



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

Sustainable Development

Benefits of EPA Initiative to Promote Renewable Energy on Contaminated Lands Have Not Been Established

Report No. 15-P-0198

July 16, 2015



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Report Contributors:

Jenny Drzewiecki
Chad Kincheloe
Tina Lovingood
Roopa Mulchandani
Kate Robinson
Jill Trynosky

Abbreviations

EPA U.S. Environmental Protection Agency
NREL National Renewable Energy Laboratory
OIG Office of Inspector General
OSWER Office of Solid Waste and Emergency Response

Cover photo: Ground-mounted solar photovoltaic system installed at the
 Frontier Fertilizer Superfund Site, Davis, California. (EPA photo)

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At a Glance

Why We Did This Review

We evaluated how the U.S. Environmental Protection Agency (EPA) set and measured specific goals for its activities related to siting renewable energy on potentially contaminated land and mine sites (hereafter referred to as contaminated lands), such as economic and environmental return on investment, and whether siting efforts ensure short- and long-term health and environmental protection on these contaminated sites.

In 2008, the EPA's Office of Solid Waste and Emergency Response launched the RE-Powering America's Land Initiative, through which the EPA encourages renewable energy development on contaminated lands. Renewable energy is energy obtained from sources that can be continually replenished, such as solar, wind and biomass.

This report addresses the following EPA goal or cross-agency strategy:

- *Cleaning up communities and advancing sustainable development.*

For further information, contact our public affairs office at (202) 566-2391.

The full report is at:
www.epa.gov/oig/reports/2015/20150716-15-P-0198.pdf

Benefits of EPA Initiative to Promote Renewable Energy on Contaminated Lands Have Not Been Established

What We Found

The EPA sets specific goals for its program activities related to promoting and providing education and outreach for siting renewable energy on contaminated lands through its RE-Powering America's Land Initiative. However, the EPA does not have a mechanism to measure the outcomes of accomplishing initiative goals, nor does it have information on the return on investment realized for the activities completed or resources the agency stated it has invested.

EPA does not know the benefits realized from its efforts to promote siting renewable energy on contaminated lands. As a result, the agency is unable to demonstrate benefits realized for the \$4 million it stated it has invested in these efforts since 2008.

Regarding the return on investment, the EPA stated it has invested \$4 million in the initiative, including just over \$2.5 million to support more than 40 feasibility studies that provide site owners and communities with a technical and economic assessment of installing renewable energy on a given site, and development of initiative tools. Seventy-six percent of the studies completed showed some potential for siting renewable energy on contaminated lands. However, the EPA was aware of only two sites with renewable energy that benefitted from feasibility studies. Consumer awareness or use of initiative tools could also be an indicator of return on investment. Four of seven external parties involved with siting renewable energy on contaminated lands with whom we spoke were unaware of the initiative or did not use the tools it provides. Without benefits information and consumer awareness or utility, the EPA is unable to demonstrate results of the initiative and support continuing the program.

The EPA's RE-Powering America's Land Initiative does not address human health and environmental protection issues when renewable energy is sited on contaminated lands. However, the initiative could refer to guidance from other EPA programs that have such controls, including periodic reviews or monitoring, to maintain protectiveness.

Recommendations and Planned Agency Corrective Actions

We recommend that the EPA determine whether the benefits from its renewable energy promotion efforts demonstrate the value of the RE-Powering initiative. If benefits cannot be demonstrated, the EPA should modify or terminate the program. If the EPA continues with this initiative, it should establish management controls to measure and report on progress, use available data to track and report on economic and environmental benefits realized, and refer participants to EPA guidance covering human health and environmental protection. The agency provided sufficient planned corrective actions and estimated completion dates for all of our recommendations. All recommendations are considered resolved and open with corrective actions ongoing.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

July 16, 2015

MEMORANDUM

SUBJECT: Benefits of EPA Initiative to Promote Renewable Energy on Contaminated Lands
Have Not Been Established
Report No. 15-P-0198

FROM: Arthur A. Elkins Jr.

A handwritten signature in black ink, appearing to read "Arthur A. Elkins Jr.", is written over the printed name.

TO: Mathy Stanislaus, Assistant Administrator
Office of Solid Waste and Emergency Response

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

The EPA office having primary responsibility over the issues discussed in this report is the Office of Solid Waste and Emergency Response's Center for Program Analysis.

Action Required

You are not required to provide a written response to this report because you provided agreed-to corrective actions and planned completion dates for the report recommendations. The OIG may make periodic inquiries on your progress in implementing these corrective actions. Should you choose to make a final response, we will post your response on the OIG's public website, along with our memorandum commenting on your response. You should provide your response as an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended.

We will post this report to our website at <http://www.epa.gov/oig>.

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Chapter 1

Introduction

Purpose

The purpose of this evaluation was to answer the following questions:

- Does the U.S. Environmental Protection Agency (EPA) set and measure specific goals for its program activities related to siting renewable energy on potentially contaminated land and mine sites,¹ including, for example, economic or environmental return on investment?
- Do the EPA's efforts to promote siting renewable energy on potentially contaminated land and mine sites ensure short- and long-term human health and environmental protection on these contaminated sites?

Background

In 2008, the EPA's Office of Solid Waste and Emergency Response (OSWER) launched the RE-Powering America's Land Initiative. Through this initiative, the EPA has encouraged renewable energy development on current and formerly contaminated lands, landfills and mine sites (referred to hereafter as contaminated lands). According to the EPA, the siting of renewable energy on contaminated lands can reduce the demand for development on agricultural land, which protects watersheds and wetlands and provides habitat as well as raw resources and food.

