EXHIBIT A

APPLICANT INFORMATION
OAR 345-021-0010(1)(a)

TABLE OF CONTENTS

Attachments

A.1 NAME AND ADDRESS OF APPLICANT AND CONTACT PERSON

OAR 345-021-0010(1)(a)(A) *The name and address of the applicant including all co-owners of the proposed facility, the name, mailing address and telephone number of the contact person for the application, and if there is a contact person other than the applicant, the name, title, mailing address and telephone number of that person*;

Response: The applicant is Iberdrola Renewables, Inc. (Applicant). The full name and address are as follows:

Iberdrola Renewables, Inc.
1125 NW Couch Street, Suite 700
Portland, OR 97209

Contact persons, mailing address, and telephone number:

Sara McMahon Parsons
Iberdrola Renewables, Inc.
1125 NW Couch Street, Suite 700
Portland, OR 97209
(503) 796-7732

Jeffrey Durocher
Iberdrola Renewables, Inc.
1125 NW Couch Street, Suite 700
Portland, OR 97209
(503) 796-7781

Contact persons other than the Applicant:

Carrie Konkol
CH2M HILL
2020 SW 4th Avenue, Suite 300
Portland, OR 97201
(503) 872-4734

David Filippi
Stoel Rives LLP
900 SW Fifth Avenue
Suite 2600
Portland, OR 97204-1268
(503) 294-9529

A.2 PARTICIPANT INFORMATION

OAR 345-021-0010(1)(a)(B) *The contact name, address and telephone number of all participating persons, other than individuals, including but not limited to any parent corporation of the applicant, persons upon whom the applicant will rely for third-party permits or approvals*

related to the facility, and, if known, other persons upon whom the applicant will rely in meeting any facility standard adopted by the Council.

Response**:**

Parent Company:

IBERDROLA RENEWABLES HOLDINGS, Inc.
1125 NW Couch Street, Suite 700
Portland, OR 97209

Contact person, mailing address, and telephone number:

Sara McMahon Parsons
Iberdrola Renewables, Inc.
1125 NW Couch Street, Suite 700
Portland, OR 97209
(503) 796-7732

Third-Party Permitting Assistance:

If the Applicant does not obtain construction water from the city of Arlington or if the Applicant needs to supplement the amount of water obtained from the City, the Applicant will rely on a landowner or qualified contractor to obtain limited water use license(s) for construction water.

A.3 CORPORATE INFORMATION

OAR 345-021-0010(1)(a)(C) *If the applicant is a corporation, it shall give: (i) The full name, official designation, mailing address, and telephone number of the officer responsible for submitting the application; (ii) The date and place of its incorporation; (iii) A copy of its articles of incorporation and its authorization for submitting the application; and (iv) In the case of a corporation not incorporated in Oregon, the name and address of the resident attorney-in-fact in this state and proof of registration to do business in Oregon.*

(i) The full name, official designation, mailing address and telephone number of the officer responsible for submitting the application;

Response: Information for the officer responsible for submitting the application follows:

Donald Furman
Senior Vice President
Iberdrola Renewables, Inc.
1125 NW Couch Street, Suite 700
Portland, OR 97209
(503) 796-6955

(ii) The date and place of its incorporation;

Response: The Applicant was organized and acknowledged by the Oregon Secretary of State on March 15, 1995, in Salem, Oregon.

(iii) A copy of its articles of incorporation and its authorization for submitting the application; and

Response: The articles of incorporation for the Applicant are provided in Attachment A-1. The Applicant's authorization for submitting the application is provided in Attachment A-2 as amended and restated bylaws[1].

(iv) In the case of a corporation not incorporated in Oregon, the name and address of the resident attorney-in-fact in this state and proof of registration to do business in Oregon.

Response: Not applicable. The Applicant is incorporated in Oregon.

A.4 PARENT COMPANY INFORMATION

OAR 345-021-0010(1)(a)(D) *If the applicant is a wholly owned subsidiary of a company, corporation, or other business entity, in addition to the information required by paragraph (C), it shall give the full name and business address of each of the applicant's full or partial owners.*

IBERDROLA RENEWABLES HOLDINGS, Inc., a Delaware corporation, is the parent company of the Applicant. However, the Applicant, will be the 100 percent owner of the proposed Facility. The Applicant may create a Limited Liability Company (LLC) for the Facility at a future date. In that event, the Facility-specific LLC will have access to the Applicant's resources and expertise in the development, construction management, and operation of the Facility. The name and business address are as follows:

Iberdrola Renewables, Inc.
1125 NW Couch Street, Suite 700
Portland, OR 97209

A.5 MISCELLANEOUS INFORMATION

OAR 345-021-0010(1)(a)(E) *If the applicant is an association of citizens, a joint venture or a partnership, it shall give: (i) the full name, official designation, mailing address and telephone number of the person responsible for submitting the application; (ii) the name, business address and telephone number of each person participating in the association, joint venture or partnership and the percentage interest held by each; (iii) proof of registration to do business in Oregon; (iv) a copy of its articles of association, joint venture agreement or partnership agreement and a list of its members and their cities of residence; and (v) if there are no articles of association, joint*

[1] In the event of a name change, the change is registered and effective as of the date of the filing with the Secretary of State. Contracts or other corporate documents (such as bylaws) that were entered into prior to the date of the name change do not require amendment to reflect the current name as there is a public record of the name change. In such cases, legally, IBR and PPM are synonymous.

venture agreement or partnership agreement, the applicant shall state that fact over the signature of each member.

Response: The Applicant is not an association of citizens, joint ventures, or partnerships.

OAR 345-021-0010(1)(a)(F) *If the applicant is a public or governmental entity, it shall give: (i) the full name, official designation, mailing address and telephone number of the person responsible for submitting the application; and (ii) written authorization from the entity's governing body to submit an application.*

Response: The Applicant is not a public or governmental entity.

OAR 345-021-0010(1)(a)(G) *If the applicant is an individual, the individual shall give his or her mailing address and telephone number.*

Response: The Applicant is not an individual.

ATTACHMENT A-1

Articles of Incorporation

ATTACHMENT A-2

Amended and Restated Bylaws

CERTIFICATE

State of Oregon

OFFICE OF THE SECRETARY OF STATE
Corporation Division

I, BILL BRADBURY, Secretary of State of Oregon, and Custodian of the Seal of said State, do hereby certify:

That the attached Document File for:

IBERDROLA RENEWABLES, INC.

is a true copy of the original documents that have been filed with this office.

In Testimony Whereof, I have hereunto set my hand and affixed hereto the Seal of the State of Oregon.

BILL BRADBURY, Secretary of State

By Marilyn R. Smith

Marilyn R. Smith
April 25, 2008

04/15/2008 3:56PM 000001#699 [illegible]
BUSINESS REG $5[illegible]

Phone: (503) 986-2200
Fax: (503) 378-4381

Articles of Amendment—Business/Professional/Nonprofit

Secretary of State
Corporation Division
255 Capitol St. NE, Suite 151
Salem, OR 97310-1327
FilingInOregon.com

Check the appropriate box below:

☒ BUSINESS/PROFESSIONAL CORPORATION
(Complete only 1, 2, 3, 4, 6, 7)

☐ NONPROFIT CORPORATION
(Complete only 1, 2, 3, 5, 6, 7)

FILED

APR 15 2008

OREGON
SECRETARY OF STATE

REGISTRY NUMBER: 448526-89

In accordance with Oregon Revised Statute 192.410-192.490, the information on this application is public record. We must release this information to all parties upon request and it will be posted on our website.

For office use only

Please Type or Print Legibly in Black Ink.

1) ENTITY NAME: PPM Energy, Inc.

2) STATE THE ARTICLE NUMBER(S) AND SET FORTH THE ARTICLE(S) AS IT IS AMENDED TO READ. (Attach a separate sheet if necessary.)

ARTICLE I

The name of the Corporation is IBERDROLA RENEWABLES, Inc.

3) THE AMENDMENT WAS ADOPTED ON: March 10th, 2008

(If more than one amendment was adopted, identify the date of adoption of each amendment.)

BUSINESS/PROFESSIONAL CORPORATION ONLY

4) CHECK THE APPROPRIATE STATEMENT

☑ Shareholder action was required to adopt the amendment(s). The vote was as follows:

Class or series of shares	Number of shares outstanding	Number of votes entitled to be cast	Number of votes cast FOR	Number of votes cast AGAINST
Common	100	100	100	-0-

☐ Shareholder action was not required to adopt the amendment(s). The amendment(s) was adopted by the board of directors without shareholder action.

☐ The corporation has not issued any shares of stock. Shareholder action was not required to adopt the amendment(s). The amendment(s) was adopted by the incorporators or by the board of directors.

NONPROFIT CORPORATION ONLY

5) CHECK THE APPROPRIATE STATEMENT

☐ Membership approval was not required. The amendment(s) was approved by a sufficient vote of the board of directors or incorporators.

☐ Membership approval was required. The membership vote was as follows:

Class(es) entitled to vote	Number of members entitled to vote	Number of votes entitled to be cast	Number of votes cast FOR	Number of votes cast AGAINST

6) EXECUTION

Signature	Printed Name	Title
[signature]	W. Benjamin Lackey	Assistant Secretary

7) CONTACT NAME (To resolve questions with this filing.)

Etta Janoushek

DAYTIME PHONE NUMBER (Include area code.)

503.796.6947

FEES

Required Processing Fee $50
No Fee for Nonprofit Type Change Only
Confirmation Copy (Optional) $5
Processing Fees are nonrefundable.
Please make check payable to "Corporation Division."
NOTE:
Fees may be paid with VISA or MasterCard. The card number and expiration date should be submitted on a separate sheet for your protection.

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MAR 1 5 1995

SECRETARY OF STATE

ARTICLES OF INCORPORATION

OF

PACIFICORP POWER MARKETING, INC.

The undersigned, being over the age of 18 years, hereby adopts these Articles of Incorporation in accordance with the provisions of the Oregon Business Corporation Act (the "Act").

ARTICLE I
Corporate Name

The name of the corporation is PacifiCorp Power Marketing, Inc.

ARTICLE II
Corporate Purpose

The purposes of this corporation are to engage in any lawful activities for which corporations may be organized under the Act as from time to time constituted.

ARTICLE III
Registered Agent

The initial registered agent of this corporation for service of process is Sally A. Nofziger, whose street address is 700 NE Multnomah, Suite 1600, Portland, Oregon 97232-1000, which address is the initial registered office of this corporation.

ARTICLE IV
Mailing Address

The mailing address of this corporation to which the Corporate Division may mail notices until the principal office of the corporation has been designated in an annual report is PacifiCorp Power Marketing, Inc., 700 NE Multnomah, Suite 1600, Portland, Oregon 97232, Attention: Secretary.

ARTICLE V
Incorporator

The name and address of the incorporator executing these Articles of Incorporation is Sanjiv N. Kripalani, whose address is 900 SW Fifth Avenue, Suite 2300, Portland, Oregon 97204-1268.

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ARTICLE VI
Shares

(a) The total number of shares of stock which the corporation shall have authority to issue is 1,000 shares of common stock.

(b) Each share of the common stock of this corporation, after the consideration therefore as fixed by the Board of Directors has been fully paid in, shall be non-assessable and shall not be subject to assessment to pay the debts of the corporation.

(c) Subject to statutory or other limitations on shareholder distributions that may be applicable at the time of acquisition, the corporation is authorized to acquire its own shares. Shares so acquired shall constitute authorized but unissued shares. The corporation is authorized to reissue from time to time shares that it acquires.

ARTICLE VII
Indemnification

(a) The corporation shall indemnify to the fullest extent then permitted by law any person who is made, or threatened to be made, a party to any threatened, pending, or completed action, suit, or proceeding, whether civil, criminal, administrative, investigative, or otherwise (including an action, suit, or proceeding by or in the right of the corporation) by reason of the fact that the person is or was a director or officer of the corporation or is or was serving at the request of the corporation as a director or officer of another corporation, partnership, joint venture, trust, or other enterprise against all expenses (including attorneys' fees), judgments, amounts paid in settlement, and fines actually and reasonably incurred in connection therewith.

(b) Expenses incurred in connection with an action, suit, or proceeding may be paid or reimbursed by the corporation in advance of final disposition of such action, suit, or proceeding upon receipt of an undertaking by or on behalf of the director or officer to repay such amounts if it shall ultimately be determined that such person is not entitled to be indemnified by the corporation.

(c) The indemnification provided hereby shall not be deemed exclusive of any other rights to which those indemnified may be entitled under any statute, bylaw, agreement, vote of shareholders or directors, or otherwise, both as to action in any official capacity and as to action in another capacity while holding an office, and shall continue as to a person who has ceased to be a director or officer and shall inure to the benefit of the heirs, executors, and administrators of such person.

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(d) The corporation shall have power to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee, or agent of the corporation, or fiduciary with respect to any employee benefit plans of the corporation, or is or was serving at the request of the corporation as a director, officer, employee, or agent, or as a fiduciary of an employee benefit plan, of another corporation, partnership, joint venture, trust, or other enterprise, against any liability asserted against and incurred by the person in any such capacity, or arising out of the person's status as such, whether or not the corporation would have the power to indemnify the person against such liability under the provisions of this Article or the Act.

(e) Any person other than a director or officer who is or was an employee or agent of the corporation, or fiduciary within the meaning of the Employee Retirement Income Security Act of 1974 with respect to any employee benefit plans of the corporation, or it or was serving at the request of the corporation as an employee or agent of another corporation, partnership, joint venture, trust, or other enterprise, may be indemnified to such extent as the board of directors in its discretion at any time or from time to time may authorize.

ARTICLE VIII
Director's Liability

No director of the corporation shall be personally liable to the corporation or its shareholders for monetary damages for conduct as a director; provided that this Article shall not eliminate the liability of a director for any act or omission for which such elimination of liability is not permitted under the Act. No amendment to the Act which further limits the acts or omissions for which elimination of liability is permitted shall affect the liability of a director for any act or omission which occurs prior to the effective date of such amendment.

To evidence the adoption of these Articles of Incorporation, I have signed them on March 15, 1995.

Sanjiv Kripalani

Sanjiv N. Kripalani, Incorporator

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OREGON
SECRETARY OF STATE

ARTICLES OF AMENDMENT
to the
ARTICLES OF INCORPORATION
of
PACIFICORP POWER MARKETING, INC.

In accordance with ORS §60.437 and §60.447, PacifiCorp Power Marketing, Inc., a corporation organized and existing under the laws of the State of Oregon, does hereby certify as follows:

1. The Board of Directors of the Company, at a meeting held November 21, 2002, proposed and declared advisable the following amendment to the Company's Articles of Incorporation:

   RESOLVED, that Article I of the Company's Articles of Incorporation shall be amended to read, in its entirety, as follows:

   "ARTICLE I
   Corporate Name

   The name of the corporation is **PPM Energy, Inc.**"

2. The foregoing amendment was duly approved on November 21, 2002 by written consent of the Company's sole shareholder in accordance with ORS § 60.437. The sole shareholder of the Company holds all 100 shares of the Company's outstanding capital stock.

3. These Articles of Amendment shall be effective at 12:01 a.m. on January 15, 2003.

PACIFICORP POWER MARKETING, INC.

By: _____
I. Merrick Kerr
Chief Financial Officer

ATTEST:

By: _____
Jeffery B. Erb, Assistant Corporate Secretary

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AMENDED AND RESTATED BYLAWS

OF

PPM ENERGY, INC.

ARTICLE 1

SHAREHOLDERS MEETINGS AND VOTING

1.1 Annual Meeting. The annual meeting of the shareholders shall be held at a date set by the Chairman of the Board which date shall be no more than 12 months after the previous shareholder meeting, unless a different date is fixed by the Board of Directors and stated in the notice of the meeting. Failure to hold an annual meeting on the stated date shall not affect the validity of any corporate action.

1.2 Special Meetings. Special meetings of the shareholders, for any purposes, unless otherwise prescribed by statute, may be called by the President or the Board of Directors and shall be called by the President upon the written demand of the holders of not less than one-tenth of all the votes entitled to be cast on any issue proposed to be considered at the meeting. The demand shall describe the purposes for which the meeting is to be held and shall be signed, dated and delivered to the Secretary.

1.3 Place of Meetings. Meetings of the shareholders shall be held at any place in or out of Oregon designated by the Board of Directors. If a meeting place is not designated by the Board of Directors, the meeting shall be held at the Corporation's principal office.

1.4 Notice of Meetings. Written or printed notice stating the date, time and place of the shareholders meeting and, in the case of a special meeting or a meeting for which special notice is required by law, the purposes for which the meeting is called, shall be delivered by the Corporation to each shareholder entitled to vote at the meeting and, if required by law, to any other shareholders entitled to receive notice, not earlier than 60 days nor less than 10 days before the meeting date. If mailed, the notice shall be deemed delivered when it is mailed to the shareholder with postage prepaid at the shareholder's address shown in the Corporation's record of shareholders.

1.5 Waiver of Notice. A shareholder may at any time waive any notice required by law, these Bylaws or the Articles of Incorporation. The waiver shall be in writing, be signed by the shareholder entitled to the notice and be delivered to the Corporation for inclusion in the minutes for filing with the corporate records. A shareholder's attendance at a meeting waives objection to (i) lack of notice or defective notice of the meeting, unless the shareholder at the beginning of the meeting objects to holding the meeting or transacting business at the meeting, and (ii) consideration of a particular matter at the meeting that is not within the purposes described in the meeting notice, unless the shareholder objects to considering the matter when it is presented.

1.6 Fixing of Record Date. The Board of Directors may fix a future date as the record date to determine the shareholders entitled to notice of a shareholders meeting, demand a special meeting, vote, take any other action or receive payment of any share or cash dividend or other distribution. This date shall not be earlier than 70 days or, in the case of a meeting, later than 10 days before the meeting or action requiring a determination of shareholders. The record date for any meeting, vote or other action of the shareholders shall be the same for all voting groups. If not otherwise fixed by the Board of Directors, the record date to determine shareholders entitled to notice of and to vote at an annual or special shareholders meeting is the close of business on the day before the notice is first mailed or otherwise transmitted to shareholders. If not otherwise fixed by the Board of Directors, the record date to determine shareholders entitled to receive payment of any share or cash dividend or other distribution is the close of business on the day the Board of Directors authorizes the share or cash dividend or other distribution.

1.7 Shareholders List for Meeting. After a record date for a meeting is fixed, the Corporation shall prepare an alphabetical list of all shareholders entitled to notice of the shareholders meeting. The list shall be arranged by voting group and, within each voting group, by class or series of shares, and it shall show the address of and number of shares held by each shareholder. The shareholders list shall be available for inspection by any shareholder, upon proper demand as may be required by law, beginning two business days after notice of the meeting is given and continuing through the meeting, at the Corporation's principal office or at a place identified in the meeting notice in the city where the meeting will be held. The Corporation shall make the shareholders list available at the meeting, and any shareholder or the shareholder's agent or attorney shall be entitled to inspect the list at any time during the meeting or any adjournment. Refusal or failure to prepare or make available the shareholders list does not affect the validity of action taken at the meeting.

1.8 Quorum; Adjournment.

(1) Shares entitled to vote as a separate voting group may take action on a matter at a meeting only if a quorum of those shares exists with respect to that matter. A majority of the votes entitled to be cast on the matter by the voting group constitutes a quorum of that voting group for action on that matter.

(2) A majority of votes represented at the meeting, although less than a quorum, may adjourn the meeting from time to time to a different time and place without further notice to any shareholder of any adjournment, except that notice is required if a new record date is or must be set for the adjourned meeting. At an adjourned meeting at which a quorum is present, any business may be transacted that might have been transacted at the meeting originally held.

(3) Once a share is represented for any purpose at a meeting, it shall be present for quorum purposes for the remainder of the meeting and for any adjournment of that meeting unless a new record date is or must be set for the adjourned meeting. A new record date must be set if the meeting is adjourned to a date more than 120 days after the date fixed for the original meeting.

1.9 Voting Requirements; Action Without Meeting.

(1) If a quorum exists, action on a matter, other than the election of directors, by a voting group is approved if the votes cast within the voting group favoring the action exceed the votes cast opposing the action, unless a greater number of affirmative votes is required by law or the Articles of Incorporation. Unless otherwise provided in the Articles of Incorporation, directors are elected by a plurality of the votes cast by the shares entitled to vote in the election at a meeting at which a quorum is present.

(2) Action required or permitted by law to be taken at a shareholders meeting may be taken without a meeting if the action is taken by all the shareholders entitled to vote on the action. The action must be evidenced by one or more written consents describing the action taken, signed by all the shareholders entitled to vote on the action and delivered to the Secretary for inclusion in the minutes for filing with the corporate records. Shareholder action taken by written consent is effective when the last shareholder signs the consent, unless the consent specifies an earlier or later effective date.

1.10 Proxies. A shareholder may vote shares in person or by proxy. A shareholder may appoint a proxy by signing an appointment form either personally or by the shareholder's attorney-in-fact. An appointment of a proxy is effective when received by the Secretary or other officer of the Corporation authorized to tabulate votes. An appointment is valid for 11 months unless a different period is provided in the appointment form. An appointment is revocable by the shareholder unless the appointment form conspicuously states that it is irrevocable and the appointment is coupled with an interest that has not been extinguished.

1.11 Meeting by Telephone Conference. Shareholders may participate in an annual or special meeting by, or conduct the meeting through, use of any means of communications by which all shareholders participating may simultaneously hear each other during the meeting, except that no meeting for which a written notice is sent to shareholders may be conducted by this means unless the notice states that participation in this manner is permitted and describes how any shareholder desiring to participate in this manner may notify the Corporation. Participation in a meeting by this means shall constitute presence in person at the meeting.

ARTICLE 2

BOARD OF DIRECTORS

2.1 Duties of Board of Directors. All corporate powers of the Corporation shall be exercised by or under the authority of its Board of Directors; the business and affairs of the Corporation shall be managed under the direction of its Board of Directors.

2.2 Number, Term and Qualification. The number of directors of the Corporation shall be three unless such number is increased by vote of a majority of the directors at any meeting of the board. The term of a director shall expire at the next annual meeting of shareholders after his or her election. No reduction in the number of directors shall shorten the term of any incumbent director. Despite the expiration of a director's term, the director shall

continue to serve until the director's successor is elected and qualified or the number of directors is decreased. Directors need not be residents of Oregon or shareholders of the Corporation.

2.3 Regular Meetings. A regular meeting of the Board of Directors shall be held annually without notice other than this Bylaw immediately after, and at the same place as, the annual meeting of shareholders, or at such other time and place provided by resolution of the Board of Directors. The Board of Directors may provide by resolution the time and place for the holding of any regular meeting in or out of Oregon, or by telephone or other means in accordance with Section 2.9, without notice other than the resolution.

2.4 Special Meetings. Special meetings of the Board of Directors may be called by or at the request of the President or any two directors. The person or persons authorized to call special meetings of the Board of Directors may fix any place in or out of Oregon as the place for holding any special meeting of the Board of Directors called by them, or specify that the meeting shall be held by telephone or other means in accordance with Section 2.9.

2.5 Notice. Notice of the date, time and place of any special meeting of the Board of Directors shall be given prior to the meeting by notice communicated in person, by telephone, electronic mail, other form of wire or wireless communication, mail or private carrier. If written, notice shall be effective at the earliest of (a) when received, (b) three days after its deposit in the United States mail, as evidenced by the postmark, if mailed postpaid and correctly addressed, or (c) on the date shown on the return receipt, if sent by registered or certified mail, return receipt requested and the receipt is signed by or on behalf of the addressee. Notice by all other means shall be deemed effective when received by or on behalf of the director. Notice of any regular or special meeting need not describe the purposes of the meeting unless required by law or the Articles of Incorporation.

