Project Execution Plan

Project Number: xxx

INL Wind Farm Project

The INL is a U.S. Department of Energy National Laboratory operated by Battelle Energy Alliance.
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INL Wind Farm Project

INL/EXT-10-xxxx
Revision 0
December xx, 2010

Approved by

Gary Seifert
Project Manager

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[Title]

[Program Sponsor]
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[Additional Approver #2]
[Title]
## Applicability
- Project Execution Plan
- eCR Number:

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## REVISION LOG

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ABSTRACT

The Idaho National Laboratory (INL) proposes to build a 20 MW (maximum) wind farm (8 to 12 turbines) on INL property. INL site locations were assessed since 2008 and only one suitable site with greater than 13.5 mph at 50 meters above ground level annual average wind speed was located. This site is north, north east of the Middle Butte and north of highway 26. This is not a wind farm that the INL or the Department of Energy (DOE) would own, but would solicit private investors to build and operate the wind farm, while supplying power to the INL. It is proposed to issue a request for information (RFI) for potential investors and then to issue a request for proposal (RFP) to find those who wish to build the wind farm. It is proposed to issue the RFI in 2010 and the RFP in 2011.

This Project Execution Plan (PEP) is provided as the plan for managing the INL Wind Farm project and is the primary agreement between the project managers, the project team, the Department of Energy. The Idaho National Laboratory (INL) will leverage the previous knowledge and lessons learned the installation of wind farms across the nation. The project is expected be a multi-year effort and involve partnerships with Universities, industry, INL, and DOE.

The Project Execution Plan (PEP) is a “living document.” This means that the PEP will be used and updated periodically throughout the life of the project. The PEP represents the culmination of project planning, and reflects the technical, cost, and schedule performance baseline for the project.
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ACRONYMS

BEA    Battelle Energy Alliance
CFA    Central Facilities Area
DOE-ID Department of Energy – Idaho Operations Office
EA     Environmental Assessment
EC     Environmental Checklist
EERE   Energy Efficiency and Renewable Energy
EIS    Environmental Impact Statement
GPCE   General Purpose Capital Equipment
GPP    General Plant Project
IFM    INL Facility Management
INL    Idaho National Laboratory
LICP   Line Item Construction Project
LWP    Laboratory Wide Procedure
MFC    Materials and Fuels Complex
MW     megawatt
NEPA   National Environmental Policy Act
NREL   National Renewable Energy Laboratory
PMO    Project Management Office
PREPS  Proposal Risk Evaluation and Preparation System
RCG    Reduced-cost Green Credits
Idaho National Laboratory

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RFI  Request for Information
RFP  Request for Proposal
ROI  Return on Investment
RPM  revolutions per minute
SOW  Statement of Work
TEAM Transformational Energy Action Management
UAV  Unmanned Aerial Vehicle
WBS  Work Breakdown Structure
1. OVERVIEW

1.1 Introduction

The Idaho National Laboratory (INL) proposes to build a 20 MW (maximum) wind farm (8 to 12 turbines) on INL property. INL site locations were assessed since 2008 and only one suitable site with greater than 13.5 mph at 50 meters above ground level annual average wind speed was located. This site is north, north east of the Middle Butte and north of highway 26.

This is not a wind farm that the INL or the Department of Energy (DOE) would own, but would solicit private investors to build and operate the wind farm, while supplying power to the INL. It is proposed to issue a request for information (RFI) for potential investors and then to issue a request for proposal (RFP) to find those who wish to build the wind farm. It is proposed to issue the RFI in 2010 and the RFP in 2011.

1.2 Background

On August 6, 2007, then Energy Secretary Bodman stated, "My specific requirements for the TEAM [Transformational Energy Action Management] Initiative are as follows ... Maximize installation of secure, on-site renewable energy projects at all DOE sites." Subsequently, the Office of Energy Efficiency and Renewable Energy (EERE) tasked all DOE laboratories to assess their resources and identify potential renewable energy opportunities at their respective sites. The National Renewable Energy Laboratory (NREL) performed the preliminary screening, and the INL was on the short list of DOE sites with renewable energy assets. The most obvious alternative energy system at the INL is wind power because of the strong prevailing winds. James Wade of the DOE Idaho Operations Office (-ID) was asked to support this project, and Gary Seifert was assigned the technical management aspects.

