats and aggression directed toward the United States and its territories; and
- (F) a description of the distance from a military installation that the Department of Defense will use to prescreen applicants under section 44718 of title 49, United States Code.

Current Situation and Information Requirements

In CY 2014, the Clearinghouse experienced a 25 percent increase in the number of filings by applicants to the Federal Aviation Administration Obstruction Evaluation (FAA/OE) process

¹ A list of abbreviations can be found at Appendix A.

² The DoD Siting Clearinghouse Board of Directors is chartered by the Under Secretary of Defense for Acquisition, Technology & Logistics, see: <http://www.acq.osd.mil/dodsc/library/Charter%20Renewal%2011142014.pdf>.

³ In accordance with section 358(j)(3), military readiness includes activities required for the Department to conduct research, development, test and evaluation, training, and military operations.

– the third year in a row the number of filings reviewed has increased. DoD reviews each application and works with applicants to overcome mission compatibility challenges, such as the impact of wind turbine projects on military radar systems or the impact of a solar power tower project located in a critical section of a low-altitude military training route. For the first time since the establishment of the Clearinghouse, mitigation discussions were unable to reach a successful mitigation on a particular project. As a result, DoD submitted an objection to the Secretary of Transportation in accordance with procedures outlined in section 358(e).

The following sections detail the information required by section 358(f)(2)(A through F):

Section 358(f)(2)(A) – Review of Projects and Objections Raised to the U.S. Department of Transportation

In CY 2014, the Clearinghouse and the Military Departments⁴ (MILDEPs) received from the FAA applications on 2,594 energy-related projects under the formal FAA/OE process and cleared 2,332 projects. This is a 25 percent increase in the number of applications for projects received compared to last year. A project is defined as a single or group of obstructions within a designated geographical area filed in the FAA/OE system by an applicant. As shown in Figure 1, since the inception of the Clearinghouse in June 2010, the number of applications for projects received each year has increased.

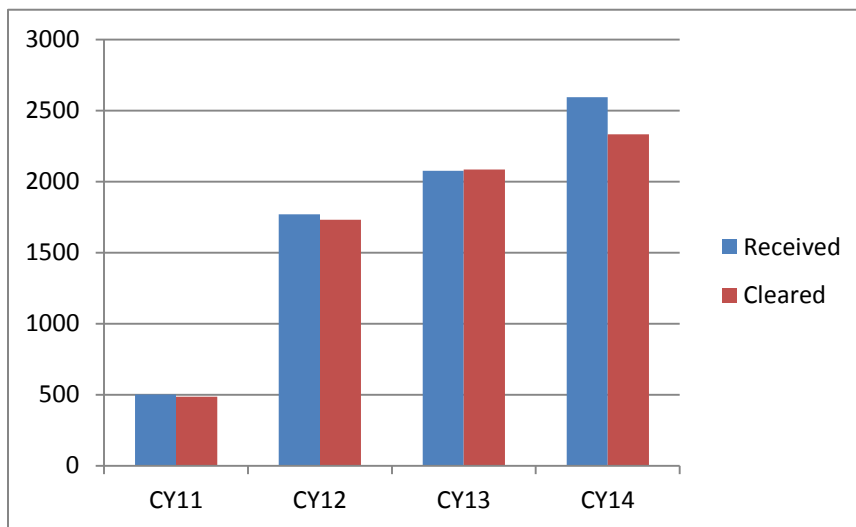


Figure 1. Number of energy-related projects received and cleared through the FAA/OE process, by Calendar Year

While 2,332 projects were cleared by the Clearinghouse in CY 2014, 309 projects were carried over from CY 2014 into CY 2015 – nearly three times the number of projects carried over from CY 2013 into CY 2014. This increase is due to both the increased number of projects submitted for review during CY 2014, as well as one MILDEP’s decision to reduce staffing for the MCEP with the expectation that Information Technology (IT) would offset staff reductions.