Some examples of expected benefits or return on investment of siting renewable energy on contaminated lands include: reduction of remediation costs, avoidance of air emissions for the energy provided, a solar farm at a landfill that will generate electricity equivalent to powering 365 homes year-round, a solar installation where some of the construction jobs to erect the solar array were to go to residents of local affordable housing units, and a solar array that is expected to save a township about \$13 million in energy costs over 15 years.

Renewable energy is obtained from sources that can be continually replenished, such as solar, wind and biomass. Contaminated lands considered for renewable energy potential include sites in the EPA's Brownfields, Resource Conservation and Recovery, Superfund, Landfill Methane Outreach and Abandoned Mine Lands cleanup programs.

¹ The EPA's RE-Powering America's Land website references both "siting renewable energy on potentially contaminated lands, landfills, and mine sites" and "encouraging renewable energy development on current and formerly contaminated lands, landfills, and mine sites." The phrases "potentially contaminated lands, landfills, and mine sites" and "current and formerly contaminated lands, landfills, and mine sites" are used interchangeably in this report.

Contaminated land and mine sites can threaten human health and the environment. For example, contaminated soils can leach toxic chemicals into nearby ground or surface waters, where these materials can be taken up by plants and animals, contaminate a human drinking water supply, or volatilize and contaminate the indoor air in overlying buildings. Contaminants at mine sites could include arsenic, cadmium, lead, zinc, asbestos or nickel.² Further, some mine sites pose the threat of radiation exposure to humans.

The initiative's efforts to promote renewable energy on contaminated lands are focused on encouraging future projects as well as providing educational materials on its website³ and conducting outreach to developers, landowners and other stakeholders. Some of these educational online tools include a list that provides information for over 66,000 sites screened for renewable energy potential, a finance fact sheet, best practice documents and success stories. Initiative outreach activities include attending conferences, hosting webinars, soliciting stakeholder feedback and responding to stakeholder inquiries.

According to initiative staff, approximately 21 people work on the initiative and the EPA's renewable energy efforts. This group includes approximately two full-time staff in EPA headquarters and 19 staff who assist with EPA renewable energy efforts in conjunction with their primary job duties. The 19 staff are located in the 10 EPA regions and in EPA offices, including: Federal Facilities, Brownfields, Enforcement, Resource Conservation and Recovery, Superfund Redevelopment Initiative, Abandoned Mine Lands and Underground Storage Tanks. In addition, according to initiative staff, since 2008 the EPA has funded, on average, \$240,000 per year for contract support, and an additional \$2.5 million to the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) for conducting studies on the feasibility of renewable energy production on contaminated lands. The initiative staff is working to implement management plans, and periodically updates a tracking matrix that tracks renewable energy that has been sited on contaminated lands.

Responsible Office

OSWER's Center for Program Analysis is responsible for implementing the RE-Powering America's Land Initiative.

Scope and Methodology

We conducted our work from July 2014 to April 2015. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain

² Superfund Information Systems, Contaminants of Concern at Annapolis Lead Mine & Atlas Asbestos Mine, <http://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Contams&id=0702917> and <http://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Contams&id=0901736>.

³ RE-Powering America's Land: <http://www.epa.gov/oswercpa/>.

sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We interviewed EPA staff and management in the following OSWER offices or initiatives:

- RE-Powering America's Land Initiative.
- Green Remediation.
- Abandoned Mine Lands Team.
- Brownfields.
- Resource Conservation and Recovery.
- Superfund Redevelopment Initiative.

In addition, we interviewed EPA staff in Regions 1, 2, 5, 8 and 9.

We reviewed statutes, executive orders and guidance related to siting renewable energy on contaminated lands and EPA land cleanup programs. We also reviewed documentation relating to the initiative, including stakeholder feedback and an evaluation scoping study example. In addition, we reviewed initiative management plans to identify what goals have been set and how the EPA measures completion of those goals, including outcomes generated by accomplishing the goals. We conducted visits at two Superfund sites in Region 9 to gain a better understanding of how siting renewable energy on contaminated lands works. Further, we interviewed external parties involved with siting renewable energy on contaminated lands, including industry engineers and developers, staff from the state of Massachusetts' Department of Environmental Protection, the U.S. Department of Energy's NREL, and a city director for a wind and solar renewable energy site.

Chapter 2

EPA Needs to Determine Program Value and Improve Its Program Website

The EPA sets specific goals for its program activities related to the promotion, education and outreach of siting renewable energy on potentially contaminated lands through its RE-Powering America's Land Initiative Management Plan. According to EPA staff, the agency has made staff and monetary investments of at least \$4 million since 2008 for its initiative activities. However, the EPA does not have a mechanism to measure benefits (or return on investment) realized from accomplishing goals in its Management Plan or from the resources invested. As a result, the EPA does not have information on benefits and is unable to demonstrate benefits realized for the \$4 million the agency stated it has invested in these efforts. Further, the initiative website does not include a section addressing human health and environmental protection issues when renewable energy is sited on contaminated lands.

EPA Lacks a Mechanism to Systematically Track Program Goals and Measure Program Benefits

Management Action Plans are Close to Complete, But Key Action Supporting Results Determination Is Incomplete

The EPA used Management Plans to set initiative goals. The initiative's Management Plans are periodically developed and outline activities the initiative plans to pursue over a period of 2 years. First issued was the 2010 Management Plan, and more recently a 2014 Action Plan (issued October 2014). For the purposes of our evaluation, we reviewed the 2010 Management Plan to measure the initiative's progress in completing its goals, since the 2014 plan is still

ongoing. The 2010 plan had three goals (see box at left.) Each goal had corresponding action items, and 19 of the 20 actions have been completed. Completed actions included developing guidance for siting renewable energy on landfills, enhanced outreach to tribes, and developing case studies.