DOE is striving to meet the energy goals defined for Federal agencies in the Energy Policy Act (EPAct) of 2005. This Act reestablishes a number of Federal agency goals and contains relevant, amended portions of the National Energy Conservation Policy Act (NECPA).

Given this particular task, EPAct 2005 stipulates relevant requirements encompassing renewable energy usage. The specific section includes:

- Section 203 of the EPAct 2005 requires that the total amount of electric energy the Federal government consumes during any fiscal year, the following amounts shall be renewable energy:
  1. Not less than 2.5 percent in fiscal year 2006,
  2. Not less than 3 percent in fiscal years 2007 through 2009,
  3. Not less than 5 percent in fiscal years 2010 through 2012, and
  4. Not less than 7.5 percent in fiscal year 2013 and each fiscal year thereafter.

- For purposes of determining compliance the amount of renewable energy shall be doubled if:
  1. The renewable energy is produced and used on-site at a Federal facility;
  2. The renewable energy is produced on Federal lands and is used at a Federal facility; or
  3. The renewable energy is produced on Indian land and used at a Federal facility.
In addition to EPAct 2005, Executive Order 13423 Section 2 Goals for Agencies established a renewable energy goal, under subparagraph (b) that agencies shall:

“ensure that (i) at least half of the statutorily required renewable energy consumed by the agency in a fiscal year comes from new renewable sources, and (ii) to the extent feasible, the agency implements renewable energy generation projects on agency property for agency use;”

Other impetus for this project stems from”

- Then Energy Secretary Samuel Bodman’s challenge to “maximize installation of secure on-site renewable energy projects at all DOE sites.”
- The assessed the Complex resources and identified the INL with wind assets.
- To help the DOE meet its EPAct 2005 and Executive Order #13423 goals.
- The project shows the DOE and INL commitment to aid in meeting Washington’s 20% wind power by 2020 mandate. The project also allows the INL to reduce its power consumption costs. The project could be installed in late 2011 and generate power by 2012.

The INL Transformational Energy Action Management (TEAM) leadership shall lead the outcome of the project with help from Gary Seifert, the INL/Battelle Energy Alliance (BEA) Wind Powering America manager and the oversight of James Wade of the DOE Idaho Operations Office (DOE-ID).

1.3 History

Energy consumption information from the Energy Information Agency indicates that DOE consumed 21 trillion BTU’s\(^1\) (5,197 GWh) in 2006. Estimates for DOE electrical energy to be consumed in key EPAct 2005 are shown below in Table 1. These estimates are provided to frame the parameters of potential project size. Also shown are the estimated GWhs of renewable energy that will be required to meet the periodic goals. Shown in the three columns to the far right are estimates of the installed wind capacity at three different assumed capacity factors that would be required to meet DOE’s renewable energy goals entirely with wind generation. It is expected that other renewable energy technologies at DOE facilities will contribute to meeting the goal depending upon resource availability, technology cost and available incentives.

2 Table 1.13 U.S. Government Energy Consumption by Agency and Source, Fiscal Years 1996 and 2006.
With the double credit that will be given for renewable energy produced on the agency sites or on Federal lands and used at a Federal facility; or for renewable energy produced on Native American lands, the required capacity of wind to meet EPAct 2005 goals is essentially halved, as shown in Table 2.

Table 2 Wind Capacity Required with Double Credit to meet DOE's EPAct 2005 Renewable Energy Goals

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<th>Required percentage RE</th>
<th>Estimated DOE electricity consumption</th>
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<th>Capacity Factor</th>
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1.4 Mission Need

All government laboratories and agencies are mandated by Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, to reduce their carbon footprint and to explore deploying alternate energy power generating solutions. As such, the Idaho National Laboratory (INL) needs to take an active role in the Western Renewable Energy Zone program and show leadership in achieving more energy independence for the country. Additionally, having a 20+ MW power plant on-site to complement INL test beds gives INL researchers another valuable resource for solving smart grid and integration issues.

This installation will show that the Department of Energy (DOE)/INL practices pollution prevention, uses renewable energy, reduces greenhouse gases, and also provides a test bed for researchers to solve energy and grid systems problems/issues.
1.5 Project Description

The INL wind farm project proposes to install a 20 MW to 40 MW wind farm on government property, consisting of approximately ten to twenty full-sized (80-meter hub height) towers with 2 MW turbines, and access roads. This includes identifying the optimal turbine locations, building access roads, and pouring the tower foundations in preparation for turbine installation.