2.6 Waiver of Notice. A director may at any time waive any notice required by law, these Bylaws or the Articles of Incorporation. The waiver may be in writing, specifying the meeting for which notice is waived and be filed with the minutes or corporate records, or may be expressed verbally at a the meeting for which the waiver is effective, which waiver shall be reflected in the minutes of such meeting. A director's attendance at or participation in a meeting waives any required notice to the director of the meeting unless the director at the beginning of the meeting, or promptly upon the director's arrival, objects to holding the meeting or transacting business at the meeting and does not thereafter vote for or assent to action taken at the meeting.

2.7 Quorum. A majority of the number of directors fixed in accordance with Section 2.2 of these Bylaws shall constitute a quorum for the transaction of business at any meeting of the Board of Directors. If less than a quorum is present at a meeting, a majority of the directors present may adjourn the meeting from time to time without further notice.

2.8 Manner of Acting. The act of the majority of the directors present at a meeting at which a quorum is present shall be the act of the Board of Directors, unless a different number is provided by law, the Articles of Incorporation or these Bylaws.

2.9 Meeting by Telephone Conference; Action Without Meeting.

(1) Directors may participate in any meeting of the Board by, or conduct the meeting through, use of any means of communications by which all directors participating may simultaneously hear each other during the meeting. Participation in a meeting by this means shall constitute presence in person at the meeting.

(2) Any action that is required or permitted to be taken at a meeting of the Board of Directors may be taken without a meeting if one or more written consents describing the action taken are signed by a majority of the directors entitled to vote on the matter and included in the minutes or filed with the corporate records reflecting the action taken. The action shall be effective when a majority of the directors have signed the consent, unless the consent specifies an earlier or later effective date.

2.10 Vacancies. Any vacancy on the Board of Directors, including a vacancy resulting from an increase in the number of directors, may be filled by the shareholders, the Board of Directors, the remaining directors if less than a quorum (by the vote of a majority thereof) or by a sole remaining director. Any vacancy not filled by the directors shall be filled by election at an annual meeting or at a special meeting of shareholders called for that purpose. A vacancy that will occur at a specified later date, by reason of a resignation or otherwise, may be filled before the vacancy occurs, but the new director may not take office until the vacancy occurs.

2.11 Compensation. By resolution of the Board of Directors, the directors may be paid reasonable compensation for services as directors and their expenses of attending meetings of the Board of Directors.

2.12 Presumption of Assent. A director who is present at a meeting of the Board of Directors or a committee of the Board of Directors shall be deemed to have assented to the action taken at the meeting unless (a) the director's dissent or abstention from the action is entered in the minutes of the meeting, (b) the director delivers a written notice of dissent or abstention to the action to the presiding officer of the meeting before any adjournment or to the Corporation immediately after the adjournment of the meeting or (c) the director objects at the beginning of the meeting or promptly upon the director's arrival to the holding of the meeting or transacting business at the meeting. The right to dissent or abstain is not available to a director who voted in favor of the action.

2.13 Removal. The shareholders may remove one or more directors with or without cause at a meeting called expressly for that purpose, unless the Articles of Incorporation provide for removal for cause only.

2.14 Resignation. Any director may resign by delivering written notice to the Board of Directors, its chairperson or the Corporation. Unless the notice specifies a later effective date, a resignation notice shall be effective upon the earlier of (a) receipt, (b) five days after its deposit in the United States mails, if mailed postpaid and correctly addressed, or (c) on the date shown on the return receipt, if sent by registered or certified mail, return receipt requested, and the receipt is signed by addressee. Once delivered, a resignation notice is irrevocable unless revocation is permitted by the Board of Directors.

ARTICLE 3

COMMITTEES OF THE BOARD

3.1 Committees. The Board of Directors may create one or more committees and appoint members of the Board of Directors to serve on them. Each committee shall have two or more members. The creation of a committee and appointment of members to it must be approved by a majority of all directors in office when the action is taken. Subject to any limitation imposed by the Board of Directors or by law, each committee may exercise all the authority of the Board of Directors in the management of the Corporation. A committee may not take any action that a committee is prohibited from taking by the Oregon Business Corporation Act.

3.2 Changes of Size and Function. Subject to the provisions of law, the Board of Directors shall have the power at any time to change the number of committee members, fill committee vacancies, change any committee members and change the functions and terminate the existence of a committee.

3.3 Conduct of Meetings. Each committee shall conduct its meetings in accordance with the applicable provisions of these Bylaws relating to meetings and action without meetings of the Board of Directors. Each committee shall adopt any further rules regarding its conduct, keep minutes and other records and appoint subcommittees and assistants as it deems Appropriate.

3.4 Compensation. By resolution of the Board of Directors, committee members may be paid reasonable compensation for services on committees and their expenses of attending committee meetings.

ARTICLE 4

OFFICERS

4.1 Appointment. The Board of Directors at its first meeting following its election each year shall elect a President and a Secretary. At this meeting, or at any other time, the Board of Directors may elect one of its members as Chairman of the Board. The Board of Directors or the President maelect any other officers, assistant officers and agents. Any two or more offices may be held by the same person. In the event that the President elects any officer, assistant officer or agent, the President shall inform the Board of Directors of such election at the next regular or special meeting of the Board of Directors.

4.2 Compensation. The Corporation may pay its officers reasonable compensation for their services as fixed from time to time by the Board of Directors or by the President with respect to officers appointed by the President.

4.3 Term. The term of office of all officers commences upon their appointment and continues until their successors are appointed or until their resignation or removal.

4.4 Removal. Any officer or agent appointed by the Board of Directors or the President may be removed by the Board of Directors at any time with or without cause. Any

officer or agent appointed by the President may be removed by the President at any time with or without cause.

4.5 Chairman of the Board. The Chairman of the Board, if that office is filled, shall preside at all meetings of the Board of Directors and shall perform any duties and responsibilities prescribed from time to time by the Board of Directors.

4.6 President. Unless otherwise determined by the Board of Directors, the President shall be the chief executive officer of the Corporation and, subject to the control of the Board of Directors, shall be responsible for the general operation of the Corporation. The President shall have any other duties and responsibilities prescribed by the Board of Directors. Unless otherwise determined by the Board of Directors, the President shall have authority to vote any shares of stock owned by the Corporation and to delegate this authority to any other officer.

4.7 Vice Presidents. Each Vice President shall perform duties and responsibilities prescribed by the Board of Directors or the President. The Board of Directors or the President may confer a special title upon a Vice President.

4.8 Secretary.

(1) The Secretary shall record and keep the minutes of all meetings of the directors and shareholders in one or more books provided for that purpose and perform any duties prescribed by the Board of Directors or the President.

(2) Any assistant secretary shall have the duties prescribed from time to time by the Board of Directors, the President or the Secretary. In the absence or disability of the Secretary, the Secretary's duties shall be performed by an assistant secretary.

4.9 Treasurer. The Treasurer, if that office if filled, shall have charge and custody and be responsible for all funds and securities of the Corporation and shall have other duties as prescribed from time to time by the Board of Directors or the President.

ARTICLE 5

INDEMNIFICATION

The Corporation shall indemnify to the fullest extent not prohibited by law, current or former director of the Corporation who is made, or threatened to be made, a party to an action, suit or proceeding, whether civil, criminal, administrative, investigative or other (including an action, suit or proceeding by or in the right of the Corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the Corporation or a fiduciary within the meaning of the Employee Retirement Income Security Act of 1974 with respect to any employee benefit plan of the Corporation, or serves or served at the request of the Corporation as a director, officer, employee or agent, or as a fiduciary of an employee benefit plan, of another corporation, partnership, joint venture, trust or other enterprise. The Corporation shall pay for or reimburse the reasonable expenses incurred by any such current or former director in any such proceeding in advance of the final disposition of the proceeding if the person sets forth in writing (i) the person's good faith belief that the person is entitled to indemnification under this Article

and (ii) the person's agreement to repay all advances if it is ultimately determined that the person is not entitled to indemnification under this Article. No amendment to these Bylaws that limits the Corporation's obligation to indemnify any person shall have any effect on such obligation for any act or omission that occurs prior to the later to occur of the effective date of the amendment or the date notice of the amendment is given to the person. This Article shall not be deemed exclusive of any other provisions for indemnification or advancement of expenses of directors, officers, employees, agents and fiduciaries that may be included in the Articles of Incorporation or any statute, bylaw, agreement, general or specific action of the Board of Directors, vote of shareholders or other document or arrangement.

ARTICLE 6

ISSUANCE OF SHARES

6.1 Adequacy of Consideration. Before the Corporation issues shares, the Board of Directors shall determine that the consideration received or to be received for the shares to be issued is adequate. The authorization by the Board of Directors of the issuance of shares for stated consideration shall evidence a determination by the Board that such consideration is adequate.

6.2 Certificates for Shares.

(1) Certificates representing shares of the Corporation shall be in any form determined by the Board of Directors consistent with the requirements of the Oregon Business Corporation Act and these Bylaws. The certificates shall be signed, either manually or in facsimile, by two officers of the Corporation, at least one of whom shall be the President or a Vice President, and may be sealed with the seal of the Corporation, if any, or a facsimile thereof. All certificates for shares shall be consecutively numbered or otherwise identified. The signatures of officers upon a certificate may be facsimiles if the certificate is countersigned by a transfer agent or any assistant transfer agent or registered by a registrar, other than the Corporation itself or an employee of the Corporation.

(2) Every certificate for shares of stock that are subject to any restriction on transfer or registration of transfer pursuant to the Articles of Incorporation, the Bylaws, securities laws, a shareholders agreement or any agreement to which the Corporation is a party shall have conspicuously noted on the face or back of the certificate either the full text of the restriction or a statement of the existence of the restriction and that the Corporation retains a copy of the full text. Every certificate issued when the Corporation is authorized to issue more than one class or series within a class of shares shall set forth on its face or back either (a) a summary of the designations, relative rights, preferences and limitations of the shares of each class and the variations in rights, preferences and limitations for each series authorized to be issued and the authority of the Board of Directors to determine variations for future series or (b) a statement of the existence of those designations, relative rights, preferences and limitations and a statement that the Corporation will furnish a copy thereof to the holder of the certificate upon written request and without charge.

(3) All certificates surrendered to the Corporation for transfer shall be canceled. The Corporation shall not issue a new certificate for previously issued shares until the former certificate or certificates for those shares are surrendered and canceled; except that in case of a lost, destroyed or mutilated certificate, a new certificate may be issued on terms prescribed by the Board of Directors.

6.3 Transfer Agent and Registrar. The Board of Directors may from time to time appoint one or more transfer agents and one or more registrars for the shares of the Corporation, with powers and duties determined by the Board of Directors.

6.4 Officer Ceasing to Act. If the person who signed a share certificate, either manually or in facsimile, no longer holds office when the certificate is issued, the certificate is nevertheless valid.

ARTICLE 7

CONTRACTS, LOANS, CHECKS AND OTHER INSTRUMENTS

7.1 Contracts. Except as otherwise provided by law, the Board of Directors may authorize any officers or agents to execute and deliver any contract or other instrument in the name of and on behalf of the Corporation, and this authority may be general or confined to specific instances.

7.2 Loans. The Corporation shall not borrow money and no evidence of indebtedness shall be issued in its name unless authorized by the Board of Directors. This authority may be general or confined to specific instances.

7.3 Checks, Drafts, Etc. All checks, drafts or other orders for the payment of money and notes or other evidences of indebtedness issued in the name of the Corporation shall be signed in the manner and by the officers or agents of the Corporation designated by the Board of Directors.

7.4 Deposits. All funds of the Corporation not otherwise employed shall be deposited to the credit of the Corporation in those banks, trust companies or other depositaries as the Board of Directors or officers of the Corporation designated by the Board of Directors select, or be invested as authorized by the Board of Directors.

ARTICLE 8

MISCELLANEOUS PROVISIONS

8.1 Severability. A determination that any provision of these Bylaws is for any reason inapplicable, invalid, illegal or otherwise ineffective shall not affect or invalidate any other provision of these Bylaws.

8.2 Amendments. These Bylaws may be amended or repealed and new Bylaws may be adopted by the Board of Directors or the shareholders of the Corporation.

Adopted: December 12, 2005

EXHIBIT B

GENERAL INFORMATION ABOUT THE PROPOSED FACILITY

OAR 345-021-0010(1)(b)

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B.1 DESCRIPTION OF THE PROPOSED FACILITY

OAR 345-021-0010(1)(b) *Information about the proposed facility, construction schedule and temporary disturbances of the site, including:*

OAR 345-021-0010(1)(b)(A) *A description of the proposed energy facility, including as applicable:*

(i) The nominal electric generating capacity and the average electrical generating capacity, as defined in ORS 469.300.

Response: The proposed Montague Wind Power Facility (Facility) is expected to provide up to 404 megawatts (MW) of nominal generating capacity and up to 135 average megawatts (aMW) of energy.

(ii) Major components, structures and systems, including a description of the size, type and configuration of equipment used to generate electricity and useful thermal energy.

Response:

B.1.1 General Description of the Facility

Iberdrola Renewables, Inc. (Applicant) proposes to construct a wind generation facility in Gilliam County, Oregon, with generating capacity of up to 404 MW. No more than 269 turbines will be located at the Facility site, depending on the final turbine size and vendor (as further described in Section B.1.3). Please refer to Exhibit C, Figures C-1, C-2, and C-4 through C-7, for maps of the site vicinity, Facility location, and Facility components, respectively.

The Facility components are proposed on private land for which the Applicant has negotiated or is in the final stages of negotiating long-term wind energy leases with the landowners, or on private land for which the Applicant is in the process of obtaining easements from landowners and other wind developers. The wind energy leases allow the Applicant to permit, construct, and operate wind energy facilities for a defined period. In exchange, the landowners receive compensation from the Applicant. The terms of the wind energy leases allow landowners to continue their farming operations (primarily cultivation of wheat) in and around the wind turbine generators and other facilities where the farming activities do not affect the operation and maintenance of the wind generation equipment. The Applicant will negotiate easements with adjacent landowners for road and collector cable access, as needed.

The total number of acres within the Facility site boundary is 33,402. This number includes 30,090 acres within the site boundary around the turbines, roads, collector lines, and operations and maintenance (O&M) facility(s); 1,048 acres within the site boundary around the overhead transmission line route segment from the western Facility Collector Substation (collector substation) to the central collector substation; 868 acres within the site boundary around the preferred transmission line route segment from the central collector substation to the Bonneville Power Administration (BPA) Slatt Interconnection

Substation (Slatt substation); and an additional 1,396 acres for two distinct alternate transmission line routes from the central collector substation to Slatt substation (see Section B.2.4 for further description of the preferred and alternate routes).

Facility construction is anticipated to begin in late 2010 after issuance of the site certificate. The completion of commissioning and start of commercial operation is targeted for the end of 2011. However, given that construction could conceivably be delayed by weather or other unforeseen circumstances such as market changes, the Applicant would like the flexibility to build the Facility in one or more phases, and requests a deadline for construction completion of 3 years later than the deadline for beginning construction, or 6 years from issuance of the site certificate.

B.1.2 Treatment of Overlapping Site Boundaries

A small portion of the Facility site boundary overlaps with a small portion of the amended Leaning Juniper II Wind Power Facility (LJF) site boundary. Figure C-3 shows the overlap between the Facility site boundary and the LJF site boundary.

The overlapping site boundaries are addressed in two separate permitting efforts: this Application for Site Certificate (ASC) and the Leaning Juniper IIB (LJIIB) *Request for Amendment No. 1 to the Site Certificate for the Leaning Juniper II Wind Power Facility* (RfA). Leaning Juniper Wind Power II, LLC (LJWP) submitted the RfA to the Energy Facility Siting Council (EFSC) on June 26, 2009, a Final Proposed Order was issued on October 15, 2009, and an amended LJF site certificate was approved on November 20, 2009.

The purpose of the overlap between the two site boundaries is to provide the Applicant with the flexibility to construct two turbine strings that were included in the LJF RfA as part of the Montague Wind Power Facility, if they are not constructed as part of the LJF, and also to provide the Applicant with the flexibility to utilize portions of the LJF micrositing corridor to construct the Montague Wind Power Facility if they are not used as part of the LJF. The Montague Wind Power Facility components would be constructed as described in the Montague ASC and under an EFSC site certificate for this Facility. Alternatively, if these turbine strings are constructed as part of the LJF, LJWP would construct those facility components as described in the LJF RfA and under the amended EFSC site certificate for LJF. Facilities will not be constructed under both permits. The certificate holders will notify the Council before beginning construction of these components and identify the site certificate under which the facilities will be constructed and operated.

B.1.3 Flexibility Regarding Turbine Vendor, Size, Number, and Final Layout

The Facility will use turbines up to 3.0 MW in size, and up to 404 MW will be generated. The turbine vendor, size, number, and actual generating capacity have not yet been determined. This ASC analyzes impacts for two turbines that represent a range of alternative turbine technologies (i.e., encompassing the scale and impacts of the turbines) that could potentially be used at the Facility. The minimum turbine layout is 134 3.0-MW turbines. The maximum turbine layout is 269 1.5-MW turbines. The final layout will have 134 to 269 turbines, with any combination of 3.0-MW turbines to

1.5-MW turbines. The total number of turbines will not exceed 269 and the total MW will not exceed 404.

The Applicant seeks micrositing flexibility for the Facility with regard to the final layout for turbines and associated collector cables and access roads, as described in Exhibit C. Before construction, the Applicant will determine the number of turbines in each corridor, the spacing between turbines, and their precise locations within the corridor, based on the wind turbine models selected and other various siting criteria.

To demonstrate that the selection of turbine type, number, size, and final layout will be consistent with Council standards no matter what turbine vendor the Applicant selects, the studies and analyses provided in this ASC are based on the worst-case scenario tailored for each resource subject to a Council standard. For example, for the scenic, aesthetic, and noise evaluations, both the maximum and minimum turbine layouts were analyzed to determine the worst-case scenario. For the habitat impacts, the larger of the disturbance areas was analyzed. In this way, the ASC ensures that the Facility will meet all applicable Council standards. This approach is described in more detail in Exhibit C.

B.1.4 Major Facility Components Used to Generate Electricity

B.1.4.1 Turbines

The Facility will have 134 to 269 turbines, depending on final turbine selection. The total number of turbines will not exceed 269. The turbines will be mounted on a concrete pad and spaced up to 1,000 feet apart, depending on the turbine size and vendor specifications.

Wind turbines consist of two main structures: a tubular tower and the nacelle, which rests on the tower. The nacelle houses equipment such as the gearbox and supports the turbine blades and hub. The turbines will interconnect with an underground power collection system that will be linked to two collector substations. The turbines will be grouped in linear strings, and some of the turbines will include aviation warning lights required by the Federal Aviation Administration (FAA). The number of turbines with lights and the lighting pattern of the turbines will be determined in consultation with the FAA.

Wind Turbines—GE 1.5-MW Turbine

The GE 1.5-MW wind turbine is a three-blade, active yaw- and pitch-regulated machine with power and torque control capabilities. The blade diameter is 253 feet (ft) (77 meters [m]) and the height at the hub is 262 ft (80). The swept area of the rotor is up to 6,316 yards^2 (5,281 square meters) (m^2) and the rotor speed is variable, operating up to 18 revolutions per minute (rpm).

Wind Turbines—Vestas V100 3.0-MW Turbine

The Vestas V-100 3.0-MW wind turbine is a three-blade, active yaw- and pitch-regulated machine with power and torque control capabilities. The blade diameter and hub height

are 328 feet (100 m). The swept area of the rotor is 9,389 yards^2 (7,850 m^2) and the rotor speed is approximately 30 revolutions per minute (rpm). Figure B-1 shows a schematic drawing of a typical turbine and tower.

Table B-1 shows the potential turbine specifications with maximum dimensions.

Table B-1. Potential Turbine Specifications

Turbines	1.5-MW GE Turbine	3.0-MW Vestas Turbine
Tower Type	Tubular	Tubular
Blade (Rotor) Diameter	253 ft (77 m)	328 ft (100 m)
Hub Height	262 ft (80 m)	328 ft (100 m)
Total Turbine Height	389 ft (119 m)	492 ft (150 m)
Tower Base	15 ft (diameter)	16 ft (diameter)
Reinforced Concrete Foundation	48 ft (15 m)	80 ft (24 m)
Pedestal	16 ft (5 m) diameter	20 ft (6 m) diameter
Gravel Apron	Up to 15 ft (radius)	Up to 15 ft (radius)
Weight (nacelle and tower)	220 U.S. tons[a]	348 US tons[a]
Concrete per turbine pad	275 cubic yards	707 cubic yards
Maximum sound power level	104 dBA[b]	110 dBA[b]

Notes:

All values are approximate.

[a] The weight of the turbine does not include the blades. The total weight of metal in the turbines is not less than 220 U.S. tons (GE) and not more than 348 U.S. tons (Vestas).

[b] Table X-6 in Exhibit X provides the maximum sound power levels based on manufacturers' test data and under warranty by the manufacturer. The overall A-weighted levels are typically guaranteed and subject to a ± 2 decibel at an A-weighted scale (dBA) uncertainty band when measured in accordance with International Electrotechnical Commission (IEC) 61400-11. Supporting warranty documentation will be available when contract documents have been signed with the selected turbine vendor. The numbers shown in this Exhibit B table do not include the ± 2 uncertainty band.

Abbreviations: dBA = A-weighted sound level in decibels; ft = feet; m = meters; MW = megawatt.

Wind Turbine Towers

The tower that supports the wind turbine will be a tapered monopole, shown in Figure B-1, ranging up to 328 ft (100 m) in height, depending on the vendor selected.

Each tower will be uniformly painted a neutral gray or white color approved by the FAA for daylight marking. Each tower will feature a locked entry door at ground level and an internal access ladder with safety platforms for access to the nacelle. A controller cabinet will be located inside each tower at its base. Towers will be fabricated in three sections assembled onsite. The towers will be designed to withstand the maximum wind speeds expected at the Facility—typically 43 meters per second (m/s) (100 miles per hour [mph]) at hub height.

Wind Turbine Foundations

Each turbine tower will be supported by a reinforced concrete foundation ranging up to 80 ft (24 m) in width. The foundation could be either a spread-foot or caisson-type concrete foundation. Figure B-2 presents a sample spread-footing foundation plan. The actual foundation design for each turbine will be determined based on site-specific geotechnical information and structural loading requirements of the selected turbine model.

The portion of the foundation that is above 3 feet below grade is called the pedestal. The bottom of the pedestal will be 3 feet below grade and the top of the pedestal will be 0.5 foot above grade. The pedestal will be up to 20 ft (6 m) in diameter and will be approximately 3.5 feet in depth. The estimated amount of concrete in the pedestal is 26 to 41 cubic yards.

Generator Step-Up Transformer and Transformer Foundations

For all turbine types, a Generator Step-Up (GSU) transformer will be installed at the base of each wind turbine or within the nacelle to increase the output voltage of the wind turbine to the voltage of the power collection system (typically 34.5 kilovolts [kV]). Small concrete slab foundations will be constructed to support the GSU transformers located at the turbine base.

Figure B-3 shows the typical GSU transformer and its foundation. The transformer is a rectangle measuring approximately 7.5 feet by 8.5 feet. Support for the transformer will be provided by a concrete pad or foundation approximately 8 inches thick, which will be placed over 2 feet of weak concrete fill. The weak concrete fill will measure 7.5 feet by 13.5 feet and will be placed under the transformer pad and between the transformer and the tower pedestal. The entire support structure will be above 3 feet below grade. Approximately 1.5 cubic yards will be used in the pad and approximately 11 cubic yards will be used in the concrete fill, for a total of approximately 13 cubic yards of concrete per transformer.

(iii) A site plan and general arrangement of buildings, equipment and structures.

Response: A site plan is included in Exhibit C, Figure C-4 (maximum turbine layout) and Figure C-6 (minimum turbine layout).

(iv) Fuel and chemical storage facilities, including structures and systems for spill containment.

Response: Although the O&M facility(s) is a related or supporting facility rather than a major component of the energy facility, it is addressed below in response to OAR 345-021-0010(1)(b)(A)(iv) addressing the Facility's fuel and chemical storage facilities.