Although initiative staff were able to provide us information on actions completed from the EPA's 2010 Management Plan, the EPA has not addressed how these completed actions systematically track the accomplishment of goals outlined in the same document, or the outcomes

Goals From EPA's 2010 Management Plan

- ✓ **Goal 1: Provide Incentives and Technical Assistance for Siting Renewable Energy on Contaminated Land**
- ✓ **Goal 2: Create Unified Federal Approach to Promote Siting of Renewable Energy on Contaminated Land**
- ✓ **Goal 3: Improve Communication and Sharing of Data on Siting Renewable Energy on Contaminated Land to Enable Stakeholders to Successfully Reuse Sites for Renewable Energy**

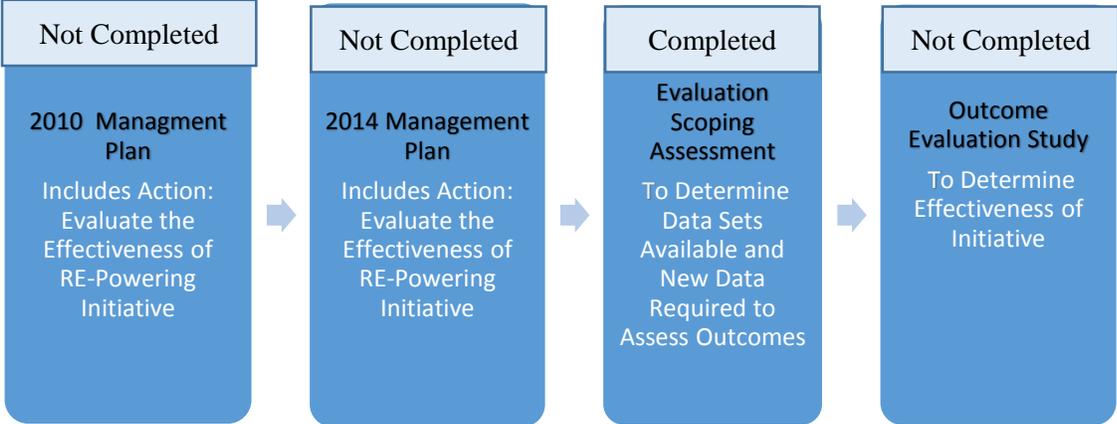
generated by accomplishing its goals. Staff informed us that they have put in place processes and procedures to check progress against established milestones, including weekly updates, bi-weekly or monthly meetings, regular review and reporting of financials associated with the initiative, and employee accountability through performance standards. However, these controls did not measure progress toward the initiative’s goals so management or oversight bodies could determine whether they had been met. Office of Management and Budget Circular A-123 defines management’s responsibility for internal controls in federal agencies, including control activities. Control activities include policies, procedures and mechanisms in place to help ensure that the agency objectives are met.

According to the EPA, the one action not completed from the 2010 Management Plan is to “Evaluate the Effectiveness of RE-Powering Initiative.” This action was carried over to the 2014 plan (see box at right) under Goal 2 and has a projected completion date of winter 2015. Completing this action could help determine the return on investment of the initiative. Some progress on this action item has been made. An evaluation scoping assessment, which was completed on April 16, 2015, was a study designed to identify existing data that could be used to conduct an outcome evaluation, and identify any new data that would be required to evaluate the program’s outcomes. Initiative staff stated that once the evaluation scoping assessment was completed, another evaluation study would be conducted to address how initiative activities are linked to outcomes (see Figure 1). Slow progress in completing the evaluation studies has resulted in a delay in determining the effectiveness of the initiative.

Goals From EPA’s 2014 Management Plan

- ✓ **Goal 1: Provide Technical and Programmatic Assistance**
- ✓ **Goal 2: Promote Policies and Best Practices That Encourage Renewable Energy on Contaminated Lands**
- ✓ **Goal 3: Partner with Stakeholders and Leverage Agency Efforts**

Figure 1: EPA steps to evaluate effectiveness of RE-Powering Initiative



Source: OIG analysis of EPA documentation.

An action item in the 2010 Management Plan that will assist the EPA in determining benefits is to “Track Renewable Energy on Contaminated Lands Projects and Collect Specific Data That Can be Used to Measure Progress and Environmental Benefits.” According to initiative staff, the action is complete.

The initiative tracks renewable energy on contaminated lands through its RE-Powering Tracking Matrix (latest version April 2015). The Tracking Matrix from April 2015 lists 151 renewable energy installations, and includes examples of environmental and/or economic benefits expected or realized at contaminated sites with renewable energy installations recorded. The initiative also maintains an internal document that tracks economic benefits, and the EPA relies on developers to voluntarily report in publicly available sources—such as newspaper articles—for approximately half of the installations in the Tracking Matrix. The information in the Tracking Matrix is therefore not comprehensive or verified and tested for accuracy.

EPA Lacks Return on Investment Information

Despite some accomplishments reported, the EPA does not report the benefits realized from the initiative’s accomplished goals, objectives or actions and, therefore, does not demonstrate the value of the program.

Initiative staff report program accomplishments through OSWER and Initiative Accomplishments Reports. The reports included limited details on accomplished goals, objectives or actions, and lacked information on benefits realized from efforts. The 2012 OSWER Accomplishments Report included a brief mention of three initiative tools released: *Screening Sites for Solar PV Potential*, *Screening Sites for Wind Energy Potential* and *Handbook on Siting Renewable Energy Projects While Addressing Environmental Issues*. The 2013 OSWER Accomplishments Report provided background information on the initiative. The April 2013 Initiative Accomplishments Report (the first and latest version) included accomplishments for some—but not all—goals, objectives or actions as outlined in the 2010 Management Plan. For example:

- The goal to provide technical assistance was accomplished by developing the *Handbook on Siting Renewable Energy Projects While Addressing Environmental Issues*.
- The goal of assisting communities was accomplished by developing fact sheets and screening sites for the interactive tool that maps potential renewable energy sites.
- The goal of enhanced coordination and collaboration was accomplished by working with federal agencies on specific sites and opportunities to model the land reuse and renewable energy development the initiative seeks.