The project successfully identified a location on INL lands with commercially viable wind resources (i.e., greater than 13.5 mph at 50 meters above ground level annual average wind speed) for a 20 to 40 MW wind farm. Additionally, the proposed wind farm was evaluated against other General Plant Projects, General Purpose Capital Equipment projects, and Line Item Construction Projects at the INL to show the relative importance of the proposed wind farm project.

2. SCOPE, SCHEDULE and COST (PERFORMANCE MEASUREMENT BASELINE)

2.1 Scope

2.1.1 Work Scope

Based on the results of preliminary testing and analysis, the INL wind farm project proposes to install a 20 MW to 40 MW wind farm on government property, consisting of approximately ten to twenty full-sized (80-meter hub height) towers with 2 MW turbines, and access roads. This includes identifying the optimal turbine locations, building access roads, and pouring the tower foundations in preparation for turbine installation. Third party financing, operations, and maintenance have been identified as the only viable alternative for placing the wind farm on INL lands. As such, the actual turbines would be built, owned, and operated by a private third-party under separate contract. The number and size of the turbines may change based on availability; typical turbine sizes range from 1.5 to 2.5 MW. The final layout will be determined by the sizes of turbines purchased for the project.

Once the turbines are in place, an INL transmission line will distribute the generated power. A nearby transmission line currently connects the Central Facilities Area (CFA) and the Materials and Fuels Complex (MFC). A short transmission line (a few hundred yards) will be required from the edge of the wind farm to the existing transmission line where it will route to MFC using the same or new poles and easement.

Due to the complexity and costs for a private third-party to build and operate a wind farm on government lands, the INL wind farm project proposes will:

1. Obtain permission from DOE and the Battelle Energy Alliance (BEA) Land Use Committee to pursue the project. This includes meeting with both committees to present the merits of the project and ascertain if the project meets the scope and mission of DOE and BEA. Permission from both committees is required to proceed with the project.
2. Obtain all permits, licenses, or approvals to construct the wind farm and install the transmission line on INL lands. Part of the approval will be given from the DOE and BEA land use committees. The next major review will be with the DOE NEPA Board that will review the project and determine what, if any, subsequent assessments will be required: specifically, an environmental assessment (EA) or an environmental impact statement (EIS). This review will define all of the required permits and documents for the project. Because of the complexity of citing a 20 MW wind farm on the DOE lands and relatively small size, no commercial entity would assume the financial risk to obtain all of the permits, licenses, or approvals to construct the wind farm and install the transmission system. Therefore, the INL project team intends to prepare the environmental permits and governmental authorizations for a commercial wind farm to be constructed on DOE lands to foster competitive pricing for the power system and minimal impact.

3. Purchase hardware and install the transmission line on INL land (optional).

4. Issue the Request for Proposal (RFP) and allow the third-party builder and operator to build and operate the wind farm. This includes issuing a preliminary Request for Information (RFI) to gather industry input prior to preparing the final RFP to build and operate the INL wind farm. After industry comments have been addressed and reviewed by INL and DOE-Headquarters, a procurement strategy will be prepared. A RFP will then be issued and a contract awarded to a contractor.

5. Obtain the wind farm-specific permits. This includes the typical and customary due-diligence permits and documents required of a wind farm developer. A partial list would include soil analysis tests, avian studies, Federal Aviation Administration reviews, general construction approval, Idaho Fish and Game reviews, INL mission review, interconnect studies, and power purchase agreements.

6. Make the electrical interconnection to the MFC substation. This includes designing the interconnection, purchasing the supplies, and installing the transmission line from the edge of the wind farm and into the MFC substation. The final connection will be made when the wind farm is energized. During final siting, alternate electrical connections will be evaluated.

7. Build and operate the INL wind farm. This entails building and operating the wind farm. With preliminary permitting and infrastructure items in place, the overall financial risk is greatly reduced and this project becomes very attractive for a private third-party to fund, construct, and operate a wind farm on government lands. Contractual agreements will be determined as the project is permitted and matures.

   o Commence operations

2.1.2 Technical Baseline

   To develop a commercially viable wind farm, several industry-based and INL-imposed requirements must be met. At a minimum, the INL wind site must meet the following:

   • Commercially viable wind resources greater than 13.5 mph at 50 meters above ground level annual average wind speed (Class 3)
   • Adequate developable land for a wind farm
Close (within five miles) to a substation

Permitable through National Environmental Policy Act (NEPA), cultural/biological, Fish and Wildlife, and a variety of other stakeholder reviews

Limited impact on other INL missions or programs

Use as much as possible, existing roads and trails.