⁴ The “Military Departments” are the Departments of the Army, the Navy (including the U.S. Marine Corps), and the Air Force.

The IT solution was not fielded, and the MILDEP is currently taking action to adjust staffing to support the MCEP. It should be noted that actions taken by that MILDEP have reduced the number of carryover projects in January 2015, although the reductions occurred beyond the CY 2014 reporting period.

As stated above, the 2,594 energy-related projects received in CY 2014 consisted of 37,803 individual obstructions. Figure 2 shows the percentage of obstructions distributed by structure type, with 54 percent of the obstructions representing energy generation projects and 45 percent representing electrical power transmission and distribution projects.⁵ Appendix B to this report is a summary by state of the types of energy projects reviewed by the MCEP in CY 2014.

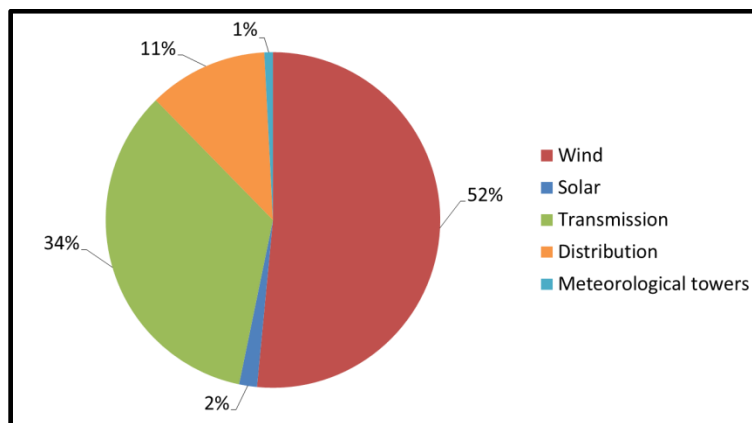


Figure 2. Distribution of Energy-Related Structure Types Received in CY 2014

When a project is determined to have a potential adverse impact to DoD military readiness, including activities required for the Department to conduct research, development, test and evaluation, training, and military operations, the Clearinghouse establishes a Mitigation Response Team (MRT). The MRT collaborates with applicants to identify reasonable and affordable mitigation options. In CY 2014, the Clearinghouse established 14 MRTs to explore mitigation options with applicants and entered into five binding agreements with applicants. When applicants agreed to public disclosure of the terms, those agreements were posted on the Clearinghouse website.⁶

In one case in Somerset County, Maryland, an MRT was dissolved after nearly 36 months of activity when the applicant petitioned the FAA to issue a Determination of No Hazard before a mutually acceptable mitigation agreement could be executed between the parties. In this case, the Deputy Secretary of Defense notified the Secretary of Transportation of the Department's objection to the construction of the wind turbine project, following the process outlined in Part 211 of Title 32, Code of Federal Regulations (32 C.F.R. Part 211).⁷ The Deputy Secretary's

⁵ Electrical transmission lines have line-to-line voltage rated greater than 100 kV; electrical distribution lines are rated below 100 kV.

⁶ See the Mitigation Agreements section at: <http://www.acq.osd.mil/dodsc/about/library.html>

⁷ The Mission Compatibility Evaluation Process (32 C.F.R. Part 211)

determination of unacceptable risk to national security of the United States⁸ was based upon potential impacts to a unique military radar located at Naval Air Station (NAS) Patuxent River, Maryland, which is used to assess the radar signature capability of DoD aircraft under actual flight operations in the Atlantic Test Ranges. In accordance with section 358(e)(3), the Department submitted a report to Congress⁹ on December 4, 2014, on this issue.

Similar to the formal MCEP reviews discussed above, DoD reviews projects at the request of developers, using procedures defined in 32 C.F.R. Part 211. In CY 2014, the Clearinghouse provided early assessment of 27 preliminary concepts/projects, a 55 percent decrease in the number of informal reviews conducted in CY 2013. Only two informal review projects were carried over into CY 2015 for continued DoD discussion and review.