B.1.4.2 Operations and Maintenance Facility(s)

The Facility will have up to two O&M facilities located on approximately 10 acres each. Approximately 3 acres will be fenced and graveled for the O&M facility, including the

building and adjacent parking and storage. The remaining 7 acres will be used for temporary staging during construction. Each O&M facility will include a one-story building of up to 8,000 square feet. The building(s) will house offices (including office space for several contractors), bathroom and kitchen facilities, a break room, a storage area, a garage for vehicle, turbine, and equipment maintenance, and the supervisory, control, and data acquisition (SCADA) equipment. In addition, the O&M building(s) will be used to store lubricants, oils, grease, antifreeze, degreasers, and hydraulic fluids used in the operation and maintenance of the Facility. Such materials will be stored in approved containers located aboveground. Similarly, lubricants, oils, greases, antifreeze, cleaners, degreasers, or hydraulic fluids being held for delivery to a certified recycling transporter will be temporarily stored in the O&M building(s) in approved containers that will be located aboveground.

The production, use, storage, transport, and disposal of hazardous materials associated with the proposed Facility will be in strict accordance with federal, state, and local government regulations and guidelines. No extremely hazardous materials (as defined by 40 *Code of Federal Regulations* 355) are anticipated to be produced, used, stored, transported, or disposed of as a result of this Facility.

The wind turbines and transformers will likely use the following lubricants, oils, greases, antifreeze, cleaners, degreasers, and hydraulic fluids (or comparable products from other manufacturers):

- Simple Green (cleaner and degreaser)
- Oil-Flo (cleaner and degreaser)
- Mobil SHC 632 (gear oil)
- Mobilux EP 1 (grease)
- Mobil SHC 524 (hydraulic fluid)
- Shell DIALA (R) A oil (mineral oil used as transformer coolant)
- Ethylene glycol (standard commercial antifreeze used in radiators)

None of these products contains any compounds listed as extremely hazardous by the U.S. Environmental Protection Agency (EPA). These products will be used in moderate quantities and will be contained entirely within the spill trap and nacelle, so that the possibility of accidental leakage is minimal. Lubricants, oils, antifreeze, and hydraulic fluids will be checked according to periodic maintenance schedules. The schedule calls for fluid checks more often the first year and then every 6 months thereafter. Fluids will be replenished as needed and changed every 1 to 2 years, as recommended by the manufacturer. Fluid changes will be performed up-tower, where any accidental spill will be contained by the nacelle. Spent lubricants, oils, greases, antifreeze, cleaners, degreasers, and hydraulic fluids will be brought back to the O&M building(s) for temporary storage before being recycled by a licensed waste disposal contractor.

Transformers will contain cooling oil that does not contain polychlorinated biphenyls (PCBs). Transformers will be regularly inspected.

Towers and other Facility equipment will arrive onsite already painted and will rarely need repainting during the life of the equipment. Should any repainting be necessary, it will be performed by qualified, licensed contractors.

Herbicides may be used at the landowner's request to minimize the potential for introduction of weeds into adjacent cultivated areas. Herbicides will be applied either by the landowner or by a licensed contract professional charged with the selection of herbicides. Herbicides will not be stored or disposed of on the Facility site.

The Facility site will be accessed by a variety of construction and O&M vehicles and equipment. Construction equipment and O&M trucks will be properly maintained to minimize leaks of motor oils, hydraulic fluids, and fuels. Refueling and maintenance of vehicles that are authorized for highway travel will be performed offsite at an appropriate facility. However, construction vehicles that are not highway-authorized will be maintained at the Facility as needed.

B.1.4.3 Other Equipment and Systems

(v) Equipment and systems for fire prevention and control.

Response: Each wind turbine generator and pad-mounted transformer will be constructed with a concrete pad around each base, surrounded by a nonflammable gravel apron measuring up to 15 feet in radius.

The proposed turbines have built-in equipment protection features that shut down the turbine automatically to minimize the chance of a mechanical problem causing major damage or a fire. The underground electrical collection system substantially reduces the risk of fire from short circuits caused by wildlife or weather.

Onsite employees will receive annual fire prevention and response training by qualified instructors or members of the local fire department. Employees will also be required to keep vehicles on roads and off dry grassland during the dry months of the year, unless such activities are required for emergency purposes, in which case fire precautions will be observed.

Service vehicles assigned to regular maintenance or construction at the Facility site, including the O&M facility(s), will be equipped with a shovel and portable fire extinguisher of a 4A5OBC or equivalent rating.

At the beginning of Facility operations, the certificate holder will provide to the North Gilliam County Rural Fire Protection District a copy of the approved site plan indicating the identification number assigned to each turbine and the location of all Facility structures. During Facility operations, the certificate holder will provide to the North Gilliam County Rural Fire Protection District the names and telephone numbers of Facility personnel available to respond on a 24-hour basis in case of an emergency on the Facility site.

(vi) For thermal power plants:

(I) A discussion of source, quantity and availability of all fuels proposed to be used in the facility to generate electricity or useful thermal energy;

Response: While the above rule is not applicable to wind power generation, Figure B-4 is provided to show the frequency and direction of the wind in the general Facility area.

(II) Process flow, including power cycle and steam cycle diagrams to describe the energy flows within the system;

Response: The above rule is not applicable to wind power generation. However, as described earlier in this Exhibit, wind energy will be converted to electricity by turbines generating 1.5 to 3.0 MW, depending on the vendor selected. The proposed turbines will employ an active yaw control (designed to steer the turbine toward the wind), active blade pitch control (designed to regulate wind rotor speed), and a generator/power electronic converter system (designed to produce nominal 60 Hertz, electric power). The rotor spins in a clockwise direction under normal operating conditions when viewed from an upwind location. At speeds exceeding approximately 56 mph, the rotor stops turning. Electricity is generated by the turbines at 600 to 1,000 volts, depending on the manufacturer, and then is converted to 34.5 kV by pad-mounted transformers adjacent to each turbine or transformers located in the nacelle. Power is collected at 34.5 kV and transmitted by underground cables to the collector substations, where it is converted to 230 kV for transmission to the regional transmission network.

(III) Equipment and systems for disposal of waste heat;

Response: The Facility will generate wind power; no waste heat will be generated.

(IV) The fuel chargeable to power heat rate;

Response: Not applicable.

(vii) For surface facilities related to underground gas storage, estimated daily injection and withdrawal rates, horsepower compression required to operate at design injection or withdrawal rates, operating pressure range and fuel type of compressors.

Response: Not applicable.

(viii) For facilities to store liquefied natural gas, the volume, maximum pressure, liquefication and gasification capacity in thousand cubic feet per hour.

Response: Not applicable.

B.2 DESCRIPTION OF RELATED OR SUPPORTING FACILITIES

OAR 345-021-0010(1)(b)(B) *A description of major components, structures and systems of each related or supporting facility.*

Response: Related or supporting facilities described in this section consist of the power collection system, two collector substations, SCADA system, 230-kV transmission lines, meteorological towers, O&M facility(s), transportation and access roads, and additional construction areas.

B.2.1 Power Collection System

The Facility power collection system will consist of four key elements: (1) a collector system, which collects energy generated at 600 to 1,000 volts (depending on the manufacturer) from each wind turbine, transforms it to 34.5 kV through a pad-mounted transformer or transformer located in the nacelle, and delivers the power through a network of electrical conductors to (2) two new collector substations, which transform energy delivered by the collector system from 34.5 kV to 230 kV and connect to (3) a proposed new overhead 230-kV transmission line, which in turn connects to (4) the existing 500-kV BPA Slatt-Buckley transmission line at the Slatt substation.

The power collection system portion of the Facility's electrical system consists of the collector cable system that will be installed along and between the turbine strings. This system will collect power generated by the individual wind turbines and route the power to the collector substations for delivery into the utility power grid. Each wind turbine generates power at 600 to 1,000 volts (depending on the manufacturer). A transformer adjacent to each tower or within the nacelle transforms the power to 34.5 kV. The power collection system will operate at 34.5 kV.

The majority of the collector cable system will be buried in the soil approximately 3 feet below the ground surface. However, where site-specific considerations require, the collector system may be aboveground. Using aboveground structures allows the collector cables to "span" canyons and intermittent streams and thus to reduce environmental impacts. The overhead transmission line support structures will generally be about 80 to 100 feet tall, depending on terrain.

Approximately 76 miles of collector cables will be placed underground, and 15 miles will run on overhead pole structures. Examples of specific conditions that will make it environmentally or economically advantageous to run portions of the collection system aboveground are as follows:

- Steep terrain where the use of backhoes and trenching machines is infeasible or unsafe
- Stream and wetland crossings where an aboveground line avoids or minimizes environmental impacts
- Soil with low thermal conductivity preventing adequate heat dissipation from the conductor, and rocky conditions that significantly increase trenching costs

Because detailed geotechnical studies have not yet been completed for the Facility, it is not possible to determine the precise locations where aboveground collector cables may be necessary. Geotechnical studies may show that more cables are needed aboveground than originally planned in the preliminary layout. Therefore, in order for the Department to evaluate the potential impact of aboveground collector cables, the Applicant proposes that no more than 30 percent (approximately 27 miles) of the collector system be aboveground.

B.2.2 Facility Collector Substations

The power collection system will link each turbine to the next and ultimately to two new collector substations. One collector substation will be located in the western portion of the site boundary. A 230-kV aboveground transmission line will connect this western substation to the central collector substation and the central collector substation to BPA's existing 500-kV line at the Slatt substation. Figures C-4 and C-6 show the substation locations.

Each substation site will be surrounded by a graveled, fenced area with transformer and switching equipment and an area to park utility vehicles. Transformers will be non-PCB oil-filled types.

Any additional equipment installed at the substations will be located within the existing fenced area. Additional substation equipment may include circuit-breakers, power transformer(s), bus and insulators, disconnect switches, relaying, battery and charger, surge arrestors, AC and DC supplies, control house, metering equipment, SCADA provision, grounding, and associated control wiring.

B.2.3 SCADA System

A SCADA system to be installed at the Facility will collect operating and performance data from each wind turbine and the Facility as a whole, and provide remote operation of the wind turbines. The wind turbines will be linked to a central computer via a fiber optic network. Fiber optic cables for the SCADA system will be installed in the collector cable trenches with or above the power conductors. The SCADA cables will be installed at least 3 feet below ground. Where site-specific conditions require the collector system to be aboveground, the SCADA system will also be aboveground. The host computer is expected to be located in the O&M building(s) at the Facility. The SCADA software consists of applications developed by the turbine vendor or a third-party SCADA vendor.

The specific number of junction boxes to serve the power collection system varies depending on the final turbine layout. Typically, approximately two junction boxes are needed for every 10 turbines. However, a maximum of 5 junction boxes would be constructed per 10 turbines, or a maximum of 34 junction boxes for the Facility.

If portions of the 34.5-kV collector cable system are installed on overhead poles, three wires would be installed per circuit plus an additional shield wire. The ASC requests the flexibility to utilize either single circuit or double circuit poles. For a double circuit, there

would be up to 7 wires, including 3 wires per circuit plus one wire for the shield wire. The SCADA cable is contained inside the shield wire.

As described in Exhibit W, the Applicant's lease agreements specify that in the event of Facility retirement, portions of underground electrical and communication cable buried below 3 feet will be left in place. These actions will allow agricultural use of the Facility site after decommissioning.

B.2.4 230-kV Transmission Line

A new overhead 230-kV transmission line will connect the Facility to the existing 500-kV BPA Slatt-Buckley transmission line at the Slatt substation located approximately 1.5 miles southeast of Arlington, Oregon. The new overhead 230-kV transmission line will run from the Facility's western collector substation to the central collector substation and from the central collector substation to BPA's Slatt substation. The overhead 230-kV transmission line segment from the western collector substation to the central collector substation is approximately 8.2 miles or up to 9 miles in length. Three potential routes are under evaluation for the transmission line segment from the central collector substation to the Slatt substation: a preferred transmission line route that is approximately 8.8 miles long, an Alternate 1 route that is approximately 8.2 miles long, and an Alternate 2 route that is approximately 8.8 miles long. The portion of the transmission line from the central collector substation to the Slatt substation will be up to 10 miles in length. The three routes are shown in Figures C-4 and C-6.

B.2.5 Meteorological Towers

Up to eight permanent meteorological (met) towers will be located within the Facility site boundary for the collection of Facility meteorological data. Permanent meteorological towers will be free-standing (unguyed) structures. The towers will be up to approximately 262 ft (80 m) high with an equilateral triangle base, each side of which will be roughly 25 ft (8 m) long. The met tower foundation will be a square pad measuring approximately 28 feet by 28 feet by 3 feet deep. Figure B-5 provides general design information for a typical met tower foundation.

B.2.6 Operations and Maintenance Facility(s)

Although the O&M facility(s) is a related or supporting facility, it is addressed in Section B.1.4.2 as part of the description of the Facility's fuel and chemical storage facilities, per OAR 345-021-0010(1)(b)(A)(iv).

B.2.7 Transportation and Access Roads

Transportation to and from the site will follow a route that includes access via Interstate, State, and County roads, as further described in Exhibit U. A final transportation plan will be developed in consultation with the Gilliam County Public Works Departments prior to construction.

Constructing the Facility will require improving some existing roads, and constructing new gravel roads to provide access for construction vehicles. The new access roads may continue to be used during Facility operations.

Some existing private roads will be improved by widening, grading, and graveling. Typical existing roads are 8 to 12 feet wide, and will need to be widened to up to 80 feet during construction and up to 20 feet during operations. Where necessary, existing cattle guards will be replaced with wider cattle guards to accommodate the wider roads.

In areas where existing roads do not provide access to wind turbine locations, and along the length of turbine strings, new gravel access roads will be constructed. Generally, these new access roads will be up to 20 feet wide, with up to an additional 60 feet temporarily disturbed for crane paths[1] during construction. Within the Facility, approximately 70 miles of new roads will be constructed (see Exhibit C, Figure C-4). Roads will be designed under the direction of a licensed engineer and compacted to meet equipment load requirements.

B.2.8 Additional Construction Areas

During construction, temporary staging areas will be used to stage construction and store supplies and equipment. A 7-acre staging area will be located within the 10-acre construction areas at each O&M facility. Approximately one 2.5-acre staging area will be located adjacent to each proposed turbine string. Several 5-acre staging areas will be centrally located within the site boundary. The locations of these staging areas are illustrated in Exhibit C in Figures C-4 and C-6.

The staging areas will consist of a crushed gravel surface that will be removed following construction. The disturbed areas will be restored to their preconstruction conditions using seed mixes and techniques developed in consultation with the Oregon Department of Fish and Wildlife (ODFW) and Gilliam County Weed Control Board.

B.3 DIMENSIONS OF MAJOR STRUCTURES AND FEATURES

OAR 345-021-0010(1)(b)(C) *The approximate dimensions of major facility structures and visible features.*

Response: The approximate dimensions of the turbines, collector substations, and O&M facility(s) are addressed in this section.

B.3.1 Turbines

The primary visible Facility structures will be the turbines. As discussed in Section B.1.3, the turbine vendor and size have not yet been selected for the Facility. Turbine towers

[1] The cranes required to erect turbines will temporarily disturb a corridor up to 80 feet wide during transport between turbine locations. This 80-foot corridor will parallel the access road corridor where possible, and will allow for the irregular path made by the 30-foot-wide crane, and up to 25 feet on either side of the crane for support vehicles. Where vegetation needs to be cleared (i.e., vegetation too large for the crane to walk over), the vegetative spoils will be pushed beyond the 60-foot path for up to 10 feet on either side, for a maximum disturbance width of 80 feet. In locations where the crane paths do not parallel access roads, temporary crane paths will be 60 feet in width.

throughout the Facility will be tubular structures up to 328 ft (100 m) tall at the turbine hub. With the nacelle and blades mounted, the total height of the wind turbine will be up to approximately 492 ft (150 m), from the base of the turbine to the blade (also called rotor) tip. The diameter of the circle covered by the turbine blades will be up to approximately 328 ft (100 m); that is, each blade will be up to approximately 164 ft (50 m) long. The towers will be smooth, hollow steel structures, up to 16 feet in diameter at the base. Each tower will be mounted on a reinforced concrete foundation ranging up to 80 ft (24 m) in width or up to 6,400 square feet, depending on the turbine vendor selected. Refer to Figure B-1 for a schematic of the typical wind turbine and tower. Refer to Figure B-2 for the shape and layout of a typical spread-foot tower foundation for a 1.5-MW turbine.

The majority of the turbine foundation will be underground, and only a portion of it will be covered with gravel for fire protection (up to 15 feet of nonflammable groundcover around the towers on all sides, referred to as the gravel apron). The turbine pad and transformer will be located within the graveled area. The area permanently disturbed during operations will be circular with a radius of up to 23 feet, or up to 1,660 square feet. These dimensions include a turbine tower with a radius of up to 8 feet (16 feet in diameter) and surrounding gravel area with a radius of up to 15 feet, which represent the 3.0-MW tower diameter and maximum graveled area (i.e., the worst-case scenario).

During construction, a larger area will be used to lay down the rotors and maneuver cranes during turbine assembly. The typical area of disturbance is a circular area with a radius equal to the blade length, as shown in Figure B-6. In some cases, construction contractors prefer a larger area measuring approximately 160,000 square feet at each of the turbine locations to reduce construction costs. The Applicant has calculated the worst-case impacts in Exhibits C and P, using a temporary staging area of approximately 160,000 square feet at each of the turbine locations.

The Applicant will contract with one or more construction companies to build the tower foundations and gravel aprons. The construction company will be responsible for locating sources of aggregate and concrete and obtaining any related permits.

B.3.2 Facility Collector Substations

The collector substations will be located as shown in Figures C-4 and C-6. Each substation will be situated within a fenced area of approximately 5 acres and will consist of circuit-breakers, power transformer(s), bus and insulators, disconnect switches, relaying, battery and charger, surge arrestors, AC and DC supplies, control house, metering equipment, SCADA provision, grounding, and associated control wiring.

B.3.3 Operations and Maintenance Facility(s)

The Facility will have up to two O&M facility(s) located on approximately 10 acres each. Each O&M facility will include a one-story structure of up to 8,000 square feet. The O&M building(s) will house offices (including office space for several contractors), bathroom and kitchen facilities, a break room, a storage area, a garage for vehicle, turbine, and equipment maintenance, and the SCADA equipment. Approximately

3 acres will be fenced and graveled for the O&M building(s) and adjacent parking and storage. The remaining 7 acres will be used for temporary staging during construction. The O&M building(s) will use exempt groundwater well(s) to supply less than 5,000 gallons per day for commercial/industrial use and a septic system. Power and phone service for the O&M building(s) will be provided by local providers, such as Pacific Power or Columbia Basin and Sprint.

B.4 CORRIDOR EVALUATION AND SELECTION

OAR 345-021-0010(1)(b)(D) *If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300, a corridor selection assessment explaining how the applicant selected the corridor(s) for analysis in the application. In the assessment, the applicant shall evaluate the corridor adjustments the Department has described in the project order, if any. The applicant may select any corridor for analysis in the application and may select more than one corridor. However, if the applicant selects a new corridor, then the applicant must explain why the applicant did not present the new corridor for comment at an informational meeting under OAR 345-015-0130. In the assessment, the applicant shall discuss the reasons for selecting the corridor(s), based upon evaluation of the following factors:*

A new overhead 230-kV transmission line will connect the Facility to the existing 500-kV BPA Slatt-Buckley transmission line at the Slatt substation located approximately 1.5 miles southeast of Arlington, Oregon. The new overhead 230-kV transmission line will run from the Facility's western collector substation to the central collector substation and from the central collector substation to BPA's Slatt substation. The overhead 230-kV transmission line from the western collector substation to the central collector substation is approximately 8.2 miles or up to 9 miles in length. Three potential routes are under evaluation for the portion of the transmission line from the central collector substation to the Slatt substation: a preferred transmission line route that is approximately 8.8 miles long, an Alternate 1 route that is approximately 8.2 miles long, and an Alternate 2 route that is approximately 8.8 miles long. The portion of the transmission line from the central collector substation to the Slatt substation will be up to 10 miles in length. The three routes are shown in Figures C-4 and C-6.

The proposed 230-kV transmission line is a related or supporting facility. The Applicant has proposed corridors for the transmission line (or transmission line segments) to allow for micrositing around wetlands, Washington ground squirrel colonies, and other sensitive features. In addition, the Applicant has proposed a preferred and two alternate routes for the portion of the transmission line from the central collector substation to the Slatt substation. As mentioned above, the preferred transmission line route is approximately 8.8 miles long, and the alternate transmission line routes are approximately 8.2 and 8.8 miles long, as shown in Figures C-4 and C-6. All three routes terminate at a proposed interconnection point, as shown in the same figures.

However, there is not an alternative route that is significantly different from these corridors that would better meet the Applicant's needs and at the same time satisfy the Council's standards. The transmission line routes are limited by the need for a direct route to carry electricity from the proposed turbines to the interconnection point at Slatt

substation; by topography; and by the need to locate the route through other wind facilities on land for which the Applicant has negotiated or is in the process of negotiating long-term wind leases or easements with adjacent landowners and developers. The transmission line segment from the western portion of the site boundary to the central collector substation crosses through the Leaning Juniper II Wind Power Facility (LJF) and must be sited around the LJF turbines and other facilities. The transmission line segment from the central collector substation to the Slatt substation crosses through the operating Pebble Springs Wind Power Facility.

In sum, other than the preferred and alternate routes for the transmission line from the central collector substation to the Slatt substation, there are no alternative routes that would "better meet the Applicant's needs and at the same time satisfy the Council's standards."

(i) Least disturbance to streams, rivers and wetlands during construction;

Response: Not applicable.

(ii) Least percentage of the total length of the pipeline or transmission line that would be located within areas of Habitat Category 1, as described by the Oregon Department of Fish and Wildlife;

Response: Not applicable.

(iii) Greatest percentage of the total length of the pipeline or transmission line that would be located within or adjacent to public roads, as defined in ORS 368.001, and existing pipeline or transmission line rights-of-way;

Response: Not applicable.

(iv) Least percentage of the total length of the pipeline or transmission line that would be located within lands that require zone changes, variances or exceptions;

Response: Not applicable.

(v) Least percentage of the total length of the pipeline or transmission line that would be located in a protected area as described in OAR 345-022-0040;

Response: Not applicable.

(vi) Least disturbance to areas where historical, cultural or archaeological resources are likely to exist; and

Response: Not applicable.

(vii) Greatest percentage of the total length of the pipeline or transmission line that would be located to avoid seismic, geological and soils hazards;

Response: Not applicable.

(viii) Least percentage of the total length of the pipeline or transmission line that would be located within lands zoned for exclusive farm use;

Response: Not applicable.

B.5 PIPELINE AND TRANSMISSION LINE

OAR 345-021-0010(1)(b)(E) *For any pipeline or transmission line, regardless of size:*

B.5.1 Length of Pipeline or Transmission Line

(i) The length of the pipeline or transmission line.

Response: Under the worst-case scenario, the maximum length of the 34.5-kV collector cables will be approximately 76 miles. The maximum length installed aboveground under the worst-case scenario will be 30 percent of the collector system or 27 miles.

The overhead 230-kV transmission line from the western collector substation to the central collector substation is approximately 8.2 miles or up to 9 miles in length. Three potential routes are under evaluation for the transmission line from the central collector substation to the Slatt substation: a preferred transmission line route that is approximately 8.8 miles long, an Alternate 1 route that is approximately 8.2 miles long, and an Alternate 2 route that is approximately 8.8 miles long, as shown in Figures C-4 and C-6. The portion of the transmission line from the central collector substation to the Slatt substation will be up to 10 miles in length.

B.5.2 Right-of-Way Width

(ii) The proposed right-of-way width of the pipeline or transmission line, including to what extent new right-of-way will be required or existing right-of-way will be widened.