Failure to meet any of these requirements imposes significant negative impacts to the viability of the project.

### Preparatory or Due Diligence Efforts

The following preparatory or due diligence efforts have already been completed:

- On February 8, 2008, the initial wind resource assessment project, *Feasibility Study to Develop INL High Wind Sites for Potential Installation of a Full Scale Wing Turbine/Towers*, began by putting the project into the PREPS system.

- On March 6, 2008, the project team submitted an INL Form 451.01, *Environmental Checklist*, so the project could conduct a feasibility study to assess the wind resources on the INL lands.

- On February 4, 2009, the INL wind farm project was submitted for approval through the PREPS process.

- On February 12, 2009, the INL wind farm project submitted an INL Form 451.01, *Environmental Checklist* for the wind project.

- On April 21, 2009, a morning walk-down at the wind farm site will be conducted with INL and Native American teams to determine what, if any, “view-shed” issues exist. Concurrent with this walk-down, a subsequent assessment will be conducted to assess the endangered species issues of the locations.

- On April 21, 2009, a meeting held with the INL/BEA Land Use Board to discussed project related issues. They made suggestions and this document reflects their input.

- On April 27, 2009, the DOE NEPA Board and DOE Land Use Board meeting was held to review the project. They had some concerns, many questions answered, but they requested that they receive a letter from John Grossenbacher that the INL wind farm project had his blessing.

- In May, an independent walk-around by Stoller Environmental and INL’s archaeology team provided high-level reviews of the biological and cultural issues relating to three areas near the middle butte where the wind resources are located.
2.2 Schedule

The project tasks and milestones are shown in Figure 1.

![schedule diagram](image)

Figure 1. Tasks and Milestones for FY 2009 through 2020

2.3 Project Costs

The INL costs shall be related to the cost of submitting and reviewing the RFI and RFP documents, reviewing construction documents and related documents. The INL shall have no capital equipment costs.

An estimated cost for the wind farm development and installation will be approximately $45 million, but this will be put up by the developer. No capital funds are required of the INL for this project.

3. Approach and Strategy

The approach of this project is to submit to the wind industry for wind farm developers interested in applying for this contract, and to approve one of the interested parties to be the developer. The developer shall raise the capital to put in the wind farm and to operate and manage the project under contract with the INL. The INL shall receive a royalty check or payment per the agreement of the contract for the power generated. The INL shall have little oversight of the project or the operation.
4. PROJECT ORGANIZATION AND INTERFACES

The DOE-ID project support is James Wade. Once accepted, the project and ultimate responsibility for scope, cost, and schedule is the line management of BEA. Dr. Bill Rogers is the Division Director for this project. The INL wind project activities are conducted within the Alternative Energy Systems Department, under the Science and Engineering Directorate at the INL. This department is managed by Mr. Richard Hess. Line management has the ultimate responsibility of daily activities at the INL, including the oversight of the INL wind Project work activities. Mr. Gary Seifert is the Project Manager assigned to the INL wind Project and Mr. XXX is the Principal Investigator.

The principal interface for all funding documentation between the DOE and BEA process. This interface can also be utilized to direct any major changes to the project, such as a complete work stoppage. The scope of work or changes to the scope of work will also be directed to the INL through a formal statement of work document. The INL Project Manager will be the principal interface with DOE and BEA Project Office and DOE-ID for the duration of the project.

The INL Project Manager will manage the project and will have access to INL physical and personnel resources to complete the project tasks. The INL Principal Investigator will provide the technical management and lead the technical team in the accomplishment of the INL wind farm work. Generally, all documentation and communication involving the cost, scope, and schedule of this project shall be directed and/or approved by the INL Project Manager with INL line management concurrence, and Idaho DOE office.

4.1 Project Interfaces: External and Internal

The project interfaces are shown in the following graphic.