In addition to the number of transmission projects reviewed under FAA/OE's formal process, the Clearinghouse also informally reviewed 24 renewable energy and high-voltage electrical transmission projects in CY 2014 under provisions established by DoD and the Bureau of Land Management (BLM) Wind Energy Protocol.¹⁰ The Department submitted written comments on five projects using procedures outlined in the National Environmental Policy Act process. Additionally, the Clearinghouse determined that two BLM projects posed no mission compatibility issues. Five of these projects were designated as Presidential High Priority Transmission projects. Nineteen projects remain in active review at the end of CY 2014.

One high-voltage transmission project, partially on BLM-managed public lands, presented an adverse impact to DoD testing activities at White Sands Missile Range (WSMR), New Mexico. After extensive inter-agency discussions, the Secretary of Defense proposed four mitigation options which, if accepted by the developer, would reduce DoD's concerns. The developer of the SunZia Southwest Transmission Project accepted the Secretary's proposal, which included the requirement to bury at least 5 miles of the power line. In CY 2014, the Department removed its long-standing objection to the SunZia project.

In addition to those projects identified above and under procedures identified by the Memorandum of Understanding between the Federal Energy Regulatory Commission (FERC) and DoD¹¹, FERC submitted eight projects for MCEP review in CY 2014. Two projects carried over into CY 2015.

While not expressly reviewed through the Clearinghouse's MCEP, the Department of Energy (DOE) requested DoD's review of three offshore wind energy pilot projects in CY 2014.

⁸ For a description of what thresholds triggers a determination of unacceptable risk to national security of the United States, see *Report to Congress on Unacceptable Risk to National Security from Commercial Energy Projects*, June 2013: <http://www.acq.osd.mil/dodsc/library/RTC%20UR%20Final.pdf>

⁹ See *Report on the Determination of Unacceptable Risk to National Security from a Proposed Commercial Wind Turbine Project in the Vicinity of Naval Air Station Patuxent River and the Atlantic Test Range*, December 2014, located at: <http://www.acq.osd.mil/dodsc/library/USA006599-14%20TAB%20B%20-%20Great%20Bay%20Wind%20Final.pdf>

¹⁰ The BLM and DoD Wind Energy Protocol is at: http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS_REALTY_AND_RESOURCE_PROTECTION_/energy/solar_and_wind.Par.75725.File.dat/Final_DOD_BLM_Protocol_080708.pdf

¹¹ This MOU was revalidated and updated on August 29, 2014. See: <http://www.ferc.gov/legal/mou/mou-dod.pdf>

Two of these DOE-funded pilot projects are in federal waters, and the DOI's Bureau of Ocean Energy Management requested MCEP reviews for these projects. DoD determined that these offshore wind energy pilot projects posed minimal impact to DoD military readiness.

As noted in last year's report, the Clearinghouse is required to ensure that non-energy¹² applications filed with the FAA/OE process receive MCEP review prior to any objection raised to the Secretary of Transportation by the Deputy Secretary of Defense. The Acting Deputy Under Secretary of Defense for Installations and Environment, in coordination with the Clearinghouse's BOD,¹³ issued a policy memorandum on November 12, 2014¹⁴ to ensure that the MILDEPs follow appropriate procedures when non-energy projects rise to the level of an unacceptable risk to the national security of the United States. Besides the 37,803 energy-related structures reviewed by the Clearinghouse, the MILDEPs conducted thorough mission compatibility reviews for an additional 53,469 non-energy structures in CY 2014. While a small number of these non-energy projects might have adversely impacted DoD military readiness, once mitigated none of the impacts rose to the level of an unacceptable risk to the national security under the provisions of section 358. Thus, no objections were raised to the FAA regarding these non-energy structures filed by applicants in CY 2014.