To better understand potential benefits offered by the EPA's promotional tools, we asked external parties about their familiarity and usage of the initiative's website and tools. We interviewed seven external stakeholders, who provided mixed feedback. Three of the seven were familiar with initiative tools and provided positive feedback, but the other four were unaware of or did not use the tools. Main reasons for the stakeholders' lack of awareness or use was that they were involved with siting renewable energy projects prior to the start of the initiative in 2008, the tools were outdated for their use, or the stakeholders had limited interaction with the EPA for siting renewable energy projects. Funding for the initiative has included support for contractors and an interagency agreement with the National Renewable Energy Laboratory (NREL). According to EPA staff, contract support has averaged \$240,000 per year, and the EPA has funded NREL just over \$2.5 million since 2008. NREL conducted studies that evaluated the feasibility of developing renewable energy production on Superfund, brownfields, and former landfill or mining sites. Examples of information included in feasibility studies are: technical and economic opportunities and challenges at a site, preliminary analysis of the viability of a site, renewable energy resource availability, possible renewable energy system size and location, and economics of installing the proposed renewable energy system.

NREL has completed 42 feasibility studies for the initiative, and 32 of the completed studies concluded renewable energy development was feasible or suitable. Of the 42 studies completed, one study was completed for a few regions of the country and two studies were completed for one site. According to NREL, approximately five feasibility studies are planned for the future. Studies have varying start times, and a single study could take as long as a year and a half to complete. NREL informed us that costs to have a feasibility study conducted depend on the technology, the specific site characteristics and any potential issues at the site. An estimate for determining the feasibility of solar development on a site can range from \$7,500 to \$30,000, while costs for a feasibility study of wind development can range from \$30,000 to \$75,000.

Once NREL completes a feasibility study, it provides the study to the EPA and the agency posts it to the initiative's website. According to initiative staff, studies serve as a means to engage communities and developers in possible renewable energy projects. Initiative staff stated that there is a time lag between when a study is completed and when renewable energy may be sited. Initiative staff were aware of only two sites that had renewable energy developments that benefitted from feasibility studies.

The EPA's staff investment includes approximately two full-time individuals in headquarters and 19 who work on the initiative or EPA renewable energy efforts in conjunction with their primary duties, including representation in each of the EPA's 10 regions. According to the EPA, there are no separate time reporting codes to track time spent working on the initiative or renewable energy-related

work. Regional staff interviewed indicated they spent an average of 10 percent of their time on initiative or renewable energy-related activities.

Despite the staff and funding invested by the EPA, the agency does not have information on benefits of its program activities related to the promotion of siting renewable energy on contaminated lands. Its action item to evaluate the effectiveness of the initiative began in 2010 and is not set to be completed until winter 2015. The EPA has not made substantial progress in measuring benefits resulting from its investment in initiative efforts.

Initiative Does Not Clearly Address Human Health and Environmental Protection

Initiative Does Not Communicate Human Health and Environmental Protection Issues

The initiative's website does not feature a section related to human health and environmental protection issues as they relate to siting renewable energy on contaminated lands. There are some educational materials on the initiative website that include human health and environmental protection issues for developers to consider when siting renewable energy on contaminated lands (see sidebar below for example). However, absent a designated section identifying resources available that address protectiveness issues when siting, it could be difficult for a user of the website—such as a developer or other external stakeholder—to locate these types of resources.

The Handbook on Siting Renewable Energy Projects While Addressing Environmental Issues describes addressing environmental site issues. For example:

- “Renewable energy development must be designed to accommodate any engineered (e.g., landfill cap) or ICs [institutional controls] (e.g., restrictive covenants) implemented as part of the cleanup to ensure there is no risk to human health or the environment.”
- “If groundwater treatment is complete but monitoring is ongoing, renewable energy development may also occur as long as monitoring wells remain accessible and undisturbed.”

Initiative Not Designed to Ensure Protectiveness, But EPA Has Controls to Maintain Protectiveness at Contaminated Sites

According to initiative staff, contaminated sites with renewable energy development on them are treated in the same manner as contaminated sites with any other reuse development. There are follow-up requirements to monitor the impact or potential impact of siting a renewable energy system—such as solar or wind—on a contaminated site. The EPA has controls designed to protect human health and the environment at contaminated sites with or without renewable

energy, including: Superfund 5-year reviews, institutional and/or engineering controls, or operations and maintenance checks.

The EPA is not required to conduct follow-up activities to determine whether a renewable energy system has impacted human health or environmental protection at a site unless the renewable energy system affects the integrity of the cleanup remedy. Since the initiative's promotion efforts focus on education and outreach, the EPA is less involved in the decision to site renewable energy and, therefore, less involved once siting occurs. Site-specific monitoring can be performed by the oversight authority, which could be the EPA or a state.

According to the EPA, the initiative was not designed to ensure human health and environmental protectiveness. Its efforts focus on promotion, education and outreach regarding siting renewable energy on contaminated lands. However, some OSWER programs have monitoring in place to ensure and maintain protectiveness at contaminated sites.

Conclusions

EPA staff and funding have been invested in the RE-Powering America's Land Initiative since 2008, but actions to evaluate the effectiveness of the initiative have been delayed and are incomplete. While there are benefits from renewable energy and potential benefits from siting renewable energy on contaminated lands, the EPA has not assessed the value of its efforts to support these endeavors. Four of seven external parties surveyed involved with siting renewable energy on contaminated lands have shown limited awareness or use of the information and tools that the EPA provides on siting renewable energy on contaminated lands. EPA documents include human health and environmental factors to consider when siting renewable energy on contaminated lands, but the initiative's website did not include a listing of which documents contain these factors. Identifying these documents supports efforts to protect human health and the environment in decisions to site renewable energy on contaminated lands. The EPA needs to determine benefits from the initiative. Doing so will better inform decision makers—including EPA management—on the continued need for or redesign of the initiative. The EPA already has invested more than \$4 million on the entire initiative effort since 2008.

Recommendations

We recommend that the Assistant Administrator for Solid Waste and Emergency Response:

1. Determine whether benefits from its investment of program resources in renewable energy promotion, education and outreach efforts outlined in the Management Plan demonstrate the value of the RE-Powering America's Land Initiative. If benefits cannot be demonstrated for the initiative, the EPA should modify or terminate the program.

If the EPA chooses to continue with the initiative in its current or modified form, we recommend that the Assistant Administrator for Solid Waste and Emergency Response:

2. Establish management controls to measure progress and publicly report how the EPA is accomplishing its goals, objectives and actions for its renewable energy promotion, education and outreach efforts, as outlined in the EPA's current and future versions of the RE-Powering America's Land Initiative Management Plan.
3. Use available data from sites that have had renewable energy development and are under EPA oversight to track and publicly report on economic and environmental benefits realized at sites.
4. Include on the RE-Powering America's Land Initiative website a section covering human health and environmental protection as they relate to siting renewable energy on potentially contaminated lands, landfills and mine sites. Include, at a minimum, references to information such as:
 - a. EPA controls for ensuring and maintaining protectiveness at contaminated sites, including landowner and oversight authority roles.
 - b. Engineering design considerations.
 - c. Frequently asked questions and answers on how to report or seek assistance for human health or environmental protection issues when siting.

Agency Comments and OIG Evaluation

The agency disagreed with the wording of Recommendations 1 and 2, but provided corrective actions and estimated completion dates that meet the intent of the recommendations. The agency agreed with Recommendations 3 and 4, and provided corrective actions and estimated completion dates that meet the intent of the recommendations. All four recommendations are considered resolved and open with corrective actions ongoing. The agency's response to our draft report and our comments are in Appendix A. We have incorporated agency comments, where appropriate, into our report.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in \$000s)	
Rec. No.	Page No.	Subject	Status ¹	Action Official	Planned Completion Date	Claimed Amount	Agreed-To Amount
1	9	Determine whether benefits from its investment of program resources in renewable energy promotion, education and outreach efforts outlined in the Management Plan demonstrate the value of the RE-Powering America's Land Initiative. If benefits cannot be demonstrated for the initiative, the EPA should modify or terminate the program.	O	Assistant Administrator for Solid Waste and Emergency Response	3/31/16		
2	10	If the EPA chooses to continue with the initiative in its current or modified form, establish management controls to measure progress and publicly report how the EPA is accomplishing its goals, objectives and actions for its renewable energy promotion, education, and outreach efforts, as outlined in the EPA's current and future versions of the RE-Powering America's Land Initiative Management Plan.	O	Assistant Administrator for Solid Waste and Emergency Response	12/31/15		
3	10	If the EPA chooses to continue with the initiative in its current or modified form, use available data from sites that have had renewable energy development and are under EPA oversight to track and publicly report on economic and environmental benefits realized at sites.	O	Assistant Administrator for Solid Waste and Emergency Response	3/31/16		
4	10	If the EPA chooses to continue with the initiative in its current or modified form, include on the RE-Powering America's Land Initiative website a section covering human health and environmental protection as they relate to siting renewable energy on potentially contaminated lands, landfills and mine sites. Include, at a minimum, references to information such as: <ul style="list-style-type: none"> a. EPA controls for ensuring and maintaining protectiveness at contaminated sites, including landowner and oversight authority roles. b. Engineering design considerations. c. Frequently-asked questions and answers on how to report or seek assistance for human health or environmental protection issues when siting. 	O	Assistant Administrator for Solid Waste and Emergency Response	12/31/15		

¹ O = Recommendation is open with agreed-to corrective actions pending.
C = Recommendation is closed with all agreed-to actions completed.
U = Recommendation is unresolved with resolution efforts in progress

Agency Response to Draft Report and OIG Comments

The text of the EPA response, along with our analysis, is provided below.

May 5, 2015

MEMORANDUM

SUBJECT: Response to Office of Inspector General Draft Report *Benefits of EPA Initiative to Promote Renewable Energy on Contaminated Lands Have Not Been Established*
No. OPE-FY14-0043

FROM: Mathy Stanislaus/s/
Assistant Administrator

TO: Arthur A. Elkins, Jr.
Inspector General

Thank you for the opportunity to respond to the issues and recommendations in the subject evaluation report. Following is a summary of our overall position and perspective on some of the issues raised in this draft evaluation. In addition, we provide our position on each of the report recommendations. For those report recommendations with which we agree, we have provided high-level intended corrective actions and estimated completion dates to the extent we can. For those report recommendations with which we do not agree, we have explained our position, and propose alternatives to the recommendations. We would appreciate the opportunity to meet with you if you do not plan to accept these changes.

OIG Response 1: During the exit conference with the agency, we discussed the draft report recommendations. For Recommendations 1 and 2, the agency disagreed with the wording of the recommendations and proposed alternatives. We do not agree with the wording of the agency's "Proposed Alternative." However, we agreed that each "Proposed Alternative" and "action" identified by the agency meets the intent of the OIG recommendations. The agency agreed with Recommendations 3 and 4.

Overall Position

EPA's RE-Powering America's Land Initiative provides a means to transform community liabilities into assets. Since RE-Powering's inception, 151 renewable energy installations on 144 contaminated lands, landfills and mine sites have been established. These sites are in 35 states and territories, representing a combined 1,046 MW of capacity and providing numerous benefits

to their communities. EPA has collected anecdotal information reporting millions of dollars in cost savings for communities from reduced energy costs over several years, as well as, creating construction jobs and providing property tax revenue. In addition to the 151 sites already developed, EPA is aware of many more sites being developed.

As a tenet of its implementation, RE-Powering America's Land solicits and responds to the input and perspective of a diverse set of stakeholders and thereby directly and indirectly influences the cleanup of contaminated properties and encourages the pursuit of renewable energy. The Management Plan and associated products and materials are a result of the stakeholder feedback:

- When stakeholders sought assistance in expanding the screening of potential contaminated properties, the Initiative expanded the mapping tool which currently identifies over 66,000 sites on over 35 million acres and fostered a collaborative partnership with the National Renewable Energy Laboratory (NREL) to provide initial screening for these sites;
- When stakeholders expressed concerns about the potential liability from reusing formerly contaminated sites, OSWER partnered with the Office of Enforcement and Compliance Assurance (OECA) to clarify existing guidance and develop new guidance tailored to the kind of tenant relationships often used in renewable energy development;
- When stakeholders sought advice in pursuing such projects, the Initiative created a network of professionals across its headquarters and regional offices (the RE-Powering Response Team);
- When stakeholders sought specific technical assistance regarding implementation on landfills and siting renewable energy while cleanup is ongoing, the Initiative developed two handbooks to integrate the cleanup process with renewable energy development and, provide best practices on the installation of solar photovoltaics on landfills; and
- When stakeholders sought assurance and education regarding the opportunity that RE-Powering might bring to contaminated properties in their communities, the Initiative partnered with NREL to assess potential at specific sites, developed communications materials to enhance the consideration of this reuse option, tracked and highlighted successful installations across the country through its semi-annual tracking matrix, and published case studies to explore how particular projects encountered and overcame obstacles.

Over the course of six years, with its modest staff⁴ and funding⁵, the RE-Powering America's Land Initiative has been responsive and brought value to its stakeholders. RE-Powering's influence and visibility continues to grow among an increasing diversity of stakeholders: Provisions related to such development were included in the President's 2013 Memorandum on Federal Leadership on Energy Management, the state of New Jersey included contaminated sites

⁴ Over the course of the six years, there has been from 1-2 full-time EPA employees assigned to Re-Powering. This FTE is supported by a regional network of approximately 12 staff persons who work about 10% of their time, along with their other responsibilities. In addition, the Initiative is supported by approximately 7 identified staff members in OECA and the other OSWER programs.

⁵ Over the course of the six years, the Initiative has expended an average of \$240,000 per year on contractor support and funded \$2.5 million of support to NREL (approximately \$1.9 million of which funded feasibility studies for communities).

in its solar legislation in 2012; several utilities include contaminated lands as a criterion in their requests for renewable energy sites, states have asked to have their sites in EPA's mapping tool; and the Bureau of Land Management now highlights contaminated properties in their review of right-of-way application approval processes. A Google search for "RE-Powering America's Land" returned over 380,000 results, ranging from the newspaper and journal articles to academic papers, blogs, presentations, and social media.

Our experience with the OIG and the findings and recommendations contained in this draft report have reinforced a need to communicate aspects of the Initiative in better ways and to pursue already planned efforts with respect to evaluation. At the same time, the draft report identifies weaknesses in ways that stem more from misunderstandings of the effort than from demonstrated deficiencies with the Initiative.

OIG Response 2: We agree that the report reinforces a need to communicate aspects of the initiative in better ways, but do not agree that the weaknesses stem from misunderstandings. The report identifies that the initiative needs to pursue efforts to determine the benefits and value of the initiative. We acknowledge the agency's efforts to be responsive to stakeholders and the outputs the agency describes, including stakeholder interest and anecdotal information on projected cost savings associated with the initiative.

We elaborate below along the following themes:

- The OIG Report Does Not Fully Capture the Purpose of the RE-Powering America's Land Initiative
- The OIG's Limited Outreach to Stakeholders Distorts the Perception and Recognition of the RE-Powering Initiative
- OSWER has Management Controls in Place to Track Progress Towards Accomplishing RE-Powering's Goals and Objectives
- OSWER Acknowledges the Need to Complete Its Evaluation Efforts and to Better Communicate Impacts
- OSWER has Controls in Place to Ensure Protectiveness

Discussion of Issues Raised in Draft Report

The OIG Report Does Not Fully Capture the Purpose of the RE-Powering America's Land Initiative

The RE-Powering America's Land Initiative is a non-regulatory effort to facilitate the cleanup of contaminated lands by integrating reuse planning, specifically renewable energy development, into federal, state, local, tribal and voluntary cleanups. The Initiative does not site projects. Siting and decisions about reuse are pursued by site owners, renewable energy developers and other such entities. Nor is the Initiative a grant program that provides funding to assess, cleanup or develop sites. The Initiative, consistent with OSWER's brownfields and other land cleanup programs, seeks to incentivize the assessment, cleanup and sustainable reuse of contaminated lands, landfills and mine sites by creating awareness of renewable energy as a land reuse opportunity, by demonstrating its potential, and assisting in implementation. The OIG Report

focuses on the communication aspects of the Initiative (“the promotion, education and outreach of siting renewable energy on contaminated lands”) and understates the connections the Initiative has to Agency remediation and reuse programs.

OIG Response 3: One of the objectives of the evaluation included the EPA’s promotion efforts of siting renewable energy, and, as such, our report focuses more on promotion, education and outreach efforts. We do, however, mention other aspects of the initiative throughout our report, including, among other things, initiative efforts as stated on the initiative’s website, how the initiative relies on partnerships to complete and report on renewable energy on contaminated lands, and that the initiative works with other agency remediation and reuse programs.

The OIG’s Limited Outreach to Stakeholders Distorts the Perception and Recognition of the RE-Powering Initiative

The OIG reports “mixed feedback” from stakeholders about their familiarity and usage of the Initiative’s website and tools based on interviews with seven external customers. The OIG reports that three of the seven were familiar with Initiative tools and provided positive feedback, but the other four were unaware of or did not use the tools. The small sample of anonymous stakeholders and the characterization of such feedback as “mixed” distorts what the Office has experienced as very positive and encouraging feedback from its stakeholders. The sentence within the Conclusions section on page nine would be accurate if written as “Further, four of seven external parties surveyed that are involved in siting renewable energy on contaminated lands ...” OSWER references the following examples:

- Recognition by Harvard University as a top 25 Innovation in American Government (5/2013);
- Testimonials from site developers and communities:
 - “EPA Region 3’s support letter and general advocacy for the project were instrumental in providing comfort to all financing parties involved” (Owner/Developer of Dupont Solar Farm as reported in RE-Powering Newsletter 3/2014)
 - “Then, the idea of exploring the use of the landfill emerged when city officials were at a federal environmental Protection Agency brownfields conference earlier this year.” (Article describing Sandford, ME solar project efforts (Journal Tribune 7/2013))
 - “The Avalon Solar project was born out of an Environmental Protection Agency (EPA) program established with the objective of siting renewable energy projects on disturbed lands, including mine sites.” (Pima Mine Road Fact Sheet, Avalon Solar 2014)
 - “Early on, we had a conference call with the EPA to understand their process... The fact that EPA was enthusiastic and confident the project could be built was a huge X factor.” (Maywood Solar Farm developer relating interaction with EPA Regional office in Solar Industry Magazine, May 1, 2014).
 - “We have discussed the RE-Powering Initiative with EPA since its proposal, and are very supportive of the pragmatic way EPA has proceeded with this program.

The Agency’s approach, relying on partnerships and easily accessible development tools, successfully builds support for these projects while providing the flexibility needed because the projects are highly dependent on energy markets, state incentive programs, community acceptance and the logistics of providing power to the grid, an individual customer or a fuel pipeline.” (Excerpt from Waste Management Inc.’s comments on the draft Action Plan 2.0 (May 2014))

OIG Response 4: As discussed in the report, we interviewed seven external stakeholders. Under the Paperwork Reduction Act, to obtain perspectives from 10 or more persons, an Office of Management and Budget-approved information collection request is required. The views of stakeholders are not material to this review and, therefore, the OIG did not invest in preparing an information collection request. We believe the seven stakeholders we interviewed provided valid feedback.

OSWER has Management Controls in Place to Track Progress Towards Accomplishing RE-Powering’s Goals and Objectives.

The OIG Draft Report faults the Initiative for not having “implemented a control to systematically track how the Initiative is accomplishing its goals, objectives and actions as outlined in its Management Plan, or the outcomes generated by accomplishing its goals.” The OIG notes in the draft report that control activities include policies, procedures, and mechanisms to help ensure that Agency objectives are met, and OMB Circular A-123 states there is a “range of tools at the disposal of agency managers to achieve desired program results.”⁶ OMB Circular A-123 also discusses how programs should put in place “systematic and proactive measures to develop and implement appropriate, cost-effective internal control for results-oriented management.”

OSWER does have controls in place to track how the Initiative is accomplishing its goals, objectives, and actions. Management has put in place processes and procedures to check progress against established milestones including weekly updates, bi-weekly or monthly meetings, regular review and reporting of financials associated with the Initiative, and employee accountability through performance standards. We believe that such management review and the procedures and processes in place provide systematic and proactive measures to achieve the objectives of effective operations and are consistent with OMB Circular A-123.

OIG Response 5: We have revised our report to include details on examples of processes and procedures the agency has identified that were put in place to check progress against established milestones. Although the agency has provided examples of processes and procedures it uses to check progress, the agency has not addressed how these various processes and procedures systematically track how the initiative is accomplishing its goals and objectives as outlined in its Management Plan, or the outcomes generated by accomplishing its goals.

⁶ OMB Circular A-123 – Management’s Responsibility for Internal Control (https://www.whitehouse.gov/omb/circulars_a123_rev/)

As the OIG has recognized in the draft report, we were able to articulate the status of the Initiative's efforts, the accounting of funds spent and able to provide information on the actions completed from the 2010 Management Plan. We believe that funds were both responsibly and efficaciously spent to develop outputs for the Initiative and are concerned that the report suggests otherwise. With less than 3 FTE and \$4 million dollars over the 6 years of the Initiative, the effort has produced a host of outputs and engaged and influenced a wide variety of stakeholders through presentations, conferences, webinars, stakeholder meetings and the development of the two Management / Action Plans.

OIG Response 6: Our report does not state that the agency is not “responsibly and efficaciously” spending funds to develop outputs for the initiative. Rather, our report identifies that work remains to be completed to communicate benefits and determine the outcomes of the program.

OSWER Acknowledges the Need to Complete Its Evaluation Efforts and to Better Communicate Impacts

From the start of our discussions with the OIG, Initiative staff acknowledged its continued interest but delay in pursuing more detailed measures and an evaluation of the Initiative. Evaluation has always been considered an important part of the Initiative and has been included in both the Initiative's Management and Action Plans. To date, stakeholder interaction has helped guide and provide feedback to the Initiative. The Initiative is following through with a more formal approach, having just recently published the first stage of these evaluation efforts – an evaluation scoping assessment. This assessment articulates a new logic model for the Initiative, poses questions of interest and explores methods and data that would be used to answer such questions. The Initiative plans to pursue in the coming year various analyses suggested by the scoping study.

Although more work is needed, we believe that the Initiative has developed and shared information associated with the impacts of siting renewable energy on contaminated lands, landfills and mine sites. The program maintains a tracking matrix of completed installations to track outcomes, demonstrating the viability of such redevelopment and providing stakeholders information on as many projects as possible. Such information is gathered from publicly available sources. While we seek to be as comprehensive as possible, the tracking matrix does not include every site with renewable energy on contaminated lands, since this is a voluntary program and people are not required to report the information to us. The omission of a few sites, though, does not detract from the matrix's value. The Initiative believes that the tracking matrix reflects most as well as the variety of RE-Powering projects pursued and therefore, requests that the report change “not representative” on page 5 to “not comprehensive.”

OIG Response 7: Our report acknowledges that the agency has developed and shared information associated with the impacts of siting renewable energy, such as through the tracking matrix, and agree that more work is needed. Changes to the report were made as appropriate.

We also believe that the matrix in conjunction with the newsletter and other RE-Powering communications materials provide stakeholders information on the impacts of these programs and some insight on EPA's involvement and indicate millions of dollars in cost savings, revenue from property taxes, and creation of construction jobs. For example, as previously shared with the OIG, those sites where EPA oversaw the cleanup (i.e., Superfund sites, RCRA Corrective Action sites) benefitted from EPA involvement (32 sites as submitted to the OIG last August). Recent efforts have collected the reporting of economic information. We agree with the OIG (page 5) that these materials do not represent the complete efforts of the Initiative, and OSWER recognizes there is an opportunity to more expansively communicate impacts associated with RE-Powering projects.

OIG Response 8: In response to our request for a list of completed renewable energy projects on contaminated or potentially contaminated sites nationwide where EPA has had or will have a direct role, the agency provided us with a list of 32 sites. The list of 32 sites provided were, according to initiative staff, sites where EPA oversaw the cleanup (i.e., Superfund sites, Resource Conservation and Recovery Act Corrective Action sites) and the renewable energy installations benefitted from EPA involvement. The information provided to us did not include details on how the renewable energy installations on these sites benefitted from EPA involvement. Therefore, we could not report on how renewable energy installations at these sites benefitted from EPA involvement.

OSWER Has Controls in Place to Ensure Protectiveness

As far as protectiveness is concerned, there is no issue regarding protectiveness. Since it is not found to be lacking, there is and should be limited commentary that the Initiative itself would provide on protectiveness. OSWER, more broadly, and the waste management programs it oversees work extensively on these protectiveness issues and the Initiative is willing to work with such programs to communicate and reference the ways the Agency and its state and tribal partners ensure protectiveness on contaminated properties. Consistent with the OIG recommendation, we will supplement the Initiative's website accordingly.

Response to Report Recommendations

No.	Recommendation	Agree or Disagree	Explanation / Response	Proposed Alternative	Action	Estimated Completion Date
1	Determine whether benefits from its investment of program resources in renewable energy promotion, education and outreach efforts outlined in the Management Plan demonstrate the value of RE-Powering America's Land Initiative. If benefits cannot be demonstrated for the Initiative, the EPA should modify or terminate the program.	Disagree	The Initiative has a history of regular engagement of its stakeholders and "listening sessions" to guide and adjust its agenda. The development of its Action Plan defines such goals, objectives and activities and makes them transparent to the public. Such efforts will continue.	Enhance articulation and quantification of benefits, as feasible, to improve public communication on benefits realized at sites	Publicly share information on economic or environmental benefits realized at sites	Q2 FY16
2	If the EPA chooses to continue with the Initiative in its current or modified form, establish management controls to measure progress and publically report how the EPA is accomplishing its goals, objectives and actions for its renewable energy promotion, education, and outreach efforts, as outlined in the EPA's current and future versions of the RE-Powering America's Land Initiative Management Plan.	Disagree	Management controls are in place. The discussion with the OIG has focused on format rather than the presence and effectiveness of such controls.	Periodically report to the public the progress associated with how the Initiative is accomplishing its goals, objectives, and actions as outlined in EPA's current and future versions of the Initiative's Management / Action Plan.	Establish accomplishments section of website providing on-going updates.	Q1 FY16
3	If the EPA chooses to continue with the initiative in its current or modified form, use available data from sites that have had renewable energy development and that are under EPA oversight to track and publicly report on economic or environmental benefits realized at sites.	Agree			Publicly share information on economic or environmental benefits realized at sites	Q2 FY16
4	If the EPA chooses to continue with the initiative in its current or modified form, include on the RE-Powering America's Land Initiative website a section covering human health and the environmental protection as they relate siting renewable energy on potentially contaminated lands, landfills and mine (Additional detail follows in recommendation)	Agree	The OIG didn't find an issue with site protectiveness. The decisions on protectiveness are made by the applicable programs at a site specific level. To ensure that consistent information is provided, the RE-Powering web site will link to the applicable program web sites.		Include within revised Initiative website, section that references human health and the environment as they relate to siting renewable energy on potentially contaminated lands, landfills and mine sites.	Q1 FY16

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