Response: The collector cables will be buried in the soil approximately 3 feet below ground surface, except where overhead lines will be needed to cross streams, wetlands, canyons, or other rugged terrain. The collector system line and any overhead collector cables will occupy private land pursuant to leases or easements with landowners; the leases will authorize placement of the cables and restrict inconsistent or competing uses of the property, but will not necessarily contain any defined right-of-way width. Therefore, no new right-of-way will be required and no existing right-of-way will be widened for a transmission line.

B.5.3 Public Right-of-Way

(iii) If the proposed corridor follows or includes public right-of-way, a description of where the facility would be located within the public right-of-way, to the extent known. If the applicant proposes to locate all or part of a pipeline or transmission line adjacent to but not within the public right-of-way, describe the reasons for locating the facility outside the public right-of-way. The applicant must include a set of clear and objective criteria and a description of the type of evidence that would support locating the facility outside the public right-of-way, based on those criteria.

Response: The proposed corridor for the collector and transmission lines will not include public right-of-way. The Applicant has chosen to use corridors made available in its private land leases and easements rather than public right-of-way to avoid the possibility that the County may, at a later date, choose to expand public roads within existing public right-of-way.

B.5.4 Pipeline Diameter and Location

(iv) For pipelines, the operating pressure and delivery capacity in thousand cubic feet per day and the diameter and location, above or below ground, of each pipeline.

Response: Not applicable.

B.5.5 Transmission Line Voltage, Capacity, Current, and Structures

(v) For transmission lines, the rated voltage, load carrying capacity, and type of current and a description of transmission line structures and their dimensions.

Response: The location of the underground collector cables is shown in Figures C-4 and C-6. The collector cable and surrounding insulation jacket will have a total diameter of less than 3 inches, as shown in Table B-2.

Table B-2. Typical Underground Collector Cable Dimensions

Cable Size	Diameter (inches)	Insulation Wall Thickness (inches)
1/0 AWG	1.10	0.35
4/0 AWG	2.15	0.35
500 kcmil	1.56	0.35
1,000 kcmil	1.91	0.35

AWG = American wire gauge.
kcmil = thousands of circular mills.

The underground collection system power cable between turbines in a turbine string will be a stranded metal conductor with a size in the 1/0 to 4/0 American wire gauge (AWG) range. The home runs from each string to the collector substations will use a stranded metal conductor with a size generally in the 500 to 1,000 thousands of circular mills (kcmil) range.

The aboveground portion of the collection system will be a 34.5-kV collector line supported by wood or steel two-pole H-frame or wood or steel monopole support structures. The structures will be buried to a depth of approximately 8 feet 6 inches and will have a total height of approximately 56 feet above grade to the top of the poles. The dimensions of the structures for single- and double-circuit poles are shown in Figures B-7 and B-8. Wood or steel monopole support structures may also be used for single and double circuits, as shown in Figures B-9 and B-10. The overhead collection support poles would carry up to two collection circuits, with each circuit consisting of

three conductors for a total of six conductors. Additionally, there would be an overhead composite ground wire with optical fiber.

Overhead collector lines will be constructed in accordance with the recommendations of the Avian Power Line Interaction Committee (APLIC) for raptor protection on power lines (including minimum conductor spacing and the use of anti-perch guards near turbines). Perch guards will be installed on transmission line poles located within ½ mile of turbines. The Applicant has proposed a preferred and two alternate routes for the portion of the transmission line from the central collector substation to the Slatt substation. As mentioned above, the preferred transmission line route is approximately 8.8 miles long and the alternate transmission line routes are approximately 8.2 and 8.8 miles long, as shown in Figures C-4 and C-6. All three routes terminate at a proposed interconnection point, as shown in the same figures.

The 230-kV line will be supported either by H-frame structures with two galvanized steel or wood poles, or by a galvanized steel or wood monopole structure. The structures will rise to a height of approximately 100 feet above grade. The dimensions of the 230-kV monopole overhead transmission line support structure are shown in Figure B-11. The dimensions of the 230-kV H-frame overhead line support structure are shown in Figure B-12. The dimensions of a potential 230-kV transition structure used at canyon crossings for turns or transitions between monopole and H-frame structures are shown in Figure B-13.

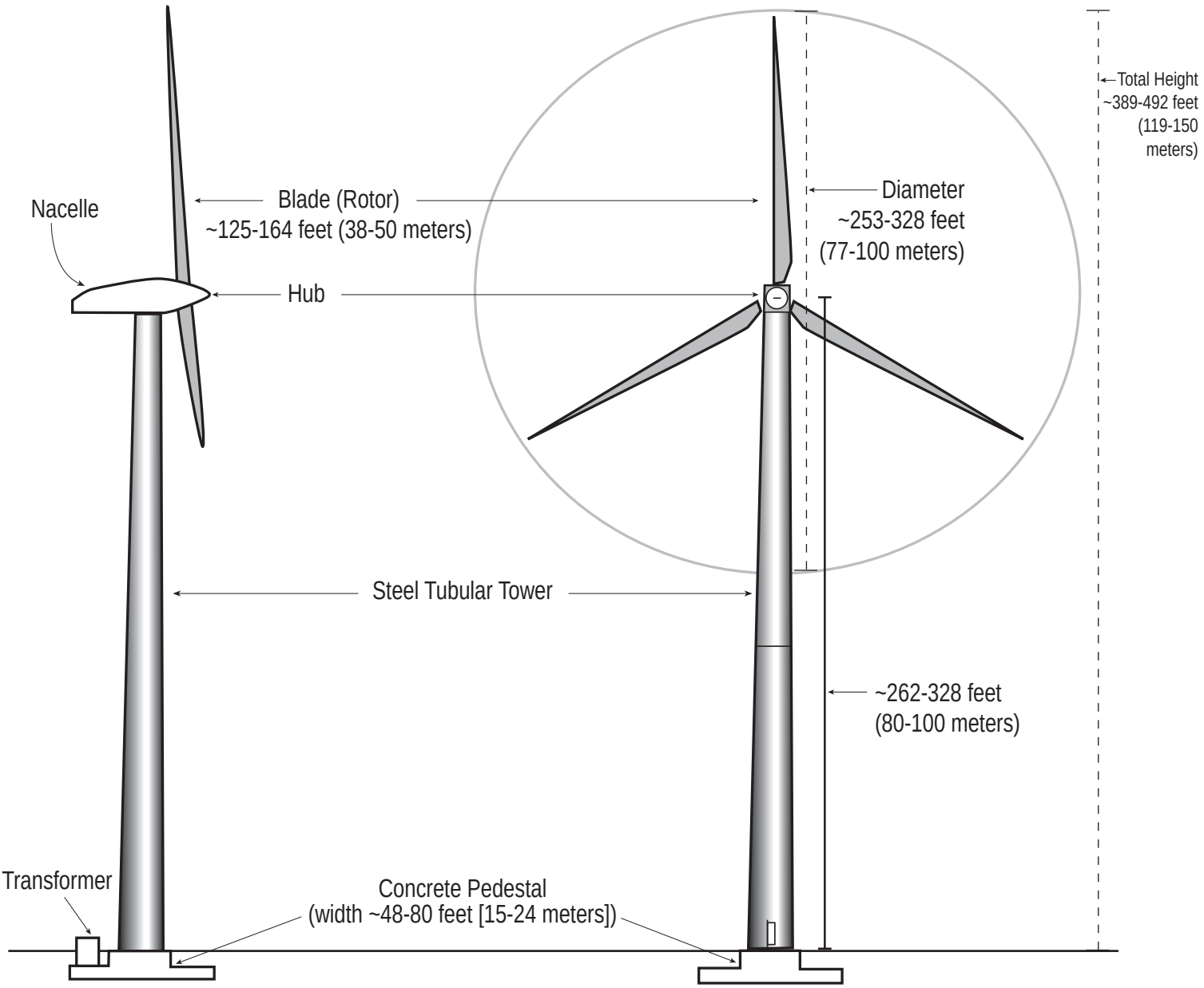
B.6 CONSTRUCTION SCHEDULE

OAR 345-021-0010(1)(b)(F) *A construction schedule including the date by which the applicant proposes to begin construction and the date by which the applicant proposes to complete construction. Construction is defined in OAR 345-001-0010. The applicant shall describe in this exhibit all work on the site that the applicant intends to begin before the Council issues a site certificate. The applicant shall include an estimate of the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor, that the applicant anticipates or has performed as of the time of submitting the application.*

Response: Facility construction is anticipated to begin in late 2010 after issuance of the site certificate. The completion of commissioning and start of commercial operation is targeted for the end of 2011. However, given that construction could conceivably be delayed by weather or other unforeseen circumstances such as market changes, the Applicant would like the flexibility to build the Facility in one or more phases, and requests a deadline for construction completion of 3 years later than the deadline for beginning construction, or 6 years from issuance of the site certificate.

Additional engineering and geotechnical investigations may occur prior to issuance of the site certificate. No other construction work is anticipated to begin prior to issuance of the site certificate. The estimated cost of the preconstruction work is less than $250,000 [ORS 469.300(4), OAR 345-001-0010(11)].

Figures

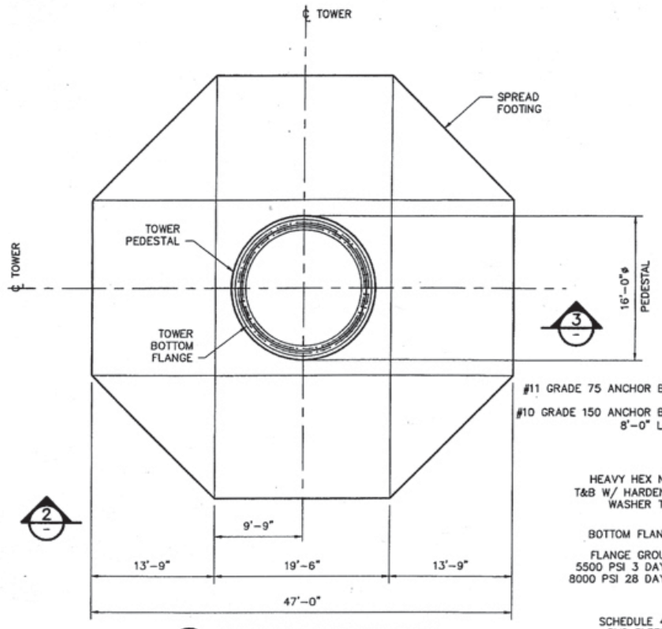


IBERDROLA RENEWABLES

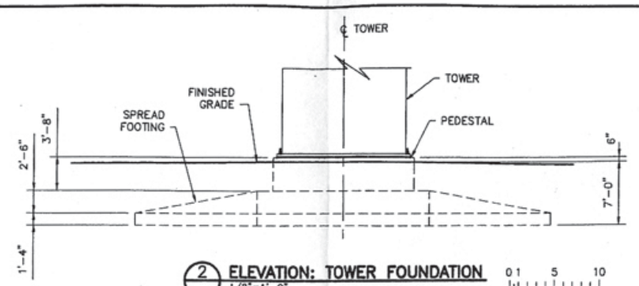
FIGURE B-1

Typical Wind Turbine and Tower

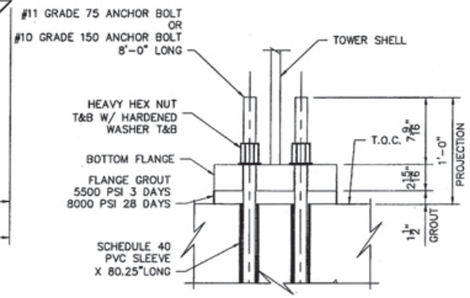
MONTAGUE WIND POWER FACILITY



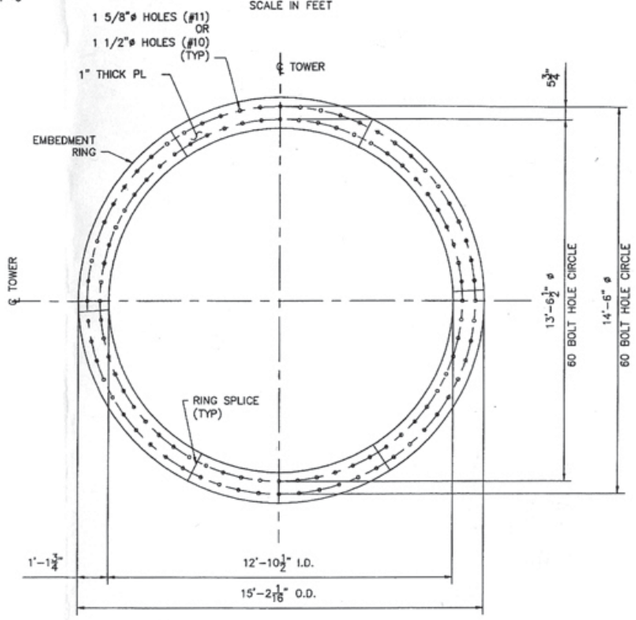
1 PLAN: TOWER FOUNDATION
1/8"=1'-0"
0 1 5 10
SCALE IN FEET



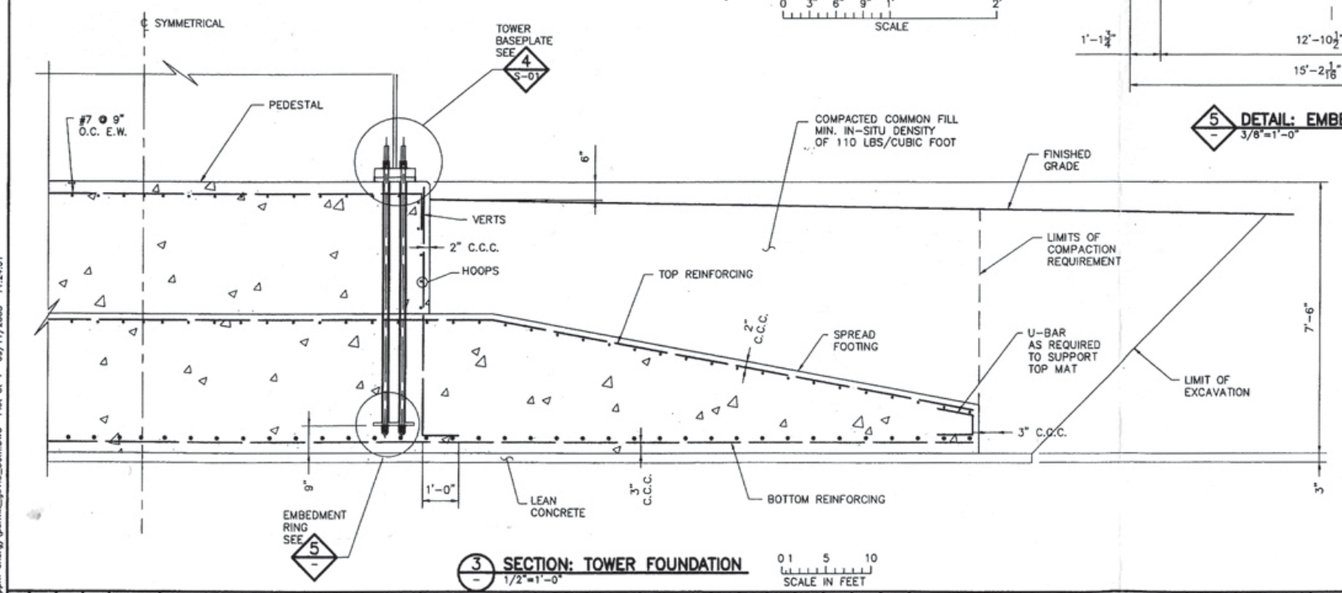
2 ELEVATION: TOWER FOUNDATION
1/8"=1'-0"
0 1 5 10
SCALE IN FEET



4 DETAIL: TOWER BASEPLATE
1 1/2"=1'-0"
0 3" 6" 9" 1' 2'
SCALE



5 DETAIL: EMBEDMENT RING
3/8"=1'-0"
0 2 4 6
SCALE IN FEET



3 SECTION: TOWER FOUNDATION
1/2"=1'-0"
0 1 5 10
SCALE IN FEET

BUILDING AND DESIGN CODES:

BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318, 1999, AMERICAN CONCRETE INSTITUTE.

WIND TURBINE AND TOWER:

MANUFACTURER: GENERAL ELECTRIC
MODEL: GE 1.5S
POWER OUTPUT: 1.5 MW
TURBINE HUB HEIGHT: 80m
SITE LOCATION:

DESIGN SERVICE LOADS:

UNFACTORED SERVICE LOADS DUE TO EXTREME WIND CONDITION CLASS IEC-IIA. (CRITICAL)

OVERTURNING MOMENT, Mxy = 30,433 ft-kips
HORIZONTAL BASE SHEAR, Hxy = 137 kips
VERTICAL TOWER LOAD, Wz = 456 kips

UNFACTORED SERVICES LOADS DUE TO MEAN WIND CONDITION 24 MPH (10m/s) WIND SPEED.

OVERTURNING MOMENT, Mxy = 10,799 FT-KIPS
HORIZONTAL BASE SHEAR, Hxy = 43 kips
VERTICAL TOWER LOAD, Wz = 482 kips

FOUNDATION DESIGN DATA:

MIN. FACTOR OF SAFETY AGAINST OVERTURNING: 1.5
MIN. FACTOR OF SAFETY AGAINST SLIDING: 1.5
MIN. FACTOR OF SAFETY AGAINST BEARING CAPACITY FAILURE: 3.0

REFERENCE DOCUMENTS:

MECAL APPLIED MECHANICS BV DOCUMENT,"FOUNDATION DATA FOR THE TOWER OF THE GEWE 1.5S 80/85M WIND TURBINE", DATED AUGUST 2002.

MIN. 28-DAY COMPRESSIVE STRENGTH OF CONCRETE:
5000 PSI

MIN. YIELD POINT STRENGTH OF REINFORCING BAR:
60 KSI

MIN. TENSILE POINT STRENGTH OF ANCHOR BOLTS:
125 KSI. MIN. YIELD STRENGTH OF **109 KSI.**

ABREVIATIONS:

B.O.	BOTTOM OF
C.C.C.	CLEAR CONCRETE COVER
℄	CENTER LINE
EL.	ELEVATION
E.W.	EACH WAY
EX.	EXISTING
I.D.	INSIDE DIAMETER
MIN.	MINIMUM
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
R	RADIUS
T&B	TOP AND BOTTOM
T.O.C.	TOP OF CONCRETE
TYP	TYPICAL
W/	WITH
ø	DIAMETER

FIGURE B-2
Typical Spread-Footing Foundation
MONTAGUE WIND POWER FACILITY

FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION

CLIENT	9/12							
BID								
CONSTRUCTION								
RELEASED TO/FOR	A	B	C	0	1	2	3	
	DATE RELEASED							

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN.
55435-4803
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

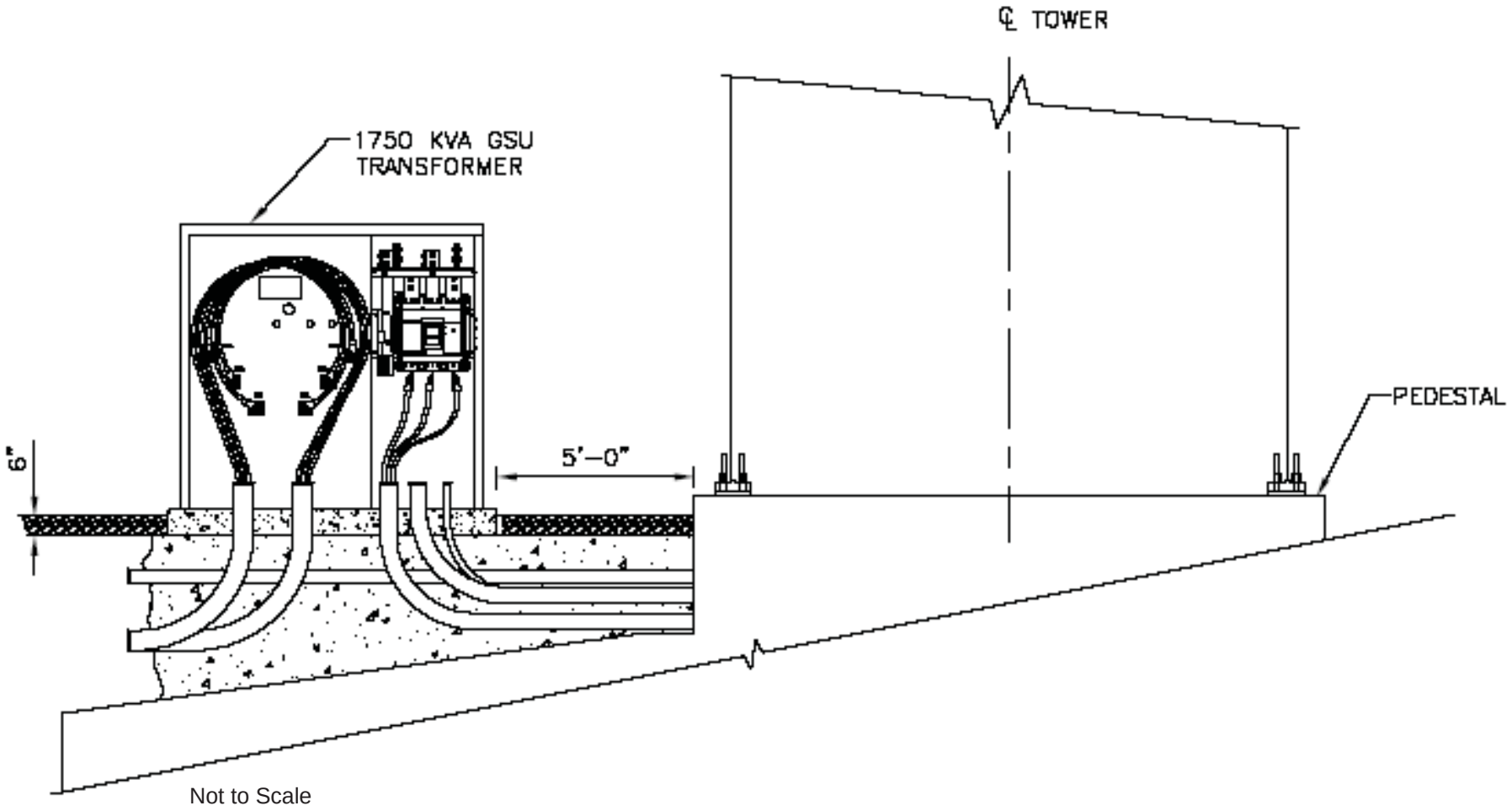
Scale	AS SHOWN
Date	12-SEPT-03
Drawn	CAK
Checked	
Designed	CAK
Approved	