Section 358(f)(2)(B) – Risk Associated with the Potential Loss of Military Training Routes

There were no unacceptable risks to DoD's military readiness in CY 2014 from the loss of Military Training Routes (MTRs) or Special Use Airspace in the United States due to the construction of utility-scale energy projects reviewed by the MCEP.

The MILDEPs routinely chart and avoid new structures constructed in MTRs. No MTRs were completely lost or made unavailable for military flight test and training activities due to the development of energy-related projects reviewed by the MCEP in the CY 2014. The Department works closely with applicants through the MCEP to minimize the impacts of tall structures on MTRs. When potential mission compatibility issues are identified, the MILDEPs and the applicants work together to identify reasonable and affordable mitigation options to allay DoD's concerns.

One example of a successful MRT finalized in early CY 2014 occurred in Oregon, where the applicant agreed to locate all of the turbines for the project outside the boundaries of the key MTRs used for low-altitude training and ingress to the Boardman Navy Weapons Training Facility. A second example occurred in North Carolina, where the applicant agreed¹⁵ to limit construction of wind turbines in an MTR used for low-altitude flight training activities and ingress to the Dare County Bombing Range.

¹² Non-energy obstructions include TV/Radio antennas, cellular communication towers and buildings.

¹³ The Clearinghouse is governed by three co-chairs (ASD/EI&E, DASD/Readiness, and DOT&E), and 6 other Board of Directors (TRMC, ASD/HD&GS, Joint Staff/J-5, ASA(IE&E), ASN(EI&E), ASAF(I&EE)).

¹⁴ As noted at:

http://www.acq.osd.mil/dodsc/library/Procedures_Memo_6_Mission_Compatibility_Evaluation_Review_Process.pdf

¹⁵ This agreement can be found at:

http://www.acq.osd.mil/dodsc/library/Final%20Pantego%20agreement_6JAN2014%20As%20Amended%20for%20Public%20View.pdf

The Department worked diligently with DOE's Energy Efficiency and Renewable Energy Office in CY 2014 to quantify the impact of DoD military readiness, and DOE has ensured that DoD's concerns are documented in detailed wind resource maps¹⁶ of the United States and in associated geospatial analysis tools.¹⁷

Section 358(f)(2)(C) – Risk Associated with Solar Project Glint/Glare on Military Readiness

To reduce the risk to DoD's military readiness, in CY 2014 the Clearinghouse issued procedures requiring the MILDEPs to assess glint/glare from solar photovoltaic projects within two miles of a military airfield.¹⁸ Projects are evaluated using the Sandia National Laboratories' Solar Glare Hazard Analysis Tool, and none have been found to present unacceptable glint/glare to DoD military readiness or to air traffic control services. The Clearinghouse updated DoD Instruction 4165.57, *Air Installations Compatible Use Zones (AICUZ)*, to include procedures for considering glint/glare issues near military airports. These changes are pending publication.

Upon the commencement of operations of the 377 Megawatt Ivanpah Solar Electric Generation Project located 48 miles southwest of Nellis Air Force Base (AFB), Nevada, the Clearinghouse conducted a special assessment of this solar power tower project's impact on DoD military readiness. DoD is updating DoD's Flight Information Program documents for the MTRs near the project. While there is a glint/glare component from the project, its impact on DoD military readiness has been accommodated.

A second solar power project – the Crescent Dunes Solar Energy Project – is under construction north of Nellis AFB. The review of this project via FAA/OE's process preceded the establishment of the DoD Siting Clearinghouse; however, the Air Force worked with the developer to ensure that the location of this project minimized impacts to DoD military operations and readiness.

In CY 2014, the developer of the Palen Solar Thermal Power Project withdrew its application to the California Energy Commission for certification. The solar power tower project had been reviewed by the Clearinghouse in CY 2012, but was not determined to be an issue to low-altitude flight operations or glint/glare. Figure 3 shows the locations of the solar power tower projects in the Southwest United States in relation to military special use airspace and MTRs.

¹⁶ As an example, as DOE published new 140 meter wind resource maps for the U.S., they included a caveat regarding DoD's concerns with obstructions that could impact flight operations in MRTs.

