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IDAHO NATIONAL LABORATORY

Wind Farm Recommendation Report

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Idaho National Laboratory

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Wind Farm Recommendation Report

INL Land Use Committee

May 2011

Idaho National Laboratory
Idaho Falls, Idaho 83415

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EXECUTIVE SUMMARY

On April 21, 2011, an Idaho National Laboratory (INL) Land Use Committee meeting was convened to develop a wind farm recommendation for the Executive Council and a list of proposed actions for proceeding with the recommendation.

In terms of land use, the INL Land Use Committee unanimously agrees that Site 6 is the preferred location of the alternatives presented for an INL wind farm. However, further studies and resolution to questions raised (stated in this report) by the INL Land Use Committee are needed for the preferred location. Studies include, but are not limited to, wind viability (6 months), bats (2 years), and the visual impact of the wind farm. In addition, cultural resource surveys and consultation (1 month) and the National Environmental Policy Act process (9 to 12 months) need to be completed.

Furthermore, there is no documented evidence of developers expressing interest in constructing a small wind farm on INL, nor a specific list of expectations or concessions for which a developer might expect INL to cover the cost. To date, INL assumes the National Environmental Policy Act activities will be paid for by the Department of Energy and INL (the environmental assessment has only received partial funding). However, other concessions also may be expected by developers such as roads, fencing, power line installation, tie-ins to substations, annual maintenance, snow removal, access control, down-time, and remediation. These types of concessions have not been documented, as a request, from a developer and INL has not identified the short and long-term cost liabilities for such concessions should a developer expect INL to cover these costs.

INL has not identified a go-no-go funding level or the priority this Wind Farm Project might have with respect to other nuclear-related projects, should the wind farm remain an unfunded mandate. The Land Use Committee recommends Legal be consulted to determine what, if any, liabilities exist with the Wind Farm Project and INL's rights and responsibilities in regards to access to the wind farm once constructed.

An expression of interest is expected to go out soon to developers. However, with the potential of 2 years of study remaining for Site 6, the expectation of obtaining meaningful interest from developers should be questioned.

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1. INTRODUCTION

Per the request of senior management, an Idaho National Laboratory (INL) Land Use Committee meeting was convened on April 21, 2011, to develop a wind farm recommendation for the Executive Council and a list of proposed actions for proceeding with the recommendation. Meeting attendees are listed in Appendix A.

1.1 Overview

This document outlines the Land Use Committee recommendations, questions, and outstanding issues related to the Wind Farm Project. As part of the Land Use Committee meeting, a description of the Wind Farm Project, along with the background, history, regulatory drivers, site alternatives, timeline, and cultural and environment pre-screening activities was provided by Chris Ischay and Kurt Myers. Previous activities to assure mission compatibility also were described. From this information, committee members identified questions and outstanding issues to be resolved in order to move forward on the Wind Farm Project. These questions and issues were documented and included as part of this report.

2. WIND FARM RECOMMENDATION

The concept of building a wind farm onsite has been driven by regulatory requirements and Department of Energy (DOE) directives to maximize installation of secure, onsite renewable energy projects at all DOE sites. To meet regulatory requirements found in draft DOE Order 436.1 and generate 10% of INL's annual electricity and thermal consumption, approximately four wind turbines, each producing 2 MW, would be required onsite. For economic reasons and to interest a private developer in constructing a wind farm, the total wind farm nameplate capacity is anticipated to be as close to 20 MW as possible.

Evaluation and assessment of the wind farm concept, including wind studies, preparation of a project description document, commencement of the National Environmental Policy Act (NEPA) process, and other activities, have been ongoing for almost 3 years. Six alternative sites for the wind farm have been proposed (Figure 1). The original four sites have been found to be incompatible with INL missions or posed issues to cultural resources. Pros and cons of each of the sites are listed in Appendix B. As discussed below, the Land Use Committee has recommended a preferred site for the wind farm and also a list of outstanding issues or questions that must be addressed to proceed forward with the Wind Farm Project.

2.1 Preferred Location

The Land Use Committee unanimously agrees that Alternative 6 is the preferred location for the INL wind farm as shown in Figure 1. This preferred location is on the eastern border of the INL Site, just north of Highway 20 and can accommodate up to thirteen 2-MW wind turbines. However, the Land Use Committee also agrees that several outstanding issues and questions need to be addressed in order to proceed with the Wind Farm Project as described in the next section.