IBERDROLA RENEWABLES

TYPICAL FOUNDATION
FOR 1.5MW TURBINE ON 80M TOWER

SPREAD FOOTING TURBINE FOUNDATION
PLANS, ELEVATION, SECTION, AND DETAILS

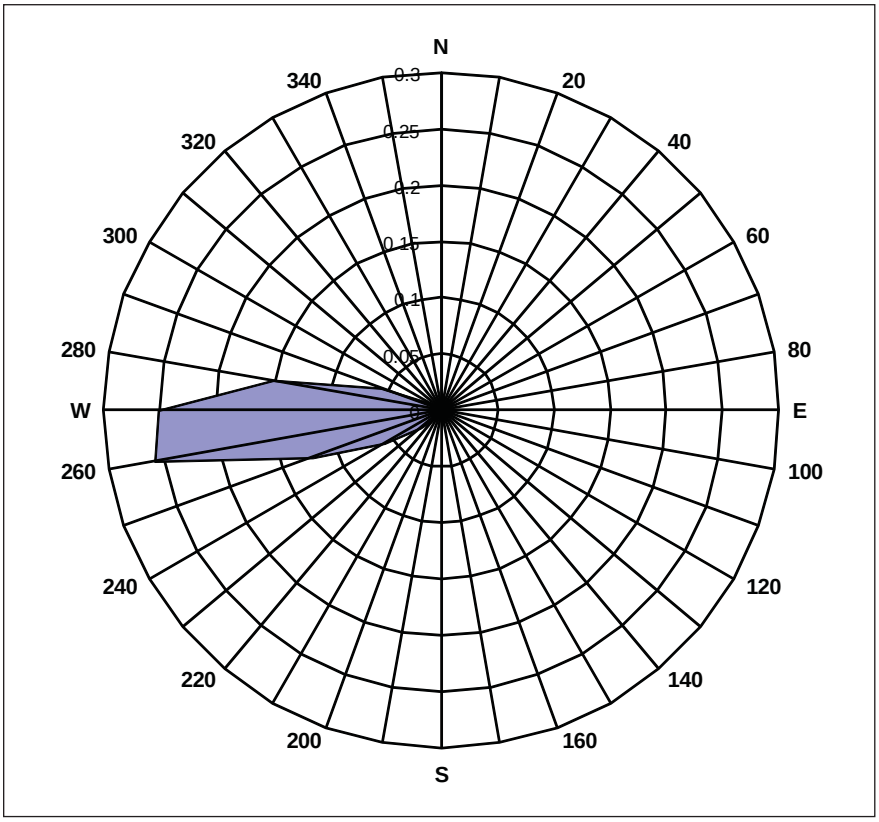
BARR PROJECT No.
CLIENT PROJECT No.
DWG. No. S-01
REV. No. A



IBERDROLA RENEWABLES

FIGURE B-3
Typical Transformer Foundation
MONTAGUE WIND POWER FACILITY

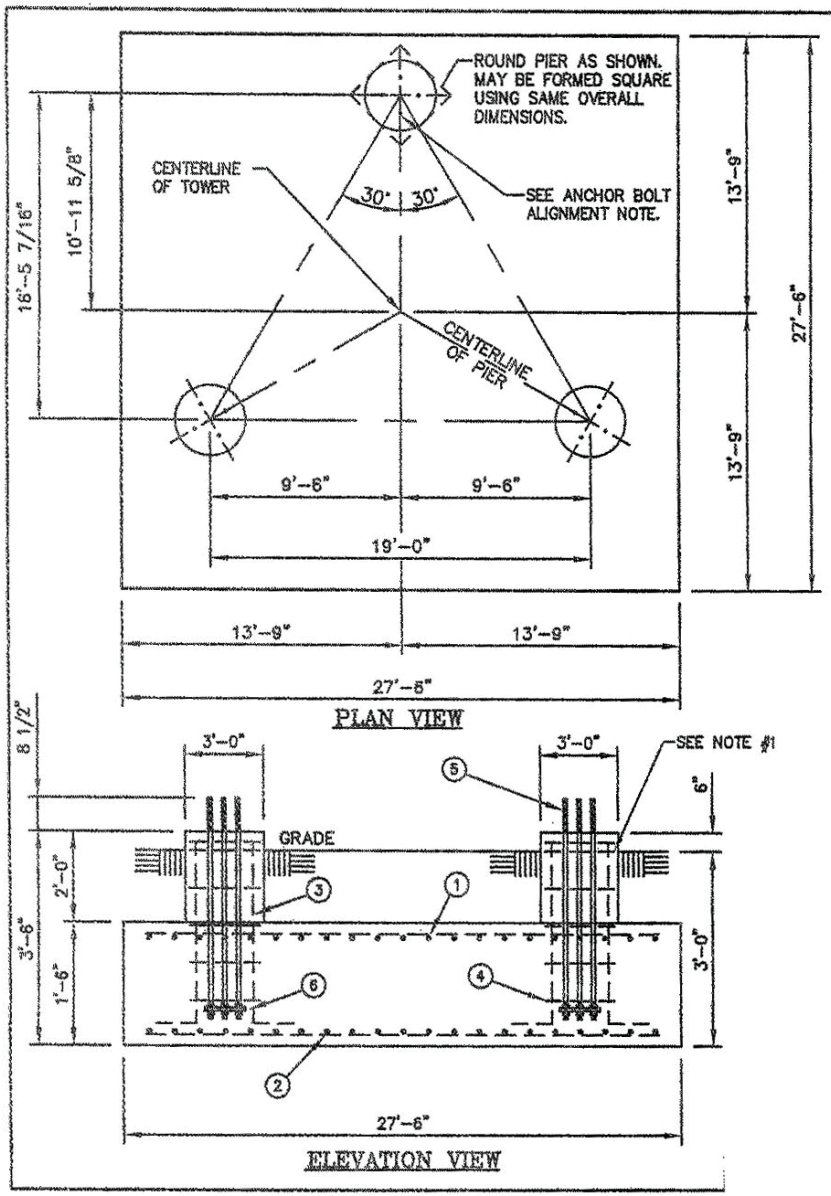
Wind Energy Rose for LJX170
1/1/2007 to 12/31/2008



DIRECTION	PERCENT OF ANNUAL TURBINE ENERGY	
0	N	0%
10		0%
20	20	0%
30		0%
40	40	1%
50		1%
60	60	1%
70		0%
80	80	0%
90	E	0%
100	100	0%
110		0%
120	120	0%
130		0%
140	140	0%
150		0%
160	160	0%
170		0%
180	S	0%
190		0%
200	200	0%
210		0%
220	220	0%
230		1%
240	240	2%
250		6%
260	260	14%
270	W	27%
280	280	25%
290		15%
300	300	6%
310		1%
320	320	0%
330		0%
340	340	0%
350		0%
360		0%
GRAND TOTAL	**100 %**	

IBERDROLA RENEWABLES

FIGURE B-4
Frequency and Direction of Wind in the Facility Area
MONTAGUE WIND POWER FACILITY

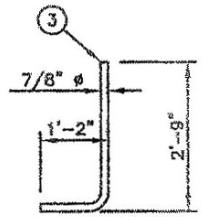


REINFORCING STEEL SCHEDULE								
ITEM	LOCATION	NO. REQ'D.	BAR SPC'G.	SIZE	CUT LGTH.	TOTAL LGTH.	TOTAL WT.	SHAPE
①	PAD TOP REINFORCING	76	EQUALLY SPACED	#8	27'-0"	2052'-0"	5479 LBS.	STRAIGHT
②	PAD BOTTOM REINFORCING	76	EQUALLY SPACED	#8	27'-0"	2052'-0"	5479 LBS.	STRAIGHT
③	PIER VERTICAL REINFORCING	42	EQUALLY SPACED	#7	3'-11"	164'-6"	336 LBS.	
④	PIER TIES	12	SPACED 12" C/C	#4	8'-9"	105'-0"	70 LBS.	
						TOTAL REBAR WT.	11364 LBS.	

ANCHOR BOLT SCHEDULE				
ITEM	PART NO.	NO. REQ'D.	ANCHOR BOLT SIZE	SPACING
⑤	C40041003	12	1 1/2 ø X 3'-4"	EQUALLY SPACED

TEMPLATE SCHEDULE			
ITEM	PART NO.	NO. REQ'D.	BOLT CIRCLE
⑥	C30139001	6	1'-8"

CONCRETE REQ'D	ROUND PIERS	SQUARE PIERS
PAD	42.01 CU. YDS.	42.01 CU. YDS.
PIERS	1.57 CU. YDS.	2.00 CU. YDS.
TOTAL	43.58 CU. YDS.	44.01 CU. YDS.



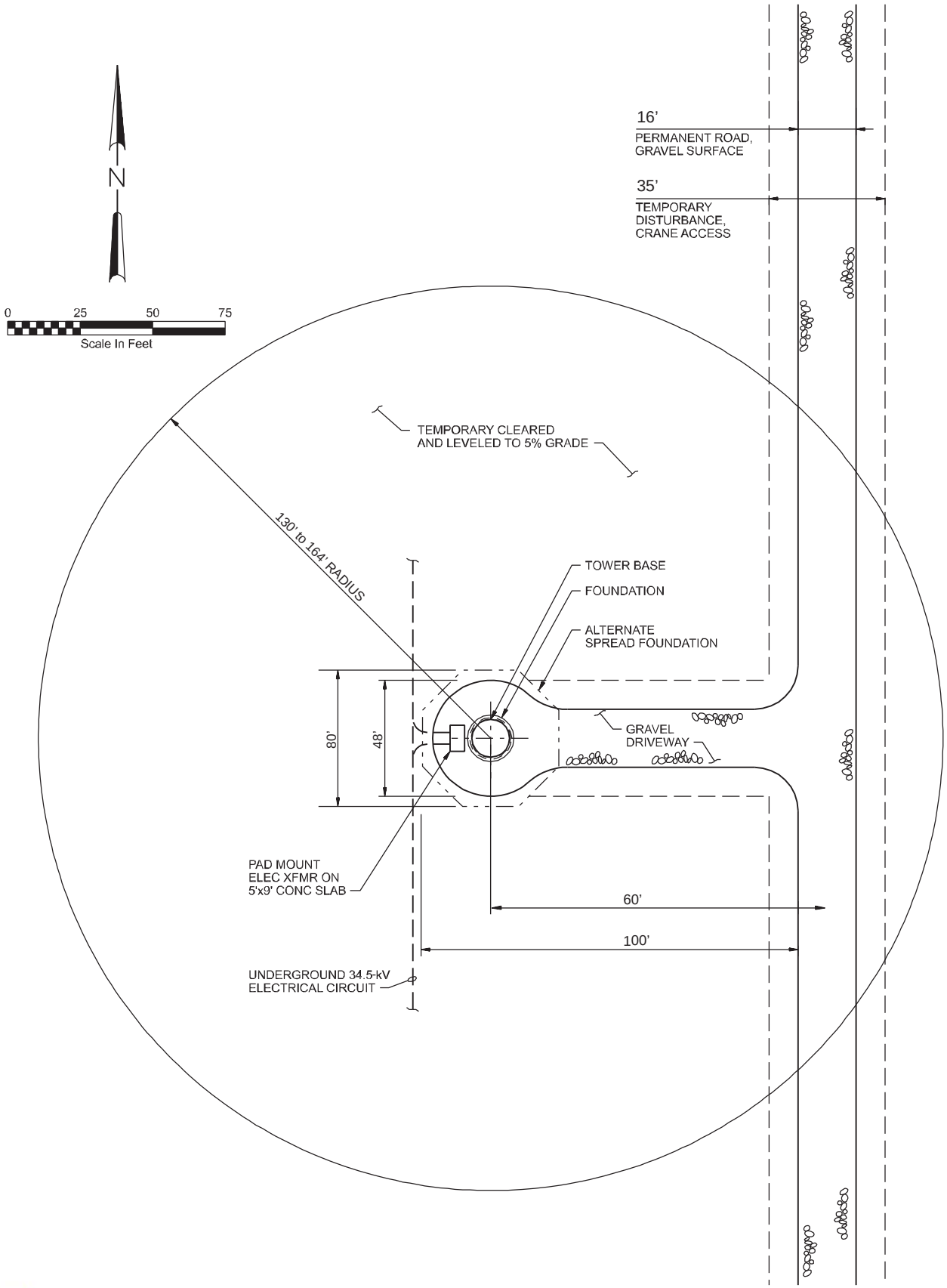
REBAR DETAIL
(PIER VERTICAL REBAR)

GENERAL NOTES

1. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI, IN ACCORDANCE WITH ACI 318-02. (2 REBAR TIES REQ'D IN THE TOP 5")
2. REBAR TO CONFORM TO ASTM SPECIFICATION A615 GRADE 60.
3. ALL REBAR TO HAVE A MINIMUM OF 3" CONCRETE COVER.
4. ALL EXPOSED CONCRETE CORNERS TO BE CHAMFERED 3/4".
5. THE FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL BORING BY NORTHERN, INC., PROJECT NO. 205-569, NOVEMBER 14, 2005.
6. SEE THE GEOTECHNICAL REPORT FOR COMPACTION REQUIREMENTS, IF SPECIFIED.
7. ONE ANCHOR BOLT MUST BE ALIGNED DIRECTLY WITH THE CENTER OF THE TOWER (TYPICAL)

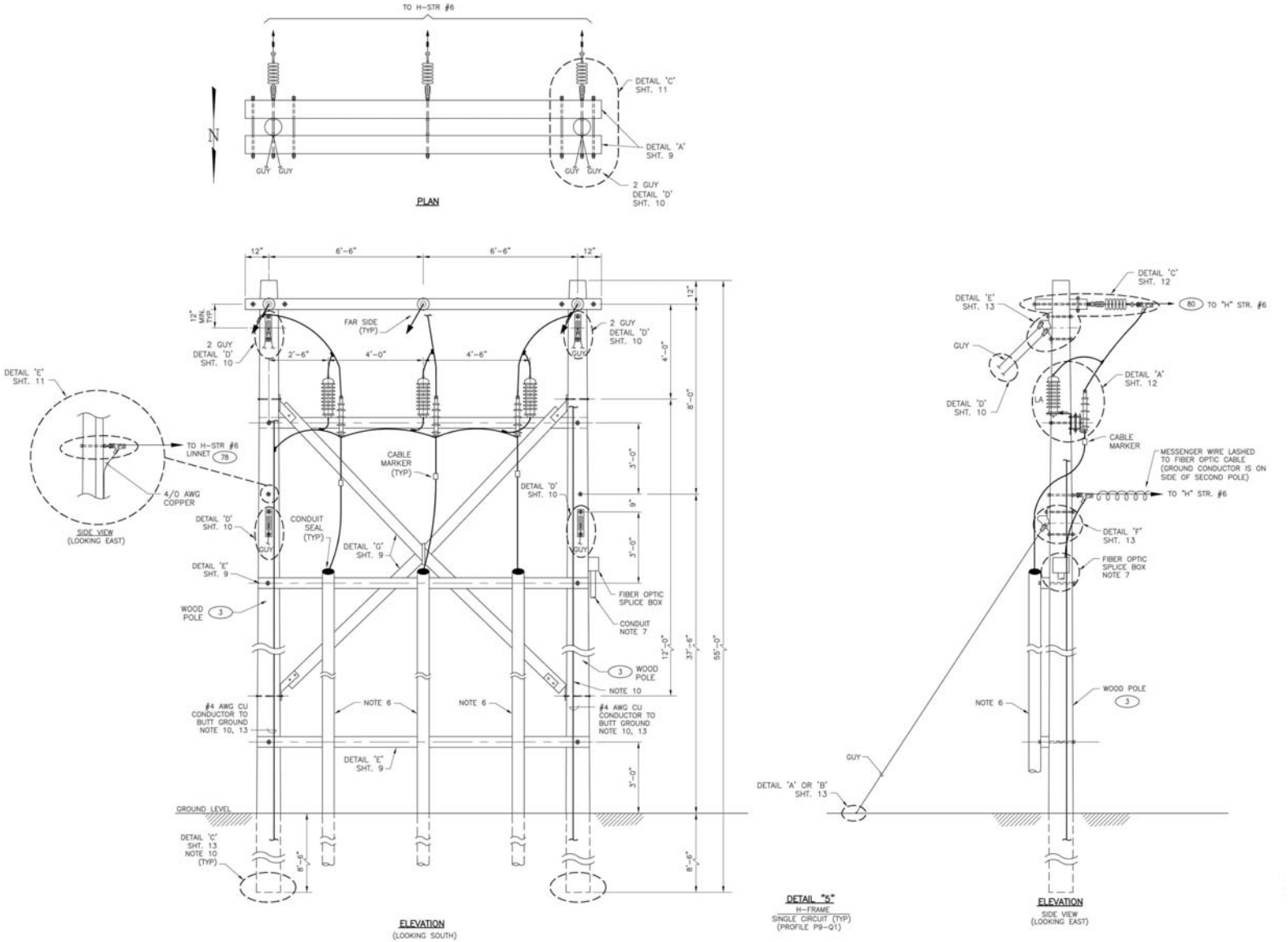
IBERDROLA RENEWABLES

FIGURE B-5
Typical Meteorological Tower Foundation
MONTAGUE WIND POWER FACILITY



IBERDROLA RENEWABLES

FIGURE B-6
Typical Turbine Site
MONTAGUE WIND POWER FACILITY

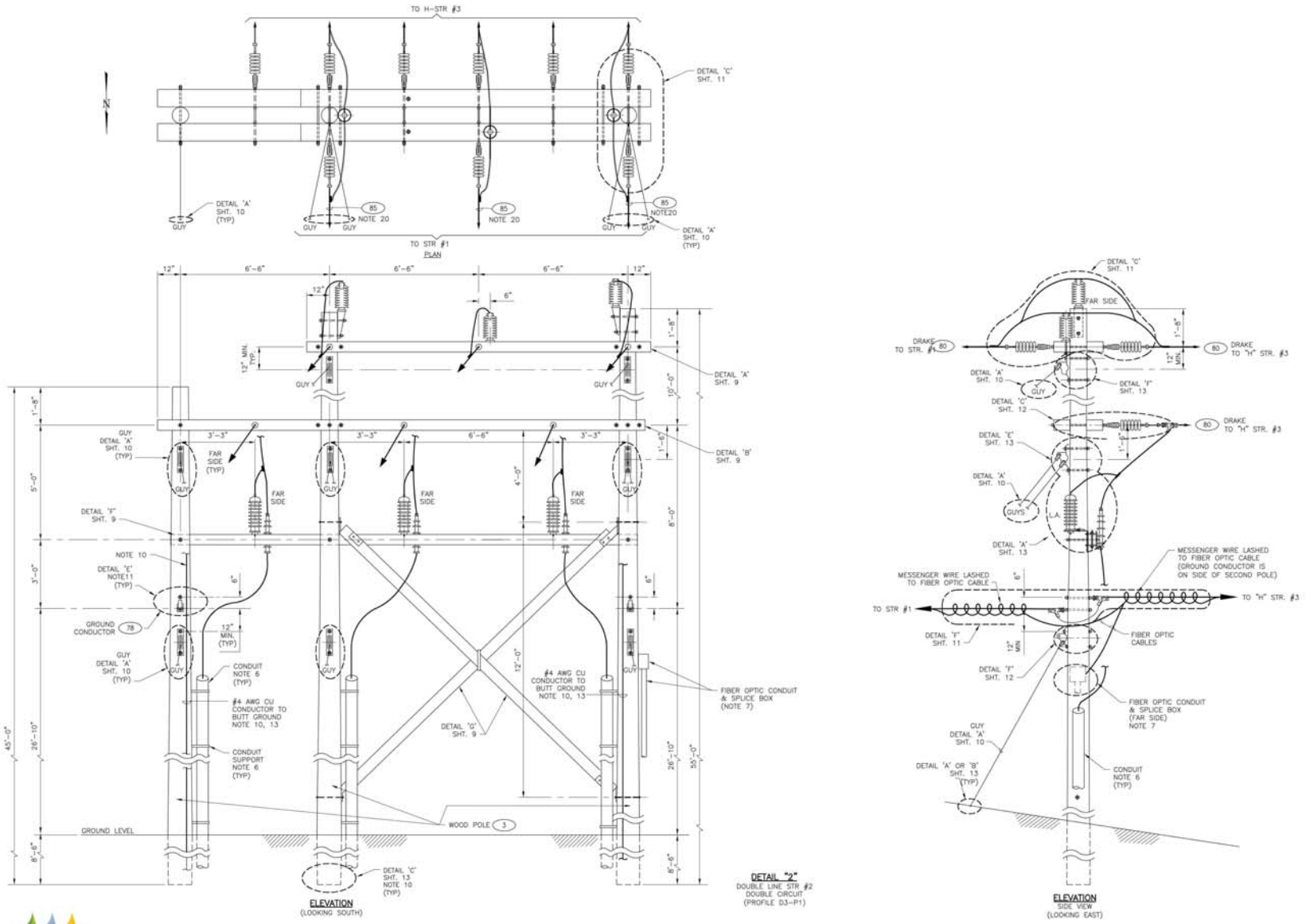


IBERDROLA RENEWABLES

FIGURE B-7

Typical Overhead 34.5-kV Single-Circuit, H-Frame Support Structure

MONTAGUE WIND POWER FACILITY

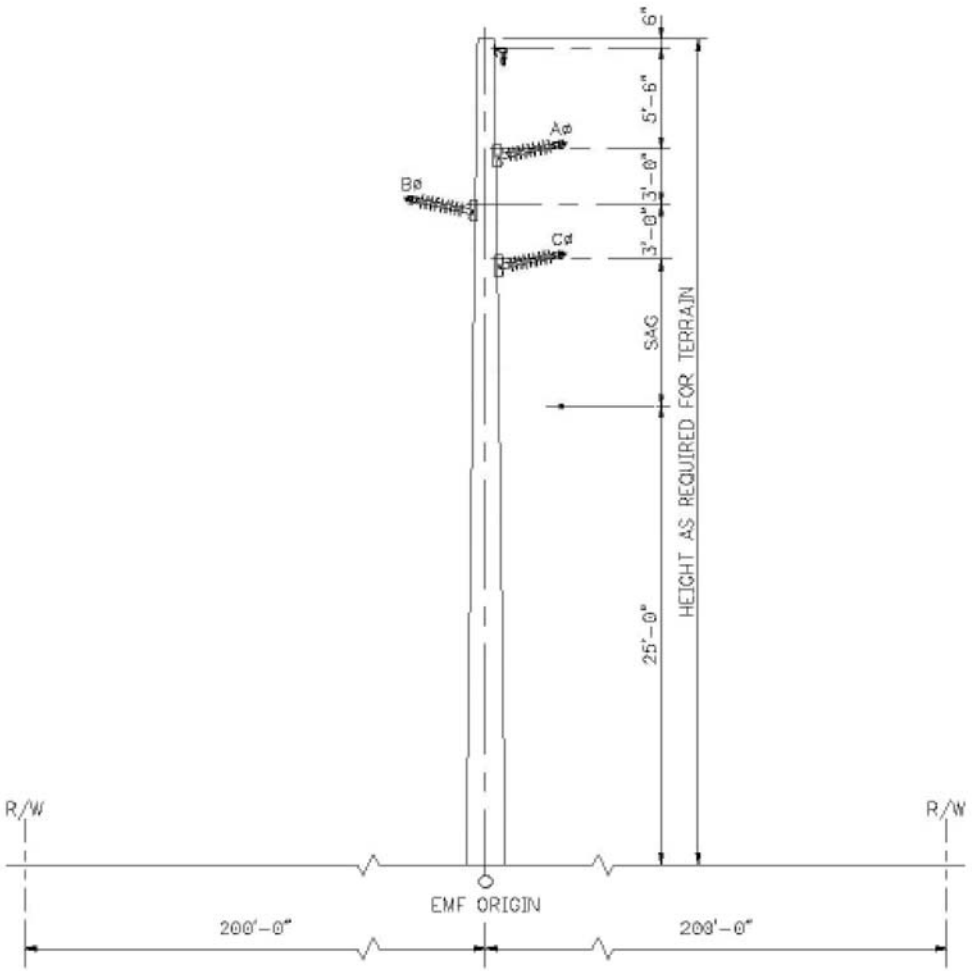


IBERDROLA RENEWABLES

FIGURE B-8

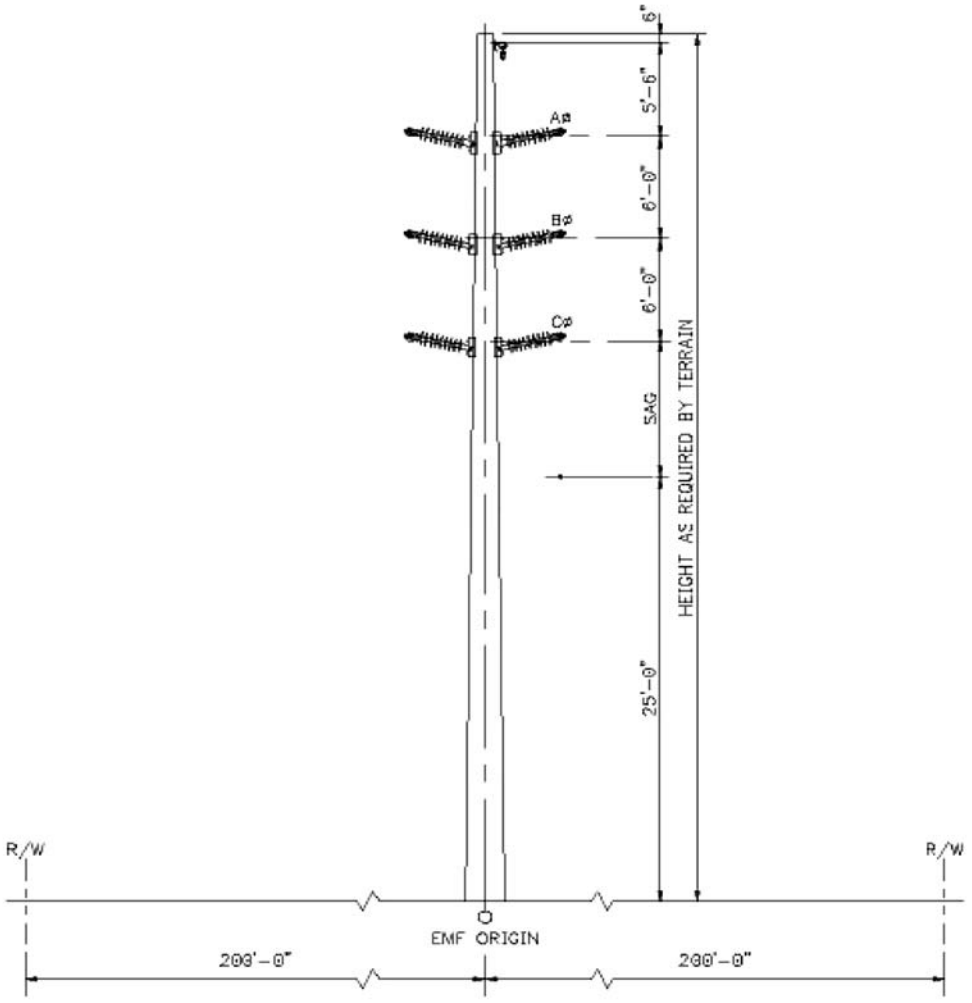
Typical Overhead 34.5-kV Double-Circuit, H-Frame Support Structure