¹⁷ In CY 2014, the Clearinghouse worked with the National Renewable Energy Laboratory to include military geospatial areas of interest in the Wind Prospector Tool. See: http://maps.nrel.gov/wind_prospector. The Clearinghouse also provided Argonne National Laboratory the same geospatial reference files for their work in support of BLM's West-wide Wind Opportunities and Constraints Mapping Project.

¹⁸ Procedures Memorandum #4 is available at:

http://www.acq.osd.mil/dodsc/library/Procedures_Memo_4_Glint%20Glare%20Issues%20on%20or%20near%20DoD%20Aviation%20Operations.pdf

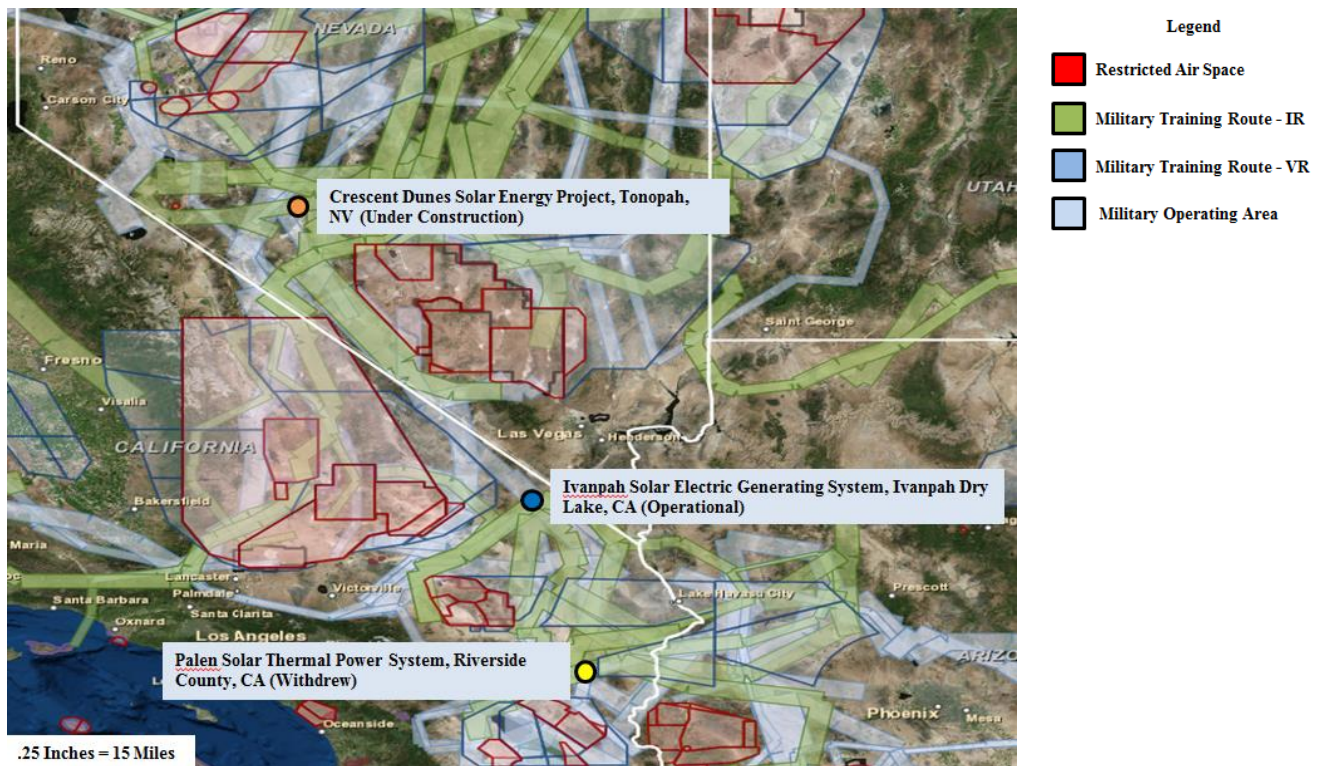


Figure 3. Map of Solar Power Tower Projects in Nevada and California

Section 358(f)(2)(D) – Risk Associated with Electromagnetic Interference with Military Readiness