4.2 Integrated Project Team

Staff of the INL TEAM and the Wind Powering America shall work together with other INL stakeholders to ensure the INL and the wind farm developer communicates and interfaces with each other.
4.3 Major Support Contracts and Staffing

Due to the complexity and costs for a private third-party to build and operate a wind farm on government lands, the INL wind farm project proposes will:

1. Obtain permission from DOE and the Battelle Energy Alliance (BEA) Land Use Committee to pursue the project. This includes meeting with both committees to present the merits of the project and ascertain if the project meets the scope and mission of DOE and BEA. Permission from both committees is required to proceed with the project.

2. Obtain all permits, licenses, or approvals to construct the wind farm and install the transmission line on INL lands. Part of the approval will be given from the DOE and BEA land use committees. The next major review will be with the DOE NEPA Board that will review the project and determine what, if any, subsequent assessments will be required: specifically, an environmental assessment (EA) or an environmental impact statement (EIS). This review will define all of the required permits and documents for the project. Because of the complexity of citing a 20 MW wind farm on the DOE lands and relatively small size, no commercial entity would assume the financial risk to obtain all of the permits, licenses, or approvals to construct the wind farm and install the transmission system. Therefore, the INL project team intends to prepare the environmental permits and governmental authorizations for a commercial wind farm to be constructed on DOE lands to foster competitive pricing for the power system and minimal impact.

3. Purchase hardware and install the transmission line on INL land (optional).

4. Issue the Request for Proposal (RFP) and allow the third-party builder and operator to build and operate the wind farm. This includes issuing a preliminary Request for Information (RFI) to gather industry input prior to preparing the final RFP to build and operate the INL wind farm. After industry comments have been addressed and reviewed by INL and DOE-Headquarters, a procurement strategy will be prepared. A RFP will then be issued and a contract awarded to a contractor.

5. Obtain the wind farm-specific permits. This includes the typical and customary due-diligence permits and documents required of a wind farm developer. A partial list would include soil analysis tests, avian studies, Federal Aviation Administration reviews, general construction approval, Idaho Fish and Game reviews, INL mission review, interconnect studies, and power purchase agreements.

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7. Build and operate the INL wind farm. This entails building and operating the wind farm.

With preliminary permitting and infrastructure items in place, the overall financial risk is greatly reduced and this project becomes very attractive for a private third-party to fund, construct, and operate a wind farm on government lands. Contractual agreements will be determined as the project is permitted and matures.
4.4 Personnel Training and Qualification

None Required

5. COMMUNICATIONS AND INFORMATION MANAGEMENT

6. PROJECT CONTROL AND REPORTING

6.1 Project Authorization

The INL Wind project will be managed in accordance with the project management practices and principles as defined in PLN-7305, Project Management System Document and PLN-7315, Earned Value Management Systems Description. Project Controls will be managed in accordance with: LWP-7330, Baseline Development and Management; LWP-7340, Estimating Project Costs; LWP-7430, Variance Analysis. The Project Manager is responsible for its implementation. Work package cost estimates to support baseline development will be done using Form xxx.xx, Project status measurements will consist of monthly schedule and budgetary progress measurements and performance evaluations as necessary.

The project WBS is the primary tool for organizing and managing work at the INL. The WBS is a hierarchical diagram tree, which is primarily product-oriented that organizes, defines, and graphically displays the work tasks necessary to accomplish the project objectives. The WBS for the overall INL wind project development program is shown in Section 2.3.

6.2 Activity Work Authorization

The work authorization for building the INL Wind Farm is a circuitous effort. There are many permits and documents that must be obtained for the construction of the INL Wind Farm. The authorization effort shall be divided into two parts.

- INL tasks
  - Obtain permission for the contractor to connect to the existing INL transmission lines
  - Conduct and remediate all issues relating to the obtaining of all INL permit documents: Environmental Check Sheet, Biological reviews, archeological/historical/cultural reviews, Federal Aviation Administration reviews

- Developer tasks
  - Obtain county building permit
  - Obtain state grid permit

6.3 Performance Baseline Measurement

Reporting for the CMMAD Project will conform to LWP-7410, Reporting. To ensure the project stays on track in meeting the needs of the DOD CM and EOD Project Office, the following reporting measures will be taken:
1. Monthly written progress reports
2. Review meetings between INL project staff and DOD project staff

For each review meeting, in which DOD personnel participate, meeting minutes will be prepared and distributed to all participating organizations. The minutes shall include the following:

1. Purpose of the meeting
2. List of attendees
3. A brief summary of the proceedings
4. Document agreements reached
5. Identify action items assigned

The monthly written reports are to provide a snapshot of the project status. These reports will include the following categories:

1. Major events summary
2. Funding status showing budgeted costs versus actual costs
3. Schedule
4. Critical issues or concerns

### 6.4 Change Management

All changes to scope, cost, or schedule shall be done in accordance with LWP-7400. *Baseline Change Control* is critical to ensuring that the intended product is delivered on time and within the established budget.