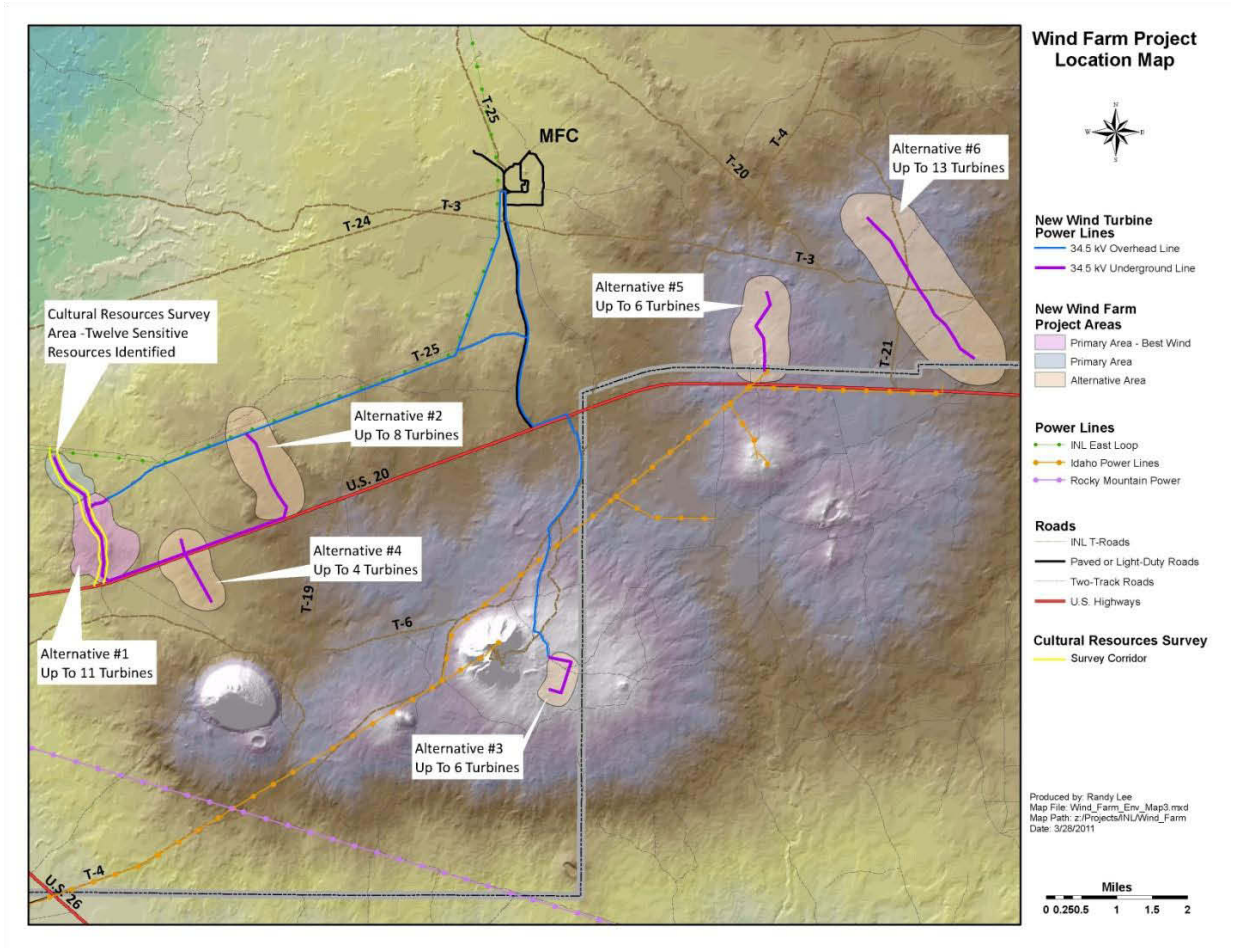

Figure 1. Proposed wind farm locations.

2.2 Outstanding Issues and Questions

During the course of the April 21st Land Use Committee meeting, in a two-hour timeframe, a number of outstanding issues and questions were identified, which must be resolved as part of proceeding with the Wind Farm Project. A brainstormed list of outstanding issues and questions is included in Appendix C.