Wind turbine and high-voltage electrical power transmission projects can present a risk to DoD’s military readiness in various ways. The rotating blades from a wind turbine project can affect the sophisticated Doppler shift software algorithms incorporated in air surveillance radars, thus reducing the radar’s “probability of detection” and increasing the radar’s incidence of “lost tracks.” The 60 Hz (and associated higher-frequency harmonics) electromagnetic interference (EMI) that naturally radiates from high-voltage power lines can impact sophisticated military communications equipment and associated testing activities, especially at the Buffalo Soldier Electronic Proving Ground at Fort Huachuca, Arizona.

In some cases, the EMI issue associated with rotating wind turbine blades can be resolved by “tuning” the radar to eliminate the known wind turbine interference. Alternatively, information from nearby air surveillance radars can be aggregated to provide a “common air picture” and eliminate some of the wind turbine radar interference. Radar equipment upgrades, including changing the radar’s signal processing algorithms may improve radar performance in some high “clutter” environments. Also “gap filler” radars can be installed to enhance radar coverage. In other instances, a curtailment agreement can be established between DoD and the applicant. Through these written agreements, applicants agree to curtail wind turbine operations for certain periods of time of interest to DoD. In CY 2014, one applicant agreed¹⁹ to temporarily curtail wind turbine operations when requested by DoD should emergency circumstances occur.

¹⁹ See: <http://www.acq.osd.mil/dodsc/library/Baffin%20USA006142-14%20-%20IE%20signed%20Mitigation%20and%20Voluntary%20Funding%20Agreement.pdf>

The applicant also provided a voluntary contribution of \$80,000. The Department of the Navy will use the funds to help “tune” the NAS Kingsville, Texas, terminal approach radar and aggregate data from the nearby NAS Corpus Christi radar.

To assess the impact of power line EMI, the Department’s Test Resource Management Center (TRMC) funded a study on the EMI effects from high-voltage electrical power transmission lines near test activities in the vicinity of WSMR. The results of the study determined that airborne test vehicles must clear the power line by at least 200 feet to be safe from EMI. As a result of the study, the TRMC funded a second research study to create a comprehensive power line EMI computer prediction tool that can be used at the various test ranges across DoD. The tool was substantially completed in CY 2014.

Section 358(f)(2)(E) – Risks Associated with the Development of Projects Filed in the FAA/OE Process

To mitigate overall risks to DoD’s readiness, DoD performs a formal review of every structure filed with FAA. Most filings are assessed as presenting minor or neutral impacts to operations and a “no-objection” response is uploaded to the FAA/OE computer system. When a major potential impact is identified, DoD establishes an MRT with the applicant to seek mutually acceptable solutions to the challenge. In each case, the applicant is fully engaged with DoD subject matter experts in identifying reasonable and affordable mitigation options.

The Clearinghouse shares the progress of the MRTs in regular bi-weekly meetings with the FAA Obstruction Evaluation Group. These meetings help synchronize actions taken to comply with both section 358(c)(2) and FAA’s governing regulations (part 77 of title 14, Code of Federal Regulations). Efforts to enhance the working relationship and processes for evaluating applications filed in the FAA/OE process were formalized in November 2014 when the FAA and the Clearinghouse signed a memorandum depicting the combined FAA/DoD processes.²⁰

While this report discusses the significant results of mission compatibility reviews for energy-related projects filed in the FAA/OE process, the MILDEPs have systematically reviewed an additional 53,469 non-energy obstructions in CY 2014. None of these non-energy obstructions were determined to present an adverse impact to the national security of the United States.