MONTAGUE WIND POWER FACILITY



IBERDROLA RENEWABLES

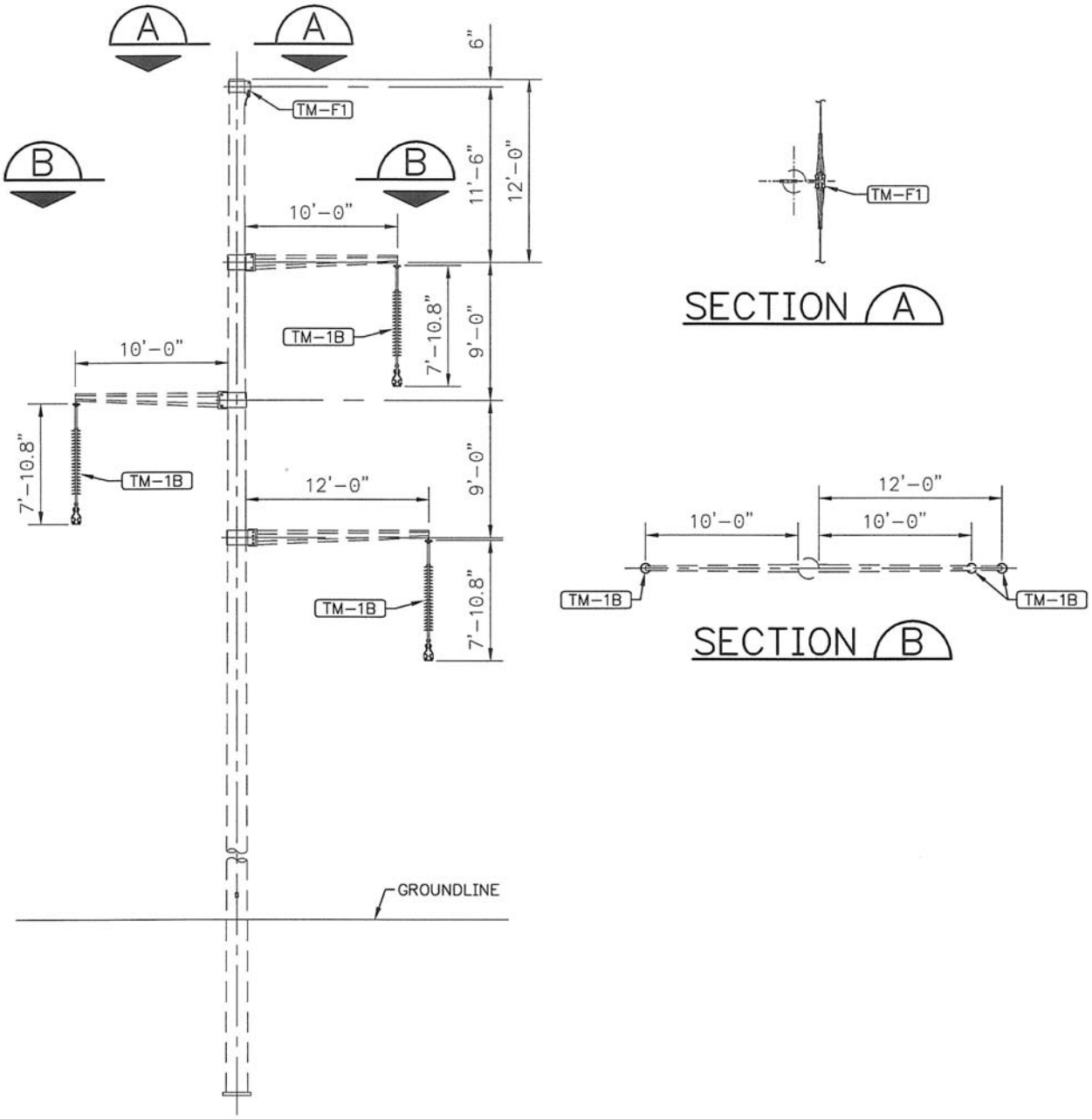
FIGURE B-9
Typical Overhead 34.5-kV Single-Circuit, Monopole Support Structure
MONTAGUE WIND POWER FACILITY



250' RULING SPAN, 300' MAX. SPAN

IBERDROLA RENEWABLES

FIGURE B-10
Typical Overhead 34.5-kV Double-Circuit, Monopole Support Structure
MONTAGUE WIND POWER FACILITY



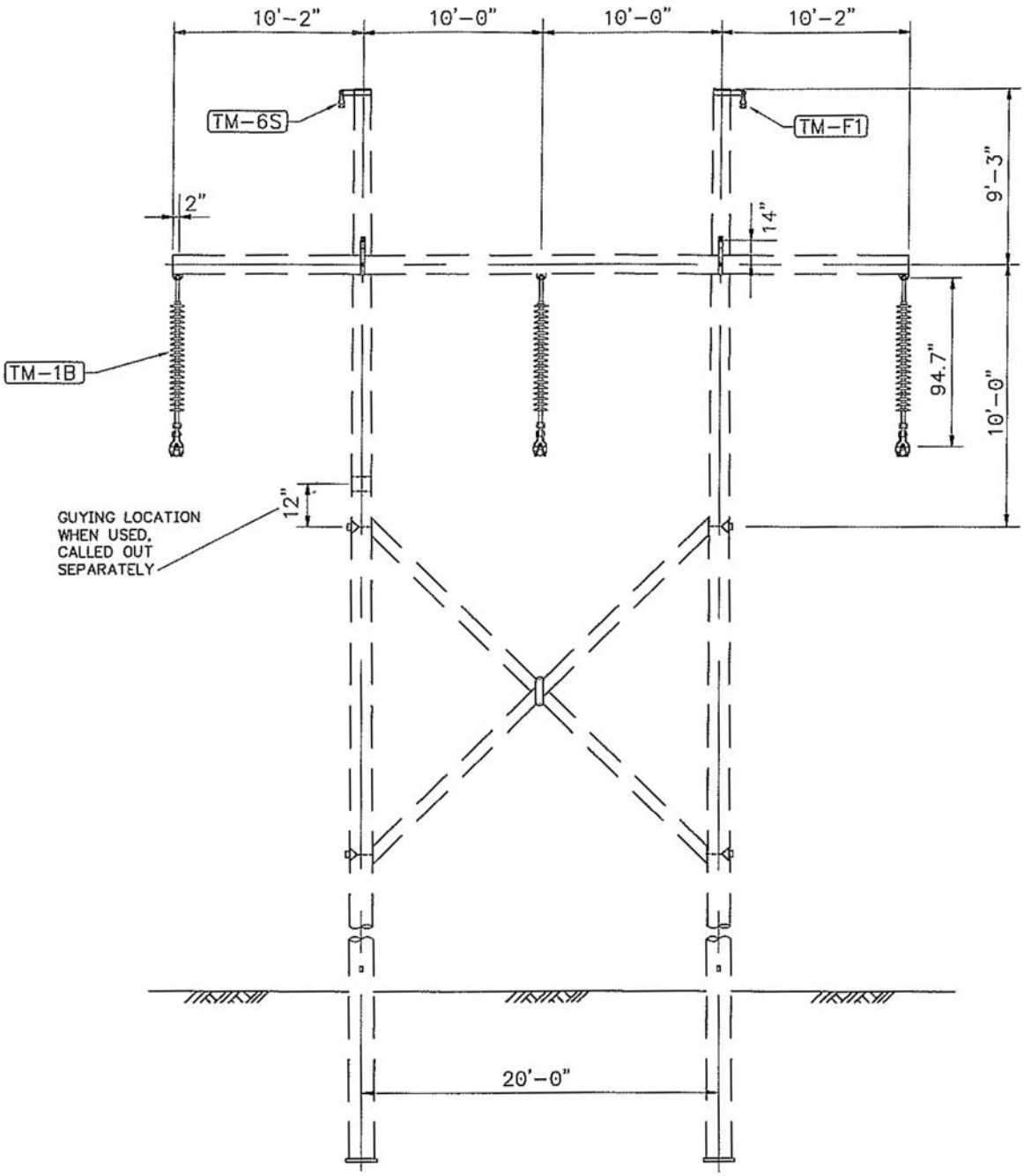
ITEM	QTY	DESCRIPTION
TM-1B	3	230-KV SUSPENSION INSULATOR WITH ARMOR ROD
TM-F1	1	FIBEROPTIC TANGENT SUPPORT ASSEMBLY

IBERDROLA RENEWABLES

FIGURE B-11

Typical 230-kV Monopole Support Structure

MONTAGUE WIND POWER FACILITY



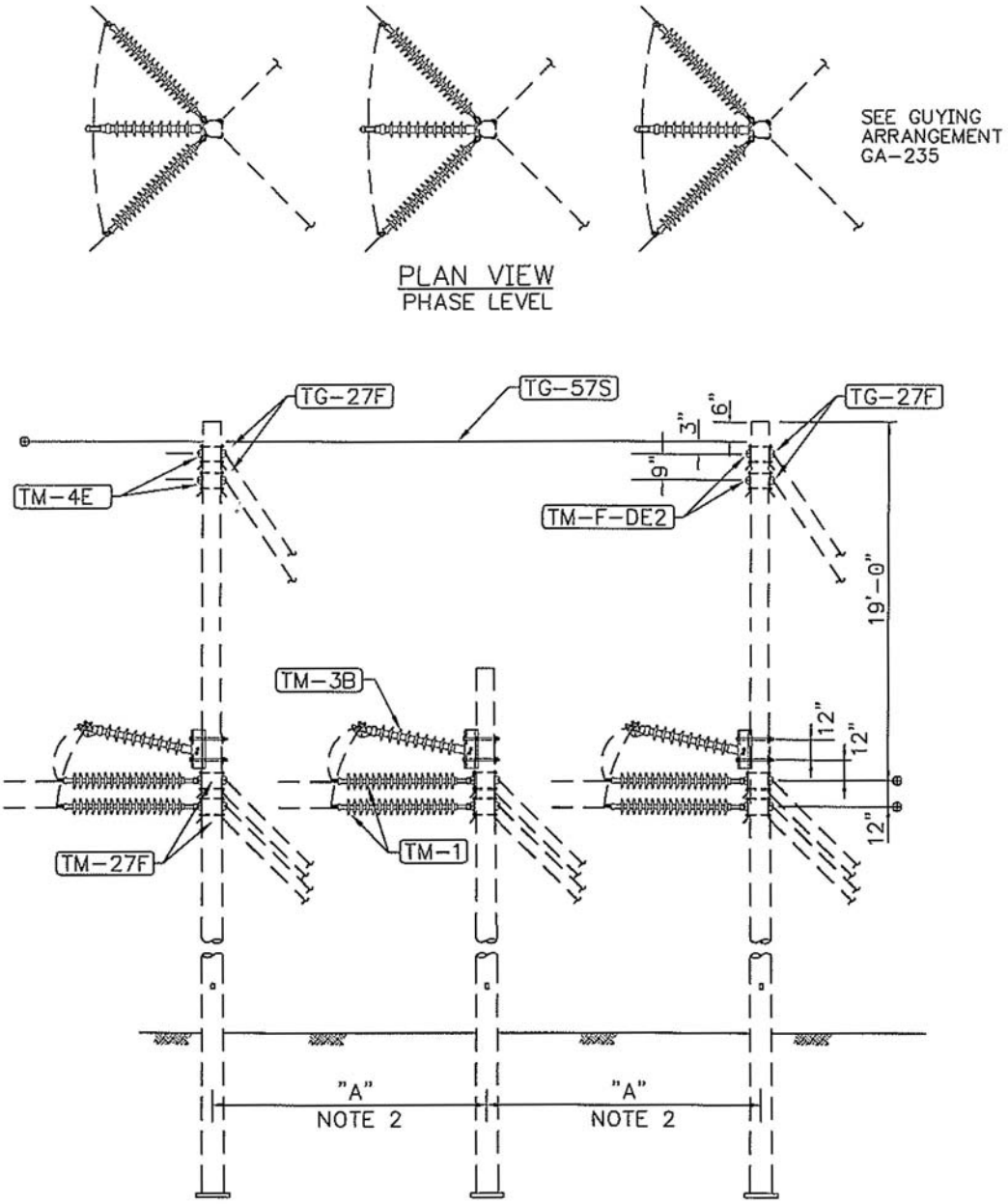
ITEM	QTY	DESCRIPTION
TM-6S	1	SHIELD WIRE SUPPORT ASSEMBLY
TM-F1	1	FIBEROPTIC SUPPORT ASSEMBLY
TM-1B	3	230-KV SUSPENSION INSULATOR WITH ARMOR ROD

IBERDROLA RENEWABLES

FIGURE B-12

Typical 230-kV H-Frame Support Structure

MONTAGUE WIND POWER FACILITY



ITEM	QTY	DESCRIPTION
TG-27F	10	TRANSMISSION DEADEND & GUYING TEE ASSEMBLY (DOUBLE)
TG-57S	1	SPAN GUY POLE TIE – DEADEND STRUCTURE
TM-1	6	230-KV INS. TENSION DEADEND ASSEMBLY
TM-3B	3	230-KV HORIZONTAL JUMPER INSULATOR ASSEMBLY
TM-4E	2	SHIELD WIRE DEADEND ASSEMBLY
TM-F-DE2	1	FIBEROPTIC DEADEND ASSEMBLY (DOUBLE)

IBERDROLA RENEWABLES

FIGURE B-13
Typical 230-kV Transition Support Structure
MONTAGUE WIND POWER FACILITY

EXHIBIT C

PROPOSED LOCATION AND MAPS

OAR 345-021-0010(1)(c)

TABLE OF CONTENTS

C.1 INTRODUCTION

OAR 345-021-0010(1)(c) *Information about the location of the proposed facility.*

Iberdrola Renewables, Inc. (Applicant) proposes to construct the Montague Wind Power Facility (Facility) in Gilliam County, Oregon, with generating capacity of up to 404 megawatts (MW).

C.2 MAPS

OAR 345-021-0010(1)(c)(A) *A map or maps showing the proposed locations of the energy facility site, all related or supporting facility sites and all areas that might be temporarily disturbed during construction of the facility in relation to major roads, water bodies, cities and towns, important landmarks and topographic features, using a scale of 1 inch = 2,000 feet or smaller when necessary to show detail; and*

Response:

The Applicant seeks micrositing flexibility for the Facility, as stated in Exhibit B. The ASC analyzes impacts for two turbine types that represent a range of alternative turbine technologies (i.e., encompassing the scale and impacts of the turbines) that could potentially be used at the Facility. The minimum turbine layout is 134 3.0-MW turbines. The maximum turbine layout is 269 1.5-MW turbines. The final layout will have 134 to 269 turbines, with any combination of 3.0-MW turbines and 1.5-MW turbines. The total number of turbines will not exceed 269 and the total MW will not exceed 404. The location of the proposed Facility and related and supporting facilities is described in Sections C.3.1 and C.3.2, respectively. The micrositing corridor is described in Section C.3.3. To demonstrate that the final layout will be consistent with Council standards, the studies and analyses provided in this ASC are based on the worst-case scenario, as described in Section C.3.4. Maps showing the layouts are as follows:

- Figure C-1 shows the Facility site boundary plotted on a 7.5-minute quadrangle map.
- Figure C-2 provides a closer view of the Facility location.
- Figure C-3 shows the overlap between the Facility site boundary and the amended Leaning Juniper II Wind Power Facility (LJF) site boundary for Leaning Juniper IIB (LJIIB).
- Figure C-4 shows the current proposed maximum turbine layout with 269 1.5-MW turbines, along with related or supporting facilities. Figure C-5 provides a detailed view of the 1.5-MW layout at a scale of 1 inch to 2,000 feet. Figure C-6 shows the current proposed minimum turbine layout with 134 3.0-MW turbines, along with related or supporting facilities. Figure C-7 provides a detailed view of the 3.0-MW layout at a scale of 1 inch to 2,000 feet.
- Figure C-8 shows the micrositing corridor dimensions for turbine strings, roads, collector cables, and crane paths.

- Finally, Figure C-9 shows the worst-case layout scenario and areas that might be temporarily disturbed during construction of the Facility under this scenario. The worst-case scenario is the maximum turbine layout, shifted into higher-rated habitats and using the maximum disturbance areas, as further described in Section C.3.4.

C.3 LOCATION AND LAND AREA OF FACILITY COMPONENTS

OAR 345-021-0010(1)(c)(B) *A description of the location of the proposed energy facility site, the proposed site of each related or supporting facility and areas of temporary disturbance, including the approximate land area of each. If a proposed pipeline or transmission line is to follow an existing road, pipeline or transmission line, the applicant shall state to which side of the existing road, pipeline or transmission line the proposed facility will run, to the extent this is known.*

Response:

C.3.1 Location of Proposed Energy Facility Site

C.3.1.1 Summary

The distance from the city of Arlington to the Slatt Interconnection Substation (Slatt substation) in the northwest portion of the proposed Facility site boundary is approximately 1.5 miles and the distance from the city of Arlington to the site boundary with the nearest Facility turbine is approximately 3.8 miles. The Facility site boundary encompasses all or portions of the following:

- Township 1 North, Range 20 East, Sections: 001, 002, 003, 011
- Township 1 North, Range 21 East, Sections: 001, 002, 003, 004, 005, 006, 007, 009, 011, 012, 013, 016, 021, 022, 023, 024, 025, 026
- Township 1 North, Range 22 East, Sections: 005, 006, 007, 008, 009, 016, 017, 018, 019, 020, 021, 028, 029, 031, 032, 033, 034, 035, 036
- Township 1 South, Range 21 East, Sections: 001, 012
- Township 1 South, Range 22 East, Sections: 001, 002, 003, 004, 005, 006, 007, 008
- Township 2 North, Range 20 East, Sections: 034, 035, 036
- Township 2 North, Range 21 East, Sections: 001, 002, 011, 012, 013, 014, 022, 023, 024, 025, 026, 031, 032, 033
- Township 2 North, Range 22 East, Sections: 006, 007, 016, 017, 018, 019, 020, 021, 022, 027, 028, 029, 030, 031, 032, 033, 034
- Township 3 North, Range 21 East, Sections: 035, 036

The site is approximately 33,402 acres. The Facility components are proposed on private land for which the Applicant has negotiated or is in the final stages of negotiating long-term wind energy leases with the landowners, or on private land for which the

Applicant is in the process of obtaining easements from landowners and other wind developers. The wind energy leases allow for the Applicant to permit, construct, and operate wind energy facilities for a defined period. In exchange, the landowners receive compensation from the Applicant. The terms of the wind energy leases allow landowners to continue their farming operations (primarily cultivation of wheat) in and around the wind turbine generators and other facilities where the farming activities do not affect the operation and maintenance of the wind generation equipment.

Figure C-2 shows the proposed Facility site boundary. Figure C-4 shows the current Facility layout for 269 1.5-MW turbines (the maximum turbine layout) along with other facilities, including the proposed meteorological (met) towers, 230-kilovolt (kV) transmission line, underground and overhead 34.5-kV collector lines, operations and maintenance (O&M) facility(s) and staging areas, Facility Collector Substations (collector substations), additional construction areas (e.g., temporary staging areas), crane paths, and existing and proposed transportation and access roads. Figure C-5 provides a detailed view of the 1.5-MW maximum turbine layout at a scale of 1 inch to 2,000 feet.

Figure C-6 shows the potential Facility layout for 134 3.0-MW turbines (the minimum turbine layout) along with the related or supporting facilities described for Figure C-4. Figure C-7 provides a detailed view of the 3.0-MW minimum turbine layout at a scale of 1 inch to 2,000 feet.

Figure C-8 shows the micrositing corridors for Facility components (e.g., turbine strings, roads, collector cables, and crane paths). Points on the corridor site boundary are labeled to correspond to the micrositing corridor location descriptions provided in Table C-1 (located at the end of text).

Figure C-9 shows areas of temporary disturbance for the worst-case layout.

C.3.1.2 Proposed Layout

The Applicant is proposing two turbine layouts because the turbine vendor, model, size, and consequently, total number have not yet been determined. The two turbine sizes represent a range of alternative turbine technologies (i.e., encompassing the scale and impacts of the turbines) that could potentially be used at the Facility. The minimum turbine layout is 134 3.0-MW turbines. The maximum turbine layout is 269 1.5-MW turbines. The final layout will have 134 to 269 turbines, with any combination of 3.0-MW turbines and 1.5-MW turbines. The total number of turbines will not exceed 269 and the total MW will not exceed 404.

C.3.1.3 Turbines

The energy facility includes the turbine components of the Facility. Like other Facility components, the energy facility site is located on private land for which the Applicant has long-term wind energy leases or easements.

The Facility will have up to 269 turbines, depending on the generating capacity of the turbines selected. The number of turbines in each string and the spacing between

turbines may vary depending on which turbine supplier is selected. Therefore, the Applicant has identified a micrositing corridor in which to place the turbines with the exact final locations yet to be determined, as further described in Section C.3.3. The corridor is depicted in Figures C-4 and C-6 for the 1.5-MW and 3.0-MW turbine layouts, respectively. The turbines will occupy approximately 10.2 acres of land.

C.3.2 Location of Related or Supporting Facilities

Related or supporting facilities are components of the Facility that would not otherwise be constructed "but for" the construction or operation of the energy facility. Modifications to existing structures, however, do not constitute related or supporting facilities unless the structure is significantly modified solely to serve the energy facility. See ORS 469.300(24); OAR 345-001-0010(49). The following sections describe the location of the Facility's related or supporting facilities.

C.3.2.1 Power Collection System

As described in Exhibit B, a network of collection power cables will be installed along and between the turbine strings to collect power generated by the individual wind turbines and route the power to the collector substations for delivery into the utility grid. The majority of the collector cable system will be buried in the soil approximately 3 feet below the ground surface. However, where site-specific considerations require, the collector system may be aboveground. Using aboveground structures allows the collector cables to span canyons and intermittent streams and thus to reduce environmental impacts. The overhead pole structures will generally be about 80 to 100 feet tall, depending on terrain.

Energy generated from the turbines will be collected by the cable system and connected to the collector substations as shown in Figures C-4 and C-6. Approximately 76 miles of collector cable will be placed underground and approximately 15 miles will run on overhead pole structures. No more than 27 miles (30 percent of the collector system) will be placed overhead.

C.3.2.2 230-kV Transmission Line

A new overhead 230-kV transmission line will connect the Facility to the existing 500-kV BPA Slatt-Buckley transmission line at the Slatt substation located approximately 1.5 miles southeast of Arlington, Oregon. The new overhead 230-kV transmission line will run from the Facility's western collector substation to the central collector substation and from the central collector substation to BPA's Slatt substation. The overhead 230-kV transmission line from the western collector substation to the central collector substation is approximately 8.2 miles or up to 9 miles in length. Three potential routes are under evaluation for the transmission line from the central collector substation to the Slatt substation: a preferred (also referred to as "proposed") transmission line route that is approximately 8.8 miles long, an Alternate 1 route that is approximately 8.2 miles long, and an Alternate 2 route that is approximately 8.8 miles long. The portion of the transmission line from the central collector substation to the Slatt substation will be up to 10 miles in length. The three routes are shown in Figures C-4 and C-6.

C.3.2.3 Operations and Maintenance Facility(s)

The Facility will have up to two O&M facilities located on approximately 10 acres each. Approximately 3 acres will be fenced and graveled for the O&M facility, including the building and adjacent parking and storage. The remaining 7 acres will be used for temporary staging during construction. Each O&M facility will include a one-story building of up to 8,000 square feet, as discussed in Sections B.1.4.2 and B.3.3 of Exhibit B. The building(s) will house offices (including office space for several contractors), bathroom and kitchen facilities, a break room, a storage area, a garage for vehicle, turbine, and equipment maintenance, and the supervisory, control, and data acquisition (SCADA) equipment. The O&M building(s) will use an exempt groundwater well to supply less than 5,000 gallons per day for commercial/industrial use and a septic system. Power and phone service for the O&M building(s) will be provided by local providers, such as Pacific Power or Columbia Basin and Sprint.

C.3.2.4 Meteorological Towers

Up to eight permanent meteorological (met) towers will be placed within the site boundary for the collection of Facility meteorological data. Permanent meteorological towers will be free-standing (unguyed) structures. The towers will be up to approximately 262 ft (80 m) high with an equilateral triangle base, each side of which will be roughly 25 ft (8 m) long. The met tower foundation will be a square pad measuring approximately 28 feet by 28 feet by 3 feet deep. Figure B-5 provides general design information for the met tower foundation. Figures C-4 and C-6 show the proposed met tower locations.

C.3.2.5 Access Roads

Access roads are shown in Figures C-4 and C-6. Roads will be designed under the direction of a licensed engineer and compacted to meet equipment load requirements. In the worst-case layout, approximately 70 miles of new roads will be constructed for the Facility. In addition, approximately 24 miles of existing roads will be improved in the worst-case layout. Easements will be negotiated with adjacent landowners for road and collector cable access, as needed.

C.3.2.6 Additional Construction Areas

During construction, temporary staging areas will be used to stage construction and store supplies and equipment. A 7-acre temporary staging area will be located within the 10-acre construction area at each O&M facility. Approximately one temporary 2.5-acre staging area will be located adjacent to each proposed turbine string. Several 5-acre staging areas will be centrally located within the site boundary. The locations of these staging areas are shown in Figures C-4 and C-6.

C.3.2.7 Gas Pipeline Corridor

There is no gas pipeline associated with this Facility.

C.3.2.8 Water Pipeline Corridor

There is no water supply pipeline associated with this Facility.

C.3.3 Micrositing Corridor Locations of Energy Facility Site and Related and Supporting Facilities

The Applicant has identified a micrositing corridor for turbines and related or supporting facilities, rather than identify specific turbine locations, in order to construct turbines at the optimal locations for wind capture. To elaborate, the purpose of the micrositing corridor is to allow for the flexibility to optimize the final layout, while also providing regulatory agencies with a definition of the range of possible wind facility impacts and a demonstration that in all potential configurations, the Facility will meet applicable regulatory standards. The micrositing corridor approach for turbines, collector cables, roads, and other related or supporting facilities provides flexibility for both the final orientation of the turbine strings and for selection of turbine vendors and sizes to both maximize the wind resource and also minimize and avoid impacts to wildlife and habitat, and other resources. The micrositing corridor for the transmission line also provides flexibility for final lease or easement agreements with landowners and the final engineering design.

Micrositing corridors are semirectangular corridors identified around turbines, associated access roads, collector cables, and other facilities. The corridors are centered around the preliminary layout. The corridors range in width depending on site conditions, the potential for sensitive species, and the need for micrositing flexibility. The defined micrositing corridors themselves represent the Facility locations, rather than the location of specific turbines or other related or supporting facilities. After the Facility is permitted, the turbines and other Facility components will be sited within the micrositing corridors identified, provided that these locations are adequately surveyed for biological and cultural resources before construction and comply with all applicable permit conditions.

Table C-1 and Figure C-8 define the micrositing corridors using the Federal Energy Regulatory Commission guidelines for defining project boundaries (FERC, 2009).

In sum, the Applicant proposes that the Facility turbines and related and supporting facilities be authorized anywhere within the micrositing corridors identified, provided that these areas are surveyed prior to construction and impacts are avoided, minimized and mitigated in accordance with Council standards and Facility site certificate conditions, as described in other Exhibits.

C.3.4 Land Area of Facility and Related and Supporting Facilities

This section describes the permanent footprint occupied by the Facility as well as the temporary impacts from construction. The micrositing corridor is described in Section C.3.3 and shown in Table C-1 and Figure C-8.

Because the Applicant seeks micrositing flexibility for the Facility, temporary and permanent impacts were calculated based on the worst-case scenario. To calculate the

worst-case impacts, the Applicant shifted the current maximum turbine layout (269 turbines) shown in Figures C-4 and C-5 into higher-rated habitats within the micrositing corridor. In some places, the micrositing corridor overlaps with Category 1 habitat. However, in no instance will the facilities be moved into Category 1 habitat. Tables C-2 and C-3 show the permanent and temporary impacts for the Facility and related or supporting facilities based on the worst-case layout described in this section. Figure C-9 shows temporarily disturbed areas for the worst-case layout. The worst-case impacts are also described in Exhibit P and shown in Table P-11 and Figures P-11 and P-12.

To calculate the worst-case acres of permanent impacts, the maximum turbine layout was used along with a permanent disturbance area measuring 1,660 square feet. The area permanently disturbed during operations will be circular with a radius of up to 23 feet, or up to 1,660 square feet. These dimensions include a turbine tower with a radius of up to 8 feet (16 feet in diameter) and surrounding gravel area with a radius of up to 15 feet, which represent the 3.0-MW tower diameter and maximum graveled area (i.e., the worst-case scenario).

The preferred transmission line route was used in the calculations for the worst-case impacts. The preferred route is longer than alternate route 1 and the same length as alternate route 2 (approximately 8.8 miles compared to approximately 8.2 miles for alternate route 1 and 8.8 miles for alternate route 2). The preferred route also potentially impacts more high-quality habitat.

During construction, a larger area will be used to stage the rotors and maneuver cranes during turbine assembly. When calculating the worst-case temporary impacts, the maximum turbine layout was used along with a maximum temporary disturbance area measuring 160,000 square feet. The typical temporary disturbance area at each turbine location is equal to approximately 53,000 square feet around the 1.5-MW turbines (130-foot radius for the 77m/253-ft-diameter blades) or approximately 85,000 square feet around the 3.0-MW turbines (164-foot radius for the 100m/328-ft-diameter blades), as shown in Figure B-6. However, in some cases construction contractors prefer a larger area measuring approximately 160,000 square feet to reduce construction costs.

Additional temporary impacts include construction-related impacts associated with the staging areas and the underground collector systems. These areas will be temporarily disturbed during construction and will be restored to preconstruction condition after the construction-related activities are complete. During construction, temporary staging areas will be used to stage construction and store supplies and equipment. The maximum number of temporary staging areas was included in the worst-case impacts. For example, while only one O&M facility may be needed, two O&M facilities were included in the worst-case impact calculations. Each O&M facility has a 7-acre staging area. Therefore, to provide a single, worst-case analysis, the Applicant calculated the area of temporary and permanent impacts using the maximum number of turbines and the largest of the temporary and permanent disturbance areas.

All of the relevant Exhibits in this ASC use the potential layout that represents the worst-case scenario to determine the most conservative estimate of impact. For the scenic and aesthetic and noise evaluations (Exhibits R and X, respectively), both the

maximum and minimum turbine layouts were analyzed to determine the worst-case scenario. For the amount of acres temporarily and permanently disturbed, the maximum turbine layout was shifted into the highest-quality habitat and the maximum disturbance area was used (Exhibits C, I, K, P, Q, and S). Table C-4 identifies the worst-case scenario for applicable Exhibits. A summary of the analysis performed to identify the layout providing the most conservative impact is included in relevant Exhibits.

During final project design, the Facility will be microsited to avoid and minimize both temporary and permanent impacts to high-quality native habitat where practicable and to retain habitat cover in the general landscape.

C.4 REFERENCE

Federal Energy Regulatory Commission (FERC). 2009. Managing Hydropower Project Exhibits—Guidance Document. Appendix 1, Exhibit Guide to Regulatory Requirements. Section 4.41(h) (2) page 18 http://www.ferc.gov/industries/hydropower/gen-info/guidelines/drawings-guide.pdf.

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
1 (Start)	45° 42' 18.655" N	120° 9' 7.051" W		
			N 51-26-17 E	97
2	45° 42' 19.374" N	120° 9' 6.149" W		
			North line of T3N R21E Section 35	1930
3	45° 42' 19.345" N	120° 8' 38.960" W		
			North line of T3N R21E Section 36	1334
4	45° 42' 19.346" N	120° 8' 20.163" W		
			S 55-13-2 E	1538
5	45° 42' 8.657" N	120° 8' 4.773" W		
			N 89-48-51 E	2808
6	45° 42' 8.785" N	120° 7' 25.223" W		
			Property Line	4264
7	45° 41' 26.695" N	120° 7' 25.608" W		
			S 67-35-39 E	86
8	45° 41' 26.266" N	120° 7' 24.569" W		
			N 88-26-51 E	900
9	45° 41' 26.609" N	120° 7' 11.907" W		
			S 0-6-26 W	10522
10	45° 39' 42.757" N	120° 7' 12.101" W		
			S 42-19-30 E	1565
11	45° 39' 29.738" N	120° 7' 0.244" W		
			Property Line	10548
12	45° 39' 42.991" N	120° 4' 50.600" W		
			East line of T2N R22E Section 17	1340
13	45° 39' 29.762" N	120° 4' 50.669" W		
			S 54-23-23 E	1867
14	45° 39' 16.593" N	120° 4' 32.281" W		
			East line of SW4 NW4 T2N R22E Section 16	1324
15	45° 39' 29.665" N	120° 4' 32.211" W		
			North line of SE4 NW4 T2N R22E Section 16	1311
16	45° 39' 29.566" N	120° 4' 13.754" W		
			East line of NE4 NW4 T2N R22E Section 16	1358
17	45° 39' 42.975" N	120° 4' 13.682" W		
			Property Line	12611
18	45° 38' 24.324" N	120° 3' 8.840" W		
			S 0-10-38 W	3946
19	45° 37' 45.374" N	120° 3' 8.960" W		
			South line of N2 N2 T2N R22E Section 27	2005
20	45° 37' 45.315" N	120° 3' 37.126" W		
			South line of NE4 NE4 T2N R22E Section 28	654
21	45° 37' 45.319" N	120° 3' 46.371" W		
			S 0-37-44 E	1310
22	45° 37' 32.394" N	120° 3' 46.229" W		
			Property Line	5809
23	45° 37' 19.437" N	120° 3' 37.047" W		

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
			North line of SW4 SW4 T2N R22E Section 27	1317
24	45° 37' 19.467" N	120° 3' 18.518" W		
			East line of SW4 SW4 T2N R22E Section 27	1311
25	45° 37' 6.523" N	120° 3' 18.486" W		
			Property Line	10568
26	45° 37' 6.851" N	120° 4' 32.761" W		
			East line of W2 W2 T2N R22E Section 28	3899
27	45° 37' 45.335" N	120° 4' 32.750" W		
			N 54-51-51 W	1860
28	45° 37' 58.292" N	120° 4' 51.161" W		
			Property Line	3344
29	45° 37' 48.670" N	120° 5' 28.014" W		
			West line of NW4 NE4 T2N R22E Section 29	321
30	45° 37' 45.502" N	120° 5' 28.025" W		
			North line of S2 N2 T2N R22E Section 29	1954
31	45° 37' 45.622" N	120° 5' 55.509" W		
			S 2-47-8 W	1506
32	45° 37' 30.766" N	120° 5' 56.232" W		
			Property Line	632
33	45° 37' 29.356" N	120° 6' 4.803" W		
			Property Line	6197
34	45° 37' 6.844" N	120° 5' 9.751" W		
			West line of NE4 NE4 T2N R22E Section 32	1317
35	45° 36' 53.842" N	120° 5' 9.736" W		
			Property Line	5272
36	45° 36' 14.738" N	120° 4' 51.109" W		
			Property Line	5306
37	45° 35' 22.511" N	120° 4' 50.867" W		
			Property Line	10513
38	45° 34' 30.646" N	120° 4' 51.926" W		
			Property Line	3963
39	45° 33' 51.528" N	120° 4' 51.812" W		
			Property Line	2621
40	45° 33' 51.695" N	120° 4' 14.981" W		
			East line of SE4 SW4 T1N R22E Section 16	1359
41	45° 33' 38.284" N	120° 4' 15.015" W		
			East line of W2 T1N R22E Section 21	5174
42	45° 32' 47.212" N	120° 4' 14.856" W		
			Property Line	15865
43	45° 31' 28.971" N	120° 3' 0.982" W		
			Property Line	3924
44	45° 31' 41.920" N	120° 2' 24.248" W		
			North line of S2 N2 T1N R22E Section 35	5247
45	45° 31' 42.018" N	120° 1' 10.565" W		
			North line of S2 N2 T1N R22E Section 36	5241

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
46	45° 31' 42.097" N	119° 59' 56.973" W		
			Property Line	5378
47	45° 31' 2.585" N	120° 0' 16.491" W		
			S 38-15-43 W	133
48	45° 31' 1.433" N	120° 0' 17.400" W		
			Property Line	4075
49	45° 30' 21.209" N	120° 0' 17.642" W		
			South line of N2 S2 T1S R22E Section 1	5252
50	45° 30' 21.709" N	120° 1' 31.359" W		
			South line of N2 S2 T1S R22E Section 2	2492
51	45° 30' 21.763" N	120° 2' 6.340" W		
			N 1-26-22 E	3424
52	45° 30' 55.551" N	120° 2' 5.491" W		
			N 88-43-56 W	5377
53	45° 30' 57.221" N	120° 3' 20.941" W		
			N 66-5-6 W	1103
54	45° 31' 3.029" N	120° 3' 34.040" W		
			Property Line	5902
55	45° 31' 3.189" N	120° 4' 56.898" W		
			Property Line	22698
56	45° 29' 40.352" N	120° 7' 36.392" W		
			Property Line	3780
57	45° 30' 10.248" N	120° 8' 0.093" W		
			Property Line	6845
58	45° 31' 3.435" N	120° 7' 26.571" W		
			Property Line	8418
59	45° 31' 55.406" N	120° 6' 42.374" W		
			Property Line	2604
60	45° 31' 55.438" N	120° 6' 5.810" W		
			Property Line	5244
61	45° 32' 21.090" N	120° 5' 28.709" W		
			Property Line	18230
62	45° 34' 3.619" N	120° 6' 42.229" W		
			S 45-42-24 W	1667
63	45° 33' 50.267" N	120° 6' 55.915" W		
			S 23-34-1 W	1223
64	45° 33' 38.729" N	120° 7' 0.948" W		
			Property Line	3734
65	45° 33' 13.184" N	120° 7' 17.658" W		
			S 58-14-41 W	272
66	45° 33' 11.414" N	120° 7' 20.517" W		
			S 72-19-11 W	420
67	45° 33' 9.701" N	120° 7' 25.891" W		
			Property Line	11650
68	45° 31' 55.402" N	120° 8' 41.264" W		

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
			Property Line	18476
69	45° 33' 13.297" N	120° 8' 40.604" W		
			East line of T1N R21E Section 23	2585
70	45° 33' 38.803" N	120° 8' 40.380" W		
			East line of T1N R21E Section 14	2676
71	45° 34' 5.214" N	120° 8' 40.324" W		
			Property Line	5258
72	45° 34' 30.518" N	120° 8' 2.234" W		
			N 29-51-18 E	7115
73	45° 35' 35.419" N	120° 7' 24.981" W		
			East line of T1N R21E Section 1	428
74	45° 35' 39.928" N	120° 7' 25.016" W		
			S 63-49-55 W	1229
75	45° 35' 32.974" N	120° 7' 39.167" W		
			S 56-35-12 W	3223
76	45° 35' 11.191" N	120° 8' 12.186" W		
			S 57-16-30 W	413
77	45° 35' 8.436" N	120° 8' 16.474" W		
			N 89-53-34 W	4315
78	45° 35' 8.549" N	120° 9' 17.126" W		
			N 28-58-19 W	3199
79	45° 35' 37.976" N	120° 9' 33.419" W		
			N 30-37-56 W	1324
80	45° 35' 50.041" N	120° 9' 40.563" W		
			N 88-46-26 W	1505
81	45° 35' 50.493" N	120° 10' 1.708" W		
			S 80-10-23 W	3509
82	45° 35' 42.197" N	120° 10' 49.605" W		
			S 89-22-33 W	1594
83	45° 35' 41.953" N	120° 11' 12.011" W		
			S 0-10-46 W	1342
84	45° 35' 28.705" N	120° 11' 12.053" W		
			S 38-21-51 W	4355
85	45° 34' 51.127" N	120° 11' 41.799" W		
			S 11-50-36 E	1714
86	45° 34' 34.387" N	120° 11' 38.288" W		
			S 32-45-55 E	1947
87	45° 34' 16.855" N	120° 11' 27.004" W		
			Property Line	11613
88	45° 32' 47.736" N	120° 11' 28.330" W		
			Property Line	1408
89	45° 32' 47.846" N	120° 11' 48.017" W		
			Property Line	6430
90	45° 33' 26.650" N	120° 12' 23.179" W		
			North line of SW4 NW4 T1N R21E Section 21	1318

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
91	45° 33' 26.613" N	120° 12' 4.656" W		
			West line of NE4 NW4 T1N R21E Section 21	1314
92	45° 33' 39.578" N	120° 12' 4.531" W		
			West line of E2 W2 T1N R21E Section 16	4204
93	45° 34' 21.068" N	120° 12' 3.806" W		
			Property Line	736
94	45° 34' 21.096" N	120° 12' 14.153" W		
			N 0-1-26 E	3675
95	45° 34' 57.369" N	120° 12' 14.137" W		
			Property Line	3526
96	45° 35' 23.655" N	120° 11' 45.295" W		
			Property Line	7875
97	45° 35' 50.089" N	120° 12' 58.869" W		
			Property Line	10553
98	45° 34' 58.193" N	120° 14' 13.075" W		
			N 54-43-54 W	39
99	45° 34' 58.467" N	120° 14' 13.463" W		
			South line of SE4 NW4 T1N R21E Section 7	1310
100	45° 34' 58.493" N	120° 14' 31.881" W		
			East line of NW4 SW4 T1N R21E Section 7	1328
101	45° 34' 45.389" N	120° 14' 31.974" W		
			Property Line	8281
102	45° 35' 24.641" N	120° 14' 57.590" W		
			Property Line	11811
103	45° 34' 58.316" N	120° 17' 6.271" W		
			S 88-46-25 W	1303
104	45° 34' 57.924" N	120° 17' 24.580" W		
			Property Line	2195
105	45° 35' 19.591" N	120° 17' 24.847" W		
			Property Line	513
106	45° 35' 24.629" N	120° 17' 24.838" W		
			Property Line	13173
107	45° 36' 15.698" N	120° 18' 3.797" W		
			Property Line	1358
108	45° 36' 28.786" N	120° 18' 3.100" W		
			North line of SW4 SE4 T2N R20E Section 34	1315
109	45° 36' 28.822" N	120° 17' 44.607" W		
			East line of SW4 SE4 T2N R20E Section 34	1318
110	45° 36' 15.813" N	120° 17' 44.629" W		
			East line of W2 E2 T1N R20E Section 3	2574
111	45° 35' 50.408" N	120° 17' 44.151" W		
			South line of SE4 NE4 T1N R20E Section 3	1316
112	45° 35' 50.505" N	120° 17' 25.647" W		
			South line of SW4 NW4 T1N R20E Section 2	1294
113	45° 35' 50.472" N	120° 17' 7.451" W		

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
			East line of SW4 NW4 T1N R20E Section 2	1309
114	45° 36' 3.394" N	120° 17' 7.738" W		
			N 55-48-45 W	1816
115	45° 36' 15.863" N	120° 17' 26.094" W		
			East line of T2N R20E Section 34	1316
116	45° 36' 28.858" N	120° 17' 26.115" W		
			North line of SW4 SW4 T2N R20E Section 35	1288
117	45° 36' 28.864" N	120° 17' 7.995" W		
			S 54-18-10 E	1837
118	45° 36' 15.889" N	120° 16' 49.938" W		
			Property Line	2571
119	45° 36' 15.916" N	120° 16' 13.781" W		
			East line of T2N R20E Section 35	1313
120	45° 36' 28.879" N	120° 16' 13.636" W		
			North line of SW4 SW4 T2N R20E Section 36	1314
121	45° 36' 28.811" N	120° 15' 55.149" W		
			S 54-31-59 E	1855
122	45° 36' 15.768" N	120° 15' 36.841" W		
			N 55-12-11 E	3718
123	45° 36' 41.590" N	120° 14' 59.684" W		
			North line of S2 T2N R21E Section 31	3945
124	45° 36' 41.707" N	120° 14' 4.192" W		
			S 1-20-25 W	2649
125	45° 36' 15.565" N	120° 14' 4.803" W		
			Property Line	680
126	45° 36' 15.556" N	120° 13' 55.247" W		
			West line of E2 SE4 T2N R21E Section 31	2652
127	45° 36' 41.727" N	120° 13' 54.624" W		
			North line of S2 T2N R21E Section 31	1376
128	45° 36' 41.845" N	120° 13' 35.276" W		
			North line of S2 T2N R21E Section 32	1278
129	45° 36' 41.735" N	120° 13' 17.307" W		
			S 54-13-56 E	1857
130	45° 36' 28.603" N	120° 12' 59.077" W		
			North line of SW4 SE4 T2N R21E Section 32	1325
131	45° 36' 28.579" N	120° 12' 40.446" W		
			West line of SE4 SE4 T2N R21E Section 32	1304
132	45° 36' 15.709" N	120° 12' 40.962" W		
			West line of NE4 NE4 T1N R21E Section 5	422
133	45° 36' 11.546" N	120° 12' 40.964" W		
			Western ROW of Berthold Road	3976
134	45° 36' 40.902" N	120° 12' 8.506" W		
			Centerline of Cedar Springs Lane ROW	60
135	45° 36' 40.864" N	120° 12' 7.664" W		
			Eastern ROW of Berthold Road	4835

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
136	45° 36' 5.611" N	120° 12' 48.646" W		
			Property Line	4268
137	45° 36' 28.553" N	120° 12' 21.031" W		
			North line of S2 S2 T2N R21E Section 33	3886
138	45° 36' 28.453" N	120° 11' 26.374" W		
			East line of SW4 SE4 T2N R21E Section 33	1322
139	45° 36' 15.408" N	120° 11' 26.700" W		
			West line of NE4 NE4 T1N R21E Section 4	1302
140	45° 36' 2.558" N	120° 11' 26.697" W		
			South line of NE4 NE4 T1N R21E Section 4	1364
141	45° 36' 2.554" N	120° 11' 7.513" W		
			South line of NE4 NE4 T1N R21E Section 3	1275
142	45° 36' 2.496" N	120° 10' 49.587" W		
			N 80-21-27 E	3344
143	45° 36' 10.260" N	120° 10' 3.887" W		
			S 88-32-19 E	3037
144	45° 36' 9.171" N	120° 9' 21.217" W		
			S 30-17-51 E	3100
145	45° 35' 40.859" N	120° 9' 4.674" W		
			S 30-37-20 E	1378
146	45° 35' 28.295" N	120° 8' 57.237" W		
			S 89-56-7 E	2125
147	45° 35' 28.261" N	120° 8' 27.373" W		
			N 56-35-9 E	2898
148	45° 35' 47.847" N	120° 7' 57.685" W		
			N 63-37-44 E	2445
149	45° 36' 1.766" N	120° 7' 29.610" W		
			North line of SE4 NE4 T1N R21E Section 1	329
150	45° 36' 1.714" N	120° 7' 24.980" W		
			Property Line	3957
151	45° 36' 40.770" N	120° 7' 24.621" W		
			South line of SW4 NW4 T2N R22E Section 31	872
152	45° 36' 40.802" N	120° 7' 12.353" W		
			N 1-6-12 E	1318
153	45° 36' 53.808" N	120° 7' 12.103" W		
			Property Line	2212
154	45° 37' 6.801" N	120° 7' 24.502" W		
			Property Line	3974
155	45° 37' 19.924" N	120° 8' 1.476" W		
			South line of NE4 SW4 T2N R21E Section 25	689
156	45° 37' 19.948" N	120° 8' 11.237" W		
			N 1-19-42 E	1317
157	45° 37' 32.947" N	120° 8' 10.936" W		
			North line of NE4 SW4 T2N R21E Section 25	644
158	45° 37' 32.965" N	120° 8' 19.994" W		

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
			West line of E2 NW4 T2N R21E Section 25	2633
159	45° 37' 58.953" N	120° 8' 19.643" W		
			South line of T2N R21E Section 24	675
160	45° 37' 58.942" N	120° 8' 10.150" W		
			N 0-16-31 E	1314
161	45° 38' 11.909" N	120° 8' 10.212" W		
			South line of N2 S2 T2N R21E Section 24	1993
162	45° 38' 11.929" N	120° 8' 38.248" W		
			Property Line	2628
163	45° 37' 45.988" N	120° 8' 38.513" W		
			Property Line	3953
164	45° 37' 46.178" N	120° 9' 34.122" W		
			West line of NE4 NW4 T2N R21E Section 26	1281
165	45° 37' 58.824" N	120° 9' 33.956" W		
			West line of E2 W2 T2N R21E Section 23	3984
166	45° 38' 38.151" N	120° 9' 33.868" W		
			South line of NW4 NW4 T2N R21E Section 23	1302
167	45° 38' 38.334" N	120° 9' 52.185" W		
			Property Line	853
168	45° 38' 38.424" N	120° 10' 4.075" W		
			Property Line	1269
169	45° 38' 50.881" N	120° 10' 3.571" W		
			Property Line	852
170	45° 38' 50.787" N	120° 9' 51.583" W		
			Property Line	3999
171	45° 39' 30.255" N	120° 9' 52.058" W		
			South line of N2 N2 T2N R21E Section 14	2629
172	45° 39' 30.014" N	120° 9' 15.048" W		
			East line of NE4 NW4 T2N R21E Section 14	1312
173	45° 39' 42.967" N	120° 9' 14.997" W		
			Property Line	5284
174	45° 39' 16.790" N	120° 8' 38.229" W		
			Property Line	1302
175	45° 39' 16.905" N	120° 8' 56.552" W		
			West line of E2 SE4 T2N R21E Section 14	2665
176	45° 38' 50.598" N	120° 8' 56.717" W		
			West line of NE4 NE4 T2N R21E Section 23	1282
177	45° 38' 37.944" N	120° 8' 56.667" W		
			South line of NE4 NE4 T2N R21E Section 23	1316
178	45° 38' 37.818" N	120° 8' 38.143" W		
			North line of S2 NW4 T2N R21E Section 24	2651
179	45° 38' 37.845" N	120° 8' 0.835" W		
			S 55-6-18 E	1864
180	45° 38' 24.869" N	120° 7' 42.231" W		
			Property Line	2641

Table C-1. Micrositing Corridors Correlated to Figure C-8

Point ID	Latitude	Longitude	Description	Approximate Length (feet)
181	45° 38' 37.849" N	120° 7' 23.604" W		
			N 29-42-36 W	1417
182	45° 38' 50.832" N	120° 7' 31.013" W		
			North line of T2N R21E Section 24	796
183	45° 38' 50.826" N	120° 7' 42.209" W		
			West line of E2 E2 T2N R21E Section 18	4307
184	45° 39' 33.340" N	120° 7' 42.258" W		
			N 68-24-2 W	8476
185	45° 40' 14.476" N	120° 9' 26.160" W		
			N 3-57-8 W	10019
186	45° 41' 53.252" N	120° 9' 32.984" W		
			N 3-57-13 W	867
187	45° 42' 1.802" N	120° 9' 33.575" W		
			N 88-29-4 E	526
188	45° 42' 1.998" N	120° 9' 26.167" W		
			Property Line	4794
1 (End)	45° 42' 18.655" N	120° 9' 7.051" W		
EXCLUSIONS				
189 (Start)	45° 41' 48.915" N	120° 8' 4.917" W		
			N 89-47-9 E	1771
190	45° 41' 49.008" N	120° 7' 39.970" W		
			S 0-16-8 W	6330
191	45° 40' 46.526" N	120° 7' 40.263" W		
			N 21-33-45 W	6559
189 (End)	45° 41' 48.915" N	120° 8' 4.917" W		
192 (Start)	45° 41' 48.686" N	120° 9' 4.465" W		
			N 89-46-40 E	1986
193	45° 41' 48.795" N	120° 8' 36.485" W		
			S 48-31-32 E	421
194	45° 41' 45.540" N	120° 8' 32.803" W		
			S 21-55-21 E	11213
195	45° 39' 59.025" N	120° 7' 49.935" W		
			N 68-29-31 W	5609
196	45° 40' 26.153" N	120° 8' 58.774" W		
			N 3-56-40 W	8371
192 (End)	45° 41' 48.686" N	120° 9' 4.465" W		
197 (Start)	45° 36' 4.160" N	120° 5' 42.536" W		
			Property Line	838
197(End)	45° 36' 4.160" N	120° 5' 42.536" W		
198 (Start)	45° 33' 25.818" N	120° 5' 28.678" W		
198 (End)	45° 33' 25.818" N	120° 5' 28.678" W		
199 (Start)	45° 36' 15.537" N	120° 13' 36.679" W		
			Property Line	5120
199 (End)	45° 36' 15.537" N	120° 13' 36.679" W		

Table C-2. Montague Disturbance Calculations—Permanently Disturbed Areas

Facilities	Notes	Units of Measurement	Montague			
			Dimensions per Unit	Number of Units	Acres	Miles
Turbine Pads/Towers	1	Square feet per tower	1,660	269	10.25	
Substations/O&M Facility(s)						
Collector Substations	2	Acres	5	2	10	
O&M Facility(s)	3	Acres	3	2	6	
Meteorological Towers (self-supporting)	4	Square feet per tower	900	8	0.17	
Central Electrical System						
Overhead 34.5-kV Collector Line Structures	5,6	Square feet per 2-pole location	24	720	0.397	
230-kV Transmission Line between Montague Collector Substations						
Overhead 230-kV Collector Line Structures	7	Square feet per 2-pole location	40	86	0.079	
"Home Run" from Montague Collector Substations to Interconnection (230-kV route)						
Overhead 230-kV Collector Line Structures	8	Square feet per 2-pole location	40	93	0.085	
Access Roads and Turnarounds						
Improved Existing Roads to 20 feet (except county roads)	9	Feet of width per linear foot	10	26,974	6.19	5
Improved Existing County Roads to 30 feet (within county ROW)	10	Feet of width per linear foot	14	102,130	32.8	19
New 20-foot turbine string roads and road to met tower(s)	11	Feet of width per linear foot	20	365,876	168.0	69
New 27-foot turbine spur roads	12	Feet of width per linear foot	20	7,263	3.3	1
Total Permanently Disturbed Area					**237.3 acres**	

Notes: This table is based on the maximum layout facility component locations as shown in Figures C-4 and P-11, and the largest footprint for each facility based on the range of turbine types and support structures under consideration.

1 Includes graveled area of pad, transformer, and disturbed area for each tower, excluding access road. The dimensions are based on a circular area of disturbance with a radius of 23 feet (includes a turbine tower with a radius of up to 8 feet and surrounding gravel area with a radius of up to 15 feet). These dimensions represent the maximum potential graveled area for the range of turbine types under consideration.

2 Includes the substation and surrounding gravel within the fenced property. No temporary disturbance will occur outside the fenced area.

3 Includes building and graveled parking and storage areas.

4 Includes met tower measuring approximately 23 feet wide and surrounding graveled area.

5 Assumes poles are spaced an average of 200 feet apart. Disturbance area is also presented in square feet.

6 Assumes worst-case scenario with 27 miles of overhead collectors, which is equal to 30 percent of the total miles of collector cable. Including the worst-case value results in double counting of collector impacts because underground temporary disturbance also assumes the worst-case scenario. These miles are not shown in Figures C-4 and P-11 or included in Table P-11, which is based on the geographic information system (GIS) program.

7 The overhead line will be a maximum of 9 miles in length. The impacts assume poles will be placed as close as 500 feet. Disturbance area is also presented in square feet. These miles are not shown in Figures C-4 and P-11 or included in Table P-11, which is based on the GIS program.

8 The overhead line will be a maximum of 10 miles in length. The impacts assume poles will be placed as close as 500 feet. Disturbance area is also presented in square feet. These miles are not shown in Figures C-4 and P-11 or included in Table P-11, which is based on the GIS program.

Table C-2. Montague Disturbance Calculations—Permanently Disturbed Areas

9 Assumes maximum of 20 feet of travel lanes or 10 feet of improvements to existing 10-foot road. For roads that are already 20 feet in width, there will be no permanent impacts beyond this width. These roads will only be temporarily widened for construction. Therefore, the length of existing roads needing improvements is greater for temporary impacts than for permanent impacts.

10 Assumes maximum of 30 feet of travel lanes or 14 feet of improvements to existing 16-foot road.

11 Assumes maximum of 20 feet of travel lanes.

12 Assumes 27-foot spur road from the access road to each turbine. The spur road will be 60 feet long when measured from center of tower to center of string road, which is equal to 60 feet minus 10 feet (1/2 of access road width) minus 23 feet (distance from center of turbine to beginning of road).

Table C-3. Montague Disturbance Calculations—Temporarily Disturbed Areas

Facilities	Notes	Units of Measurement	Montague			
			Dimensions per Unit	Number of Units	Acres	Miles
Substations/O&M Facility(s)						
Collector Substations	1	Acres	0	2	0	
O&M Facility(s)	2	Acres	7	2	14	
Meteorological Towers (self-supporting)	3	Square feet per tower	1600	8	0.29	
Turbine Tower Construction/Staging Areas						
Central staging and storage areas for collector lines and other equipment	4	Acres	5	2	10	
Staging areas (usually 1 per string)	5	Acres	2.5	23	57.5	
Staging area at each tower site	6	Square feet per tower site	158,340	269	977.8	
Central Electrical System						
Underground collector lines						
1 Collector	7	Feet of width per linear foot	24	387,928	213.73	73
2 Collectors	7	Feet of width per linear foot	32	16,879	12.40	3
3 Collectors	7	Feet of width per linear foot	40	0	0.00	0
4 Collectors	7	Feet of width per linear foot	48	0	0.00	0
5 Collectors	7	Feet of width per linear foot	56	0	0.00	0
Temporary access for overhead 34.5-kV Collector Line	8,9	Feet of width per linear foot	12	143,911	39.65	27
Temporary disturbance around overhead 34.5-kV poles	9,10	Square feet per 2-pole location	1576	720	26.05	
230-kV Transmission Line between Montague Collector Substations (230-kV route)						
Temporary Access for Overhead 230-kV Line	11	Feet of width per linear foot	12	43,032	11.85	8
Temporary Disturbance Around Overhead 230-kV Collector Line Structures	12	Square feet per 2-pole location	1560	86	3.08	
"Home Run" from Montague Central Collector Substation to Interconnection (230 kV route)						
Temporary Access for Overhead 230-kV Line	13	Feet of width per linear foot	12	46,526	12.82	9
Temporary Disturbance Around Overhead 230-kV Collector Line Structures	14	Square feet per 2-pole location	1560	93	3.33	
Roads						
Temporarily disturbed area during road construction						
Existing road improvements, except county roads (temporarily widened to 80 feet)	15	Feet of width per linear foot	60	26,974	37.15	5
Existing county road improvements (temporarily widened to 60 feet, within county ROW)	16	Feet of width per linear foot	30	102,130	70.34	19
New 20-foot turbine string roads and road to met	17	Feet of width	60	365,876	503.96	69

Table C-3. Montague Disturbance Calculations—Temporarily Disturbed Areas

Facilities	Notes	Units of Measurement	Montague			
			Dimensions per Unit	Number of Units	Acres	Miles
tower(s) (temporarily widened to 80 feet)		per linear foot				
New 27-foot turbine spur roads	18	Feet of width per linear foot	60	7,263	10.00	1
Crane Paths	19	Feet of width per linear foot	55	52,682	66.52	10
Total Temporarily Disturbed Area					**2070.49 acres**	

Notes: This table is based on the maximum layout facility component locations as shown in Figures C-4 and P-11, and the largest footprint for each facility based on the range of turbine types and support structures under consideration.

1 Assumes contractor will permanently impact entire substation area. Therefore, no temporary impacts will occur.

2 Assumes contractor will temporarily impact area surrounding the permanent footprint of the operations and maintenance building(s) and parking area for equipment staging. Collector cables and other equipment may be stored here as a central staging area.

3 Assumes contractor will temporarily disturb a total of up to 2,500 square feet (sq. ft.) during construction, of which 900 sq. ft. will remain permanently impacted. The 1,600 sq. ft. represents 2,500 sq. ft. minus 900 sq. ft.

4 Central staging and storage area.

5 Staging area at each turbine string.

6 Assumes a worst-case area of disturbance around towers of approximately 160,000 sq. ft. at each of the turbine locations minus the permanent graveled area included in Table C-2. This worst-case disturbance area is larger than the typical staging area and represents the worst-case scenario. The typical disturbance area measures approximately 53,000 square feet around the 1.5-MW turbines (130-foot radius for the 77-meter/253-foot-diameter blades) or approximately 85,000 square feet around the 3.0-MW turbines (164-foot radius for the 100-meter/328-foot-diameter blades), as shown in Figure B-2.

7 Assumes 12 feet on either side of the collector line trench for spoil and travel paths. Trenches are separated by 8 feet for heat dissipation. This distance includes the width of the actual collector line trenches.

8 Temporary disturbance will be an average of 12 feet wide.

9 Assumes worst-case scenario with 27 miles of overhead collectors, which is equal to 30 percent of the total miles of collector cable. Including the worst-case value results in double-counting of collector impacts because underground temporary disturbance also assumes the worst-case scenario. These miles are not shown in Figures C-4 and P-11 or included in Table P-11, which is based on the geographic information system (GIS) program.

10 Assumes pole spacing as close as 200 feet, and a temporary disturbance of 40x40 feet at each two-pole location minus the 24-sq.-ft. permanent impact.

11 Temporary disturbance will be an average of 12 feet wide.

12 Assumes pole spacing as close as 500 feet, and a temporary disturbance of 40x40 feet at each two-pole location minus the 40-sq.-ft. permanent impact.

13 Temporary disturbance will be an average of 12 feet wide. This calculation is based on the maximum length of the "home run" (the alternate route).

14 Assumes pole spacing as close as 500 feet, and a temporary disturbance of 40x40 feet at each two-pole location minus the 40-sq.-ft. permanent impact. This calculation is based on the maximum length of the transmission line (the alternate route).

15 Assumes the 10-foot existing road will be temporarily widened to 80 feet. The temporary disturbance will be equal to 80-foot total width during construction (for crane path plus access road) minus the 20-foot permanent width.

16 Assumes the 16-foot existing road will be temporarily widened to a maximum of 60 feet within the County right-of-way. The County roads will be widened up to 60 feet for portions of the road to allow for wider turning radii and/or straightening of tight corners. The temporary disturbance will be equal to 60-foot total width during construction minus the 30-foot permanent width.

17 The temporary disturbance will be equal to 80-foot total width during construction (for crane path plus access road) minus the 20-foot permanent width.

18 Assumes 27-foot spur road from the access road to each turbine that would be 60 feet long when measured from center of tower to center of string road, which is equal to 60 feet minus 10 feet (1/2 of access road width) minus 23 feet (distance from center of turbine to beginning of road).

19 Crane path disturbances for locations where crane paths do not parallel access roads.

Table C-4. Summary of Worst-Case Scenario by Exhibit

Exhibit with Impact Analysis	Summary of Worst-Case Scenario
C	Same as Exhibit P.
I	Same as Exhibit P.
J	Maximum turbine layout (269 turbines); maximum number of jurisdictional crossings and impacts.
K	Same as Exhibit P.
L	Maximum turbine layout; more visible from within the 10-mile analysis area based on Zone of Visual Impact (ZVI) analysis presented in Exhibit R.
P	Maximum turbine layout (269 turbines), moved into highest-quality habitat; highest level of temporary and permanent land impacts and highest level of impacts to highest-quality habitat.
Q	Maximum turbine layout (269 turbines), moved into highest-quality habitat; highest level of temporary and permanent land impacts and highest level of impacts to highest-quality habitat; highest number of Facility components in proximity to threatened and endangered species.
R	Maximum turbine layout; more visible from within the 10-mile analysis area based on ZVI analysis.
S	Same as Exhibit P.
X	Minimum turbine layout; highest predicted noise level.

Note: The number of turbines will not exceed 269.

Figures

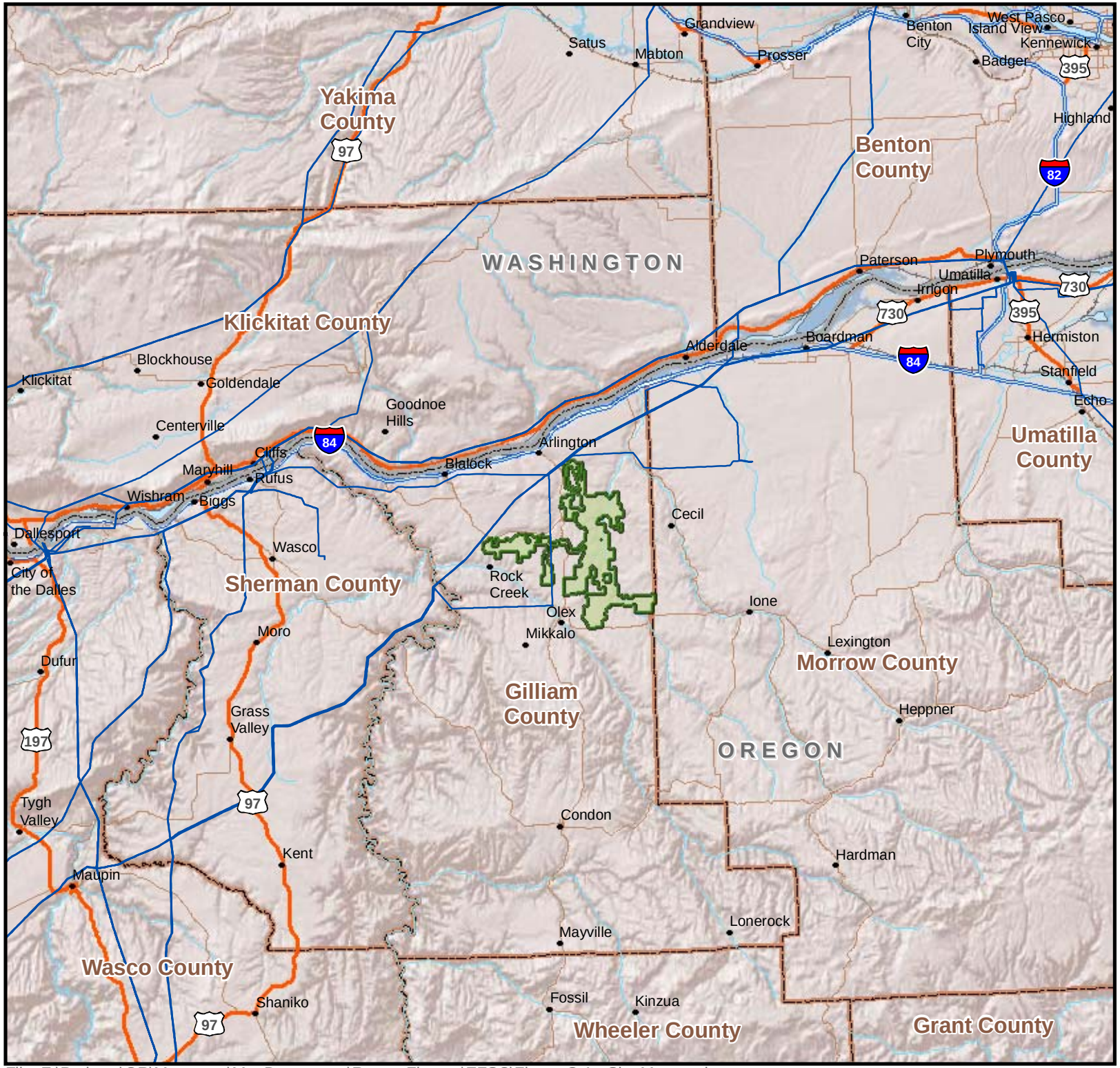


Figure C-1
Site Map
Montague Wind Power Facility

Legend

- Site Boundary
- Micrositing Corridor
- Cities
- Limited Access Highway
- Highway
- Major Road
- Major Railroad Line
- Existing Transmission Line
- Water
- County Boundary
- State Boundary

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Miles

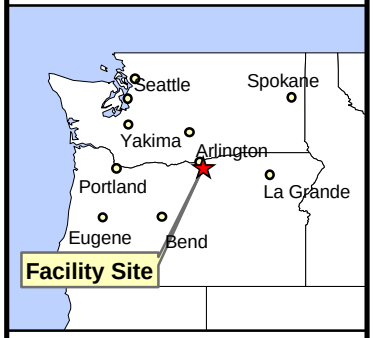

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Figure C-2

Facility Location Map

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

KLICKITAT COUNTY
GILLIAM COUNTY
Rattlesnake Rd
Heppner Hwy
MORROW COUNTY
GILLIAM COUNTY
Cedar Springs Ln
Fourmile Rd
Oregon Hwy 19 - John Day HWY
GILLIAM COUNTY
Mcnabb Ln
Baseline Rd

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed Access Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Existing Facilities

- Existing Transmission Line
- Public Road
- Private Road
- Major Railroad Line
- Streams
- State Boundary
- BPA Slatt Interconnection Substation
- County Boundary

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Figure C-3

Facility Location Map with Leaning Juniper IIB Overlap

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Site Boundary - Overlap with Leaning Juniper IIB
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed Access Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Existing Facilities

- Existing Transmission Line
- Public Road
- Private Road
- Major Railroad Line
- Streams
- State Boundary
- BPA Slatt Interconnection Substation
- County Boundary

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