Any change to the scope of work, schedule, or cost estimate included in the PEP/SOW will be reviewed and approved by the Project Manager (PM) before the change is submitted for processing through the change control process. The PM will also agree as to whether the change is an internal or external change. Internal changes are changes that are internal to the INL processes, which do not affect the SOW. Internal changes can include shifting of scope or budget between work packages or changes in supplier subcontracts as long as the overall budget and project scope are not changed. External changes include changes in scope as directed by the developer or requested changes to the SOW by the INL project team. A flow diagram is shown in Figure 5.1 and a summary of the change process is described below.

![Change Control Process Flow Diagram](image)

*Figure 5-1. Change Control Process Flow Diagram*
1. Changes are identified either by INL or by the Customer and are documented in written communication between the INL and the Customer.
2. Cost and schedule impacts are estimated using the INL estimating form. (INL WP Manager)
3. A Baseline Change Proposal is prepared on Form 415.14. (PCR)
4. The PWAD and the CAP documents are redlined with the proposed changes. (PCR / WP Manager).
5. Proposed changes are reviewed by the Project Manager and a determination of internal or external change classification is made. The INL Funds Manager is also advised. (PM)
6. The baseline documents, P3, COBRA, and the Integrated Planning System are updated. (PCR)
7. Internal changes are approved by the PM and step 8. is completed.

The directed changes and the revised scope will be filed with the SOW documents in the project files. At the next scheduled update for the PEP, approved change impacts will be incorporated into the PEP.

Schedule progress on this project will be monitored weekly. Actual cost data will be recorded and collected in accordance with the INL Business Decision Support Information System (BDSIS) and related procedures. Completion of milestones will be monitored by the INL Wind Farm Project Manager.

6.5 Reporting

Schedule progress on this project will be monitored weekly. Actual cost data will be recorded and collected in accordance with the INL Business Decision Support Information System (BDSIS) and related procedures. Completion of milestones will be monitored by the INL Wind Farm Project Manager.

7. RISK

7.1 Risk Management Approach and Process

The major risks to the project include:

- INL risk issues
  - Availability or use of the existing INL transmission lines
  - Extent of siting issues including: avian, endangered species, archeological/historical/cultural, noise, proximity to airports, radar, neighbors, etc.
- Developer risk issues
  - Identification of viable power purchaser to buy the wind power produced and the price range for such wholesale power
  - Determine the availability of capital and financing mechanisms for the developer
  - Determine the availability of suitable wind turbines and wind developers to move a project forward

Typically no developer has deep enough pocked to deal with the complexity of doing business on government lands, therefore the INL shall provide to the developer permission to connect to the INL transmission lines and provide permits to construct on the INL lands. The developer risks typically are minimized once they have a signed contract to install a wind farm.
The risk to the INL is minimal because the wind farm developer shall assume all of the operational risks of the wind farm.

A tailored approach will be used for risk management in accordance with LWP-7350, *Risk Management*.

The basic process for managing risks includes risk identification, risk assessment and analysis, risk response, risk impact determination, risk reporting, tracking and closure. These steps, as shown in Figure 6-1 will be used and the results documented in a Risk Matrix in Appendix D. of this PEP, rather than in a formal, separate Risk Management Plan. The Risks, qualitative risk levels, strategies/mitigations, impacts, and responsibilities are shown in the Risk Matrix.

![Risk Management Process Diagram](attachment:diagram.png)

Figure 6-1. Risk Management Process

## 8. SUPPLY CHAIN

### 8.1 Procurement of Services

Services procurements for INL Wind Farm shall be conducted under the INL Supply Chain Services and in accordance with established INL procedures. The wind community is very small and certain services or attributes will be available from only specific vendors. Some of the required services require specific existing expertise, product development, or products that are prerequisite to the service needed to support INL. In the event a single vendor is specified to provide specific services, sole source justification shall be required for those subcontracts.
9. ENVIRONMENTAL SAFETY & HEALTH (ES&H)

The INL Integrated Safety Management System Program Description Document (PDD-1004) will be used to derive the ES&H requirements for the project. Considering that the INL Wind Project is not unique at the INL, it has been deemed as a routine project for the personnel, facilities, and procedures to be utilized at the INL. Nonetheless, certain hazard analyses and controls will be required for this project and are discussed in the following sections. This is allowed under LWP-21220, Work Management.