Section 358(f)(2)(F) – Description of Standoff Distances Used to Prescreen Projects

Due to the wide variety of missions and the variability of impacts on different types of obstructions, it is not possible to apply a “one-size-fits-all” standoff distance between DoD military readiness activities and development projects. Nevertheless, to accommodate the great number of structures proposed each year, DoD and FAA have worked to implement “business rules” in the FAA/OE computer system to minimize the time spent on projects that are highly unlikely to impact operations.

²⁰ Procedures Memorandum #5 is available at:
<http://www.acq.osd.mil/dodsc/library/SCH%20Procedures%20Memo%205%20FAA%20and%20DoD.pdf>

The MILDEPs have established these “auto-screen” rules within the FAA/OE computer system to identify these low-threat projects and to auto-screen them from extensive review by the subject matter experts. This allows the staff to focus on projects that underlie MTRs and special use airspace with low-altitude flight characteristics, projects located near military airfields, and projects located within the line-of-sight of military radars. As a failsafe, the Clearinghouse staff audits every proposed applicant filing to ensure the “auto-screen” rules have not overlooked a potentially critical DoD mission compatibility issue.

As generic standoff distances are not useful, the MILDEPs have published specific mission compatibility maps depicting standoff distances around, or in the vicinity of, selected DoD installations.²¹ These maps establish areas of concern that might not be readily identified by traditional mapping or airspace charts. Examples of the mission compatibility maps process include:

- Department of the Navy mission impact assessments for:
 - Airborne electronic attack combat maneuver training conducted at Naval Weapons Systems Training Facility Boardman, Oregon; and
 - Research, development, acquisition and test and evaluation activities conducted at:
 - The Atlantic Test Ranges, Maryland, in support of the Naval Air Warfare Center Aircraft Division, and
 - The China Lake Ranges, California, in support of Naval Air Warfare Center Weapons Division.
- The Department of the Air Force mission impact assessments for Edwards AFB, California, and Nellis AFB, Nevada

Conclusion

DoD continues to meet the objective of section 358(a) by ensuring “that the robust development of renewable energy sources and the increased resiliency of the commercial electrical grid may move forward in the United States, while minimizing or mitigating any adverse impacts on military operations and readiness.” With inter-agency partners, the Clearinghouse continued to develop improved mitigation and modeling tools to minimize DoD project objections. In CY 2014, the Department raised its first formal objection to the U.S. Department of Transportation regarding a project located in Maryland submitted to the FAA/OE process. Additionally, the Department removed its long-standing objection regarding a high-voltage transmission project in New Mexico because proposed mitigation options were accepted by the developer, and it cleared all remaining DoD objections on other Presidential High Priority Transmission projects. Finally, in CY 2014 the Department took steps to ensure that non-energy obstructions submitted to the FAA/OE process were reviewed using the MCEP to determine if they posed an adverse impact to the national security of the United States.

²¹ These maps are available at <http://www.acq.osd.mil/dodsc/about/library.html>

APPENDIX A

List of Abbreviations

AFB – Air Force Base
BLM – Bureau of Land Management
Clearinghouse – DoD Siting Clearinghouse
CY – Calendar Year
C.F.R – Code of Federal Regulations
DoD – Department of Defense
DOE – Department of Energy
DOI – Department of the Interior
EMI – Electromagnetic Interference
FAA – Federal Aviation Administration
FAA/OE – Federal Aviation Administration Obstruction Evaluation
FERC – Federal Energy Regulation Commission
FY – Fiscal Year
IT – Information Technology
MCEP – Mission Compatibility Evaluation Process
MILDEPs – Military Departments
MOU – Memorandum of Understanding
MRT – Mitigation Response Team
MTRs – Military Training Routes
NAS – Naval Air Station
NDAA – National Defense Authorization Act
TRMC – Test Resource Management Center
U.S.C. – United States Code
WSMR – White Sands Missile Range

APPENDIX B

Detailed List of Applicant Filings Calendar Year 2014 Mission Compatibility Evaluation Process