For the preferred location, studies should include, but are not limited to, wind viability for that particular location (6 months), impact to bats (2 years), impact to pygmy rabbits, potential impact of the proposed sage grouse habitat guidelines, and the visual impact for that site, which must include tribal input. In addition, cultural surveys and consultation (1 month) and the NEPA process, including an environmental assessment (9 to 12 months), must be completed. Other environmental and cultural actions and issues also must be addressed. Location of the power lines must be identified in order to assess any environmental or cultural impacts. As part of the environmental assessment, utility corridor impacts on the wind farm (or vice versa), unexploded ordnance, and fencing around the wind farm also must be considered.

No documentation exists from developers expressing interest in constructing a small wind farm. The INL assumes that NEPA activities will be paid for by INL. Other concessions, yet to be identified, may be expected from INL by the private developer. Developers may expect INL to pay for these concessions and the concessions themselves may create additional liabilities for INL. In addition, INL must specify their requirements of the developers. These concessions and requirements must be identified and include, but are not limited to, the following:

- Fencing around the wind farm
- Easement/encroachment permits for roads and power lines
- Obtaining right-of-way from DOE/Bureau of Land Management for the wind farm (private entity responsibility)
- Will INL be willing to discuss with the State of Idaho, the use of their right-of-way along the highway if the Antelope Substation is used to tie into the grid
- Tie-ins to substations
- Snow removal
- Installation of power lines
- Responsibility for maintaining the roads and power lines (there could be numerous legal issues surrounding this [i.e., depending on the tie-in location, Power Management does not work on private entity electrical systems, road closures due to fire or missions, and access restrictions])
- Access control/access coordination requirements, along with wireless communications and data collection capability limitations
- Provisions for dismantling abandoned or non-operational turbines and reclaiming the wind farm area back to its natural habitat (this clause would need to be included in the contract).

In consideration of all the above, INL Legal perspective must be obtained to identify and address any potential liabilities between the wind farm developer and INL.

Finally, the remaining questions regarding the wind farm pertain to costs, funding, and other alternatives. These questions also should be addressed as part of proceeding with the Wind Farm Project:

- What is the "total" cost estimate to INL to complete this project? This should include concessions INL is willing to provide to a developer (e.g., power lines, roads, and fencing), delta in power prices, and should also include any annual maintenance (e.g., roads, fence lines, weed control, and snow removal) expected.
- Is the wind farm project currently funded? If not, how will the project be funded?
- What is the actual cost variance (cost per kw hour) for purchasing the green credits INL currently receives versus what INL would pay for the wind farm green credits?
- Doesn't INL currently pay Idaho Power a premium to ensure a certain level of power (approximately 50 MW) is always available? Will that premium go away with the wind farm? Or, is the wind farm cost in addition to the Idaho Power premium fee? In essence, won't the sitewide power liability cost actually increase on an annual basis, due to the wind farm, rather than decrease?
- What is the cost/benefit for INL and the taxpayer?
- Can other alternatives be considered for meeting the intent of the regulatory requirements? For example, can INL continue to buy renewable energy certificates? Can power be purchased from a wind farm development adjacent to INL's border? (A private entity is currently looking into building a large wind farm adjacent to INL's eastern border, just across the INL boundary from Site 6 being proposed).
- What is the liability to INL for interruptions of service (times when INL outages impact wind farm-generated power distribution)?

3. CONCLUSION

The INL Land Use Committee unanimously agrees that Alternative Site 6 is the preferred location of the alternatives presented for an INL wind farm. However, further studies and resolution to questions by the INL Land Use Committee (stated in this report) are needed for the preferred location. Studies include, and are not limited to, wind viability (6 months), bats (2 years), the visual impact of the wind farm must be assessed, cultural resource surveys completed and consultation (1 month), and completion of the NEPA process (9 to 12 months).

Furthermore, there is no documentation from potential developers expressing interest in constructing and operating a small wind farm on INL, nor a specific list of expectations or concessions a developer might expect INL to cover the cost of constructing, maintaining, and operating a small wind farm on INL. To date, INL assumes NEPA activities will be paid for by DOE and INL. However, other concessions also may be expected by developers such as roads, fencing, power line installation, tie-ins to substations, annual maintenance, snow removal, access control, down-time, and remediation. These types of concessions have not been documented, as a request, from a developer and INL has not identified the short and long-term cost liabilities for such concessions should a developer expect INL to cover these costs. INL has not identified a go-no-go funding level or the priority this wind farm project might have with respect to other nuclear related projects should the wind farm remain an unfunded mandate.

An expression of interest is expected to go out soon to some developers. However, with the potential of 2 years of study remaining for the preferred site, the expectation of obtaining meaningful interest from developers should be questioned.

Appendix A

Land Use Committee Meeting Attendees

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Land Use Committee Meeting Attendees

Name	Organization	Phone
John Reisenauer, Chair	Battelle Energy Alliance (BEA), Project Management	6-0304
Bruce Angle	BEA, H500	6-1841
Julie Braun Williams	BEA, B320	6-0926
Julie Brizzee	BEA, B320	6-8440
Mike Connolly	BEA, B000	6-0238
Jack Depperschmidt	DOE Idaho Operations Office	6-5053
Jim Graham	BEA, H130	6-7741
Bob Henderson	BEA, Power Management	6-1619
Chris Ischay	BEA, J020	6-4382
Brett Gamett	Bechtel BWXT Idaho, LLC	557-7361
Randy Lee	BEA, B320	6-0120
Darcie Martinson, Facilitator	SRMG	521-3066
Kurt Myers	BEA, B220	6-5022
Cal Ozaki	BEA, Campus Development Office, J020	6-3248
Mark Permann	BEA, SMC, E000	6-8133
Wayne Ridgway	BEA, National and Homeland Security	6-4790
Wendy Savkranz	CH2M-WG Idaho, LLC, Environmental, 2620	3-0029
Dan Shirley	DOE Idaho Operations Office	6-9905
Jason Sturm	DOE Idaho Operations Office	6-2493
Ken Tuck	BEA, Facilities and Site Services	6-2970

Appendix B
Pros and Cons of Wind Farm Location Alternatives

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Pros and Cons of Wind Farm Location Alternatives

Alternative	Pros	Cons	Unknowns
1 -- Located north of Highway 20, this is the furthest west location. Up to 11 turbines are proposed.	Three years worth of wind data are available and analyzed. Cultural resource pre-screening surveys are complete and micro-siting necessary. Smallest land disturbance to run power lines. Best wind.	National and Homeland Security concerns with mission-critical activities. Relocation of test beds would be costly. Potential loss of customer base. Cultural resource mitigation will likely be necessary.	
2 -- North of Highway 20 approximately 4 miles past the Materials and Fuels Complex entrance. Up to eight turbines are proposed.	Three years worth of wind data are available. Cultural resource pre-screening surveys are complete and micro-siting anticipated.	National and Homeland Security concerns with mission-critical activities. Relocation of test beds would be costly. Potential loss of customer base. Slightly less wind than Site 1, south turbines have energy reduction from Middle Butte wake. Cultural surveys not completed; low sensitivity anticipated.	
3 -- Located southeast of East Butte. Up to six turbines are proposed.	Estimated excellent wind availability. No known National and Homeland Security impacts.	Not commercially viable by itself based on four to six turbines. Visual impact to Native American resources and potential impacts to cultural resources. Long distance to INL grid interconnect. More wind assessment needed.	
4 -- North and south of Highway 20 approximately 5 miles past the Materials and Fuels Complex entrance road. Up to four turbines are proposed.	Three years worth of wind data are available and analyzed. Cultural resource pre-screening surveys are complete and micro-siting anticipated.	Not commercially viable by itself based on four turbines. Slightly less wind than Site 1. South of Highway 20 may be culturally or environmentally sensitive. Additional overhead/ underground lines needed. Cultural surveys not completed; low sensitivity anticipated.	

Alternative	Pros	Cons	Unknowns
5 -- North of Highway 20 approximately 4 miles east (before) the Materials and Fuels Complex entrance road. Up to six turbines are proposed.	Minimal concerns to mission impact that are easily mitigated.	More wind assessment needed. No cultural surveys completed; moderate to high sensitivity anticipated.	Is view shed more or less of a concern.
6 -- North of Highway 20, approximately 7 miles east (before) the Materials and Fuels Complex entrance road or just past telegraph hill. Up to 13 turbines are proposed.	Minimal concerns to mission. Plenty of area to work with. Initial wind modeling looks promising.	More wind assessment needed. No cultural surveys completed; moderate sensitivity anticipated. Crosses both T-3 and T-21 roads, limiting the ability of INL to restrict access from the wind farm onto INL roads.	Alternate offsite option for interconnect. Potential visual impacts not assessed. Potential little brown bat and sage-grouse habitat.

Appendix C

Brainstormed List of Outstanding Issues and Questions

Appendix C
Brainstormed List of Outstanding Issues and Questions

- Determine connection point on power
  - Identify optimum tie-in point (e.g., Antelope substation)
  - Complete a cost estimate
  - Determine how to connect
  - Do not limit ability to keep the provider connected
  - Involve the State of Idaho (right-of-way issue)
  - Take into consideration there are three different contracts depending on tie-in point (suggested best connection point would be Antelope substation).
- Address questions regarding regulatory drivers – are other alternatives acceptable for meeting the requirements?
  - Can INL continue to buy renewable energy certificates and not have to build a wind farm?
  - Can INL get credit for and meet the regulatory drivers if power is purchased from a wind farm development that is adjacent to the INL border? (A private entity is currently looking into building a large wind farm adjacent to INL's eastern border, just across the INL boundary from Alternate Site 6 being proposed.) Why couldn't INL purchase power from this private wind farm, if it is constructed, rather than a private developer on INL, especially since they are only a few miles from each other? Wouldn't that be more cost effective and still meet the intent of the regulatory drivers?
- Identify access coordination requirements
  - Are there some conditional approvals for access to wind farm (e.g., may only allow access during certain hours)?
- Assess technology to be used by wind farm developer
  - What technology will be used so that we ensure it does not interfere with INL projects?
  - Minimize wireless/data collection – if we have too much wireless technology, this could interfere with National and Homeland Security projects
- Will a private contractor be treated similar to Verizon?
  - If a private contractor builds the wind farm, would that INL land still be considered "onsite" (requirement in Draft DOE Order 436.1 and also in DOE Order 430.2B)?
- Obtain INL legal perspective
  - How will liabilities be handled (e.g., if a fire starts on the wind farm and then spreads to INL, who is considered liable)?
  - Does or could the developer have rights to their island of land that INL would have no say so over?
- Identify provisions for dismantling abandoned or non-operational turbines and reclaiming the wind farm area back to its natural habitat
  - This clause needs to be included in the contract.
- Assess potential "showstoppers" with outside entities
  - Interactions with outside entities could unveil the biggest showstoppers for the wind farm

  - An action was taken to meet with the tribes to discuss the preferred wind farm location, Alternative 6, prior to presenting the Land Use Committee recommendation to the Executive Council.
- Resolve cultural issues (covered by environmental assessment)
  - Location of transmission line
  - Impact to cultural resources
  - T3 is a cultural resource (historical trail)
  - Tribal and stakeholder concerns (e.g., visual impact of turbines)
  - Note: Cultural survey will take approximately 138 hours, environmental assessment will take approximately 9 months to 1 year.
- Resolve environmental issues
  - Sage-grouse (guidelines have been drafted for INL site activities within sage-grouse breeding habitat)
  - Bats (up to a 2-year study period)
  - Pygmy rabbits .
- Address additional environmental assessment items
  - Fencing
  - Utility Corridor – how does this impact wind farm and vice versa?
  - Unexploded ordinance (depending on routing).
- Address responsibility for road and power line maintenance
  - Who will be maintaining the roads and power lines: INL or the developer?
  - There could be numerous legal issues surrounding this (i.e., depending on tie-in location INL Power Management does not work on private entity electrical systems, road closures due to fire or missions, and access restrictions).
- Address easement/encroachment permit for roads and power lines (includes State's utility corridor)
  - Will the INL or the developer do this?
  - The private entity will need to obtain a right-of-way from DOE/Bureau of Land Management for their wind farm, but is INL willing to discuss with the State of Idaho, the use of their right-of-way along the highway if the Antelope substation is used to tie into the grid?
- Identify developers' expectations of INL in order to construct a small-scale wind farm
  - What concessions should INL provide?
- Estimate total project cost/determine funding source
  - What is the "total" cost estimate to INL to complete this project? This should include concessions INL is willing to provide to a developer (e.g., power lines, roads, and fencing), delta in power prices, and should also include any annual maintenance (i.e., roads, fence lines, weed control, and snow removal) expected.
  - Is the wind farm project currently funded? If not, how will the project be funded?
  - What is the actual cost variance (cost per kw hour), for purchasing the green credits INL currently receives versus what INL would pay for the wind farm green credits?

- Doesn't INL currently pay Idaho Power a premium to ensure a certain level of power (approximately 50 MW) is always available? Will that premium go away with the wind farm? Or is the wind farm cost in addition to the Idaho Power premium fee? In essence, won't the sitewide power liability cost actually increase on an annual basis, due to the wind farm, rather than decrease?
- What is the cost/benefit for INL and the taxpayer?