9.1 Environmental

The INL will follow the requirements as defined in the Environmental Checklist for the Project No other environmental requirements will be imposed upon the project. Generated wastes will consist of normal office materials and standard shop and machining waste that is handled in accordance with company standard practices.

9.2 Ecological Study

At the request of the wind farm project, the S. M. Stoller Corporation conducted a preliminary review of ecological resources that may be impacted by the proposed wind farm. The following letter report identifies the presence of sage grouse and pygmy rabbits as the primary issues of concern and recommends further studies as the project moves forward, but offers no show stoppers.

9.3 Archeological Study

Archeologists at the INL conducted a study of the 160 meter-wide corridor currently identified as the prime location for the proposed wind farm. The following email correspondence identifies the likely archeological impact due to the high density of archeological materials in the proposed locations, offers mitigation methods, and identifies no show stoppers.

9.4 Safety and Health

The INL Integrated Safety Management System will be adhered to on the INL wind farm project. Work hazards will be identified and mitigated under the INL’s Laboratory Wide Procedure (LWP)-21220, Work Management. The INL Wind Farm Principal Investigator, Mr. Gary Seifert will be responsible for ensuring adherence to the company’s required Safety and Health requirements.

10. SAFEGUARDS AND SECURITY

A few of the proposed wind turbine towers shall be erected within sight of the INL Wireless Test Bed. The wind farm turbines are intended to operate remotely with minimal human interface or maintenance. It is proposed that when the wind farm operators require visiting or servicing these towers, they should contact the Wireless Test Bed staff to ask if it is permissible to conduct maintenance on the towers. If the Wireless Test Bed is conducting tests, the wind farm operators may not be able to climb the towers until the Test Bed work is finished. This detail shall be developed more fully in the contract.
11. QUALITY AND PROJECT DATA

The INL’s company procedure LWP-13014, *Determining Quality Levels*, was followed to determine the quality requirements for the project. Quality Level Document (QLD) REC-000037 was filed under the company requirements and the quality level assigned for this project will be Level #X. This was due to the following determinations:

- The project activity is associated with a system, structure, or component with a safety category of consumer grade
- The project activity does governing codes, standards, and regulations that require an INL independent inspection, test, or non-destructive examination
- The lessons learned previously from similar projects for other wind customers will help to improve the quality of the work being performed for this project.

11.1 CORPORATE AND LEGAL SENSITIVITIES

These sensitivities shall be defined in the contract.

12. CONSTRUCTION/FIELDWORK

This is limited to a review of design of the interconnection to the grid and substation.

13. FACILITIES, UTILITIES, INFORMATION TECHNOLOGIES AND EQUIPMENT

The INL wind farms shall be connected to the INL electric power grid system. As such, the wind farm power plant shall be included with subsequent INL grid system test bed tests. This interface shall be detailed in the INL/wind farm developer contract.

14. FABRICATION AND TESTING

None Required

15. ACCEPTANCE, TURNOVER, AND CLOSE OUT

Formal demonstrations will be conducted in support of customer input and direction. A Final Report will be prepared to document the performance and to evaluate the successes and failures of the project. The project will be closed out after the acceptance of the Final Report by the customer.

16. PROJECT CLOSURE

The project closure would include the total reclamation of the land and the removal and disposal or recycling of the tower, turbine and blades. This reclamation shall mandated in the BEA/wind farm developer contract. INL company procedure PDD-11, “Records Management” will be followed for archiving records and data files.
17. REFERENCES AND APPENDICES

17.1 References

None

17.2 Appendices

Appendix A, INL Wind Farm Project Description Document
Appendix B, INL Wind Farm Value Engineering Report
Appendix X, Definitions
Appendix A

INL Wind Farm Project Description Document
Appendix B

INL Wind Farm Value Engineering Report
### Appendix C

#### Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>BEA</td>
<td>Battelle Energy Alliance</td>
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<tr>
<td>BTU</td>
<td>British Thermal Unit</td>
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