The DoD Siting Clearinghouse received 2,594 projects from applicants through the Federal Aviation Administration’s Obstruction Evaluation process in CY 2014. The breakout below lists the applicant’s projects by both category of application and by state:

Projects Received by DoD Siting Clearinghouse CY14																
Row	State	Wind Turbine	MET	Solar	Transmission and Distribution	Misc	Total	Row	State	Wind Turbine	MET	Solar	Transmission and Distribution	Misc	Total	
1	Alabama	0	1	0	18	0	19	29	New Hampshire	4	0	2	6	0	12	
2	Alaska	9	14	0	15	0	38	30	New Jersey	0	0	2	46	0	48	
3	Arizona	0	0	2	7	1	10	31	New Mexico	8	3	1	3	0	15	
4	Arkansas	0	0	0	3	0	3	32	New York	33	1	3	31	0	68	
5	California	30	2	19	478	6	535	33	North Carolina	2	1	31	8	0	42	
6	Colorado	15	1	4	11	0	31	34	North Dakota	10	4	0	9	0	23	
7	Connecticut	3	0	2	11	0	16	35	Ohio	15	0	1	53	2	71	
8	Delaware	0	0	0	3	0	3	36	Oklahoma	19	11	0	19	0	49	
9	Florida	0	1	2	112	1	116	37	Oregon	10	1	1	76	0	88	
10	Georgia	0	0	3	14	0	17	38	Pennsylvania	9	0	0	33	0	42	
11	Hawaii	15	0	16	0	0	31	39	Rhode Island	5	0	0	5	0	10	
12	Idaho	0	0	0	3	0	3	40	South Carolina	0	0	1	11	1	13	
13	Illinois	17	1	1	44	0	63	41	South Dakota	66	2	0	8	0	76	
14	Indiana	14	1	0	47	0	62	42	Tennessee	2	0	0	1	0	3	
15	Iowa	67	2	0	16	0	85	43	Texas	65	28	1	73	1	168	
16	Kansas	17	4	1	156	0	178	44	Utah	3	0	1	15	0	19	
17	Kentucky	0	0	0	13	0	13	45	Vermont	1	0	1	1	0	3	
18	Louisiana	0	0	0	8	0	8	46	Virginia	2	0	0	15	0	17	
19	Maine	11	1	0	6	0	18	47	Washington	10	2	0	34	1	47	
20	Maryland	6	4	3	8	0	21	48	West Virginia	3	0	0	4	0	7	
21	Massachusetts	1	2	5	28	0	36	49	Wisconsin	0	0	1	85	0	86	
22	Michigan	10	0	4	39	0	53	50	Wyoming	3	1	0	0	0	4	
23	Minnesota	8	5	3	14	0	30	51	Guam	1	0	0	0	0	1	
24	Mississippi	0	0	0	4	0	4	52	Puerto Rico	3	0	0	0	0	3	
25	Missouri	0	0	0	3	0	3	53	Virgin Islands	1	0	0	0	0	1	
26	Montana	12	0	0	1	0	13	54	Phased Projects						230	
27	Nebraska	10	0	1	15	0	26		Totals	521	94	112	1624	13	2,594	
28	Nevada	1	1	0	11	0	13									

Key	
Wind Turbine	Wind powered, electricity generating turbines
MET	Meteorological Towers
Solar	Photovoltaic panels, and concentrated solar towers
Transmission and Distribution	Power lines, transmission lines, and utility poles
Misc.	Antennas, cranes, bridges, and towers related to energy projects

In summary, the applicant’s projects were divided into the following categories:

- 22% Wind Turbines*
- 4% Meteorological Towers
- 5% Solar
- 68% Electrical Transmission and Distribution
- 1% Miscellaneous

Note: Individual wind turbine obstructions (vice groups of obstructions identified as projects) represented 52% of all the energy-related obstructions reviewed by the Clearinghouse in CY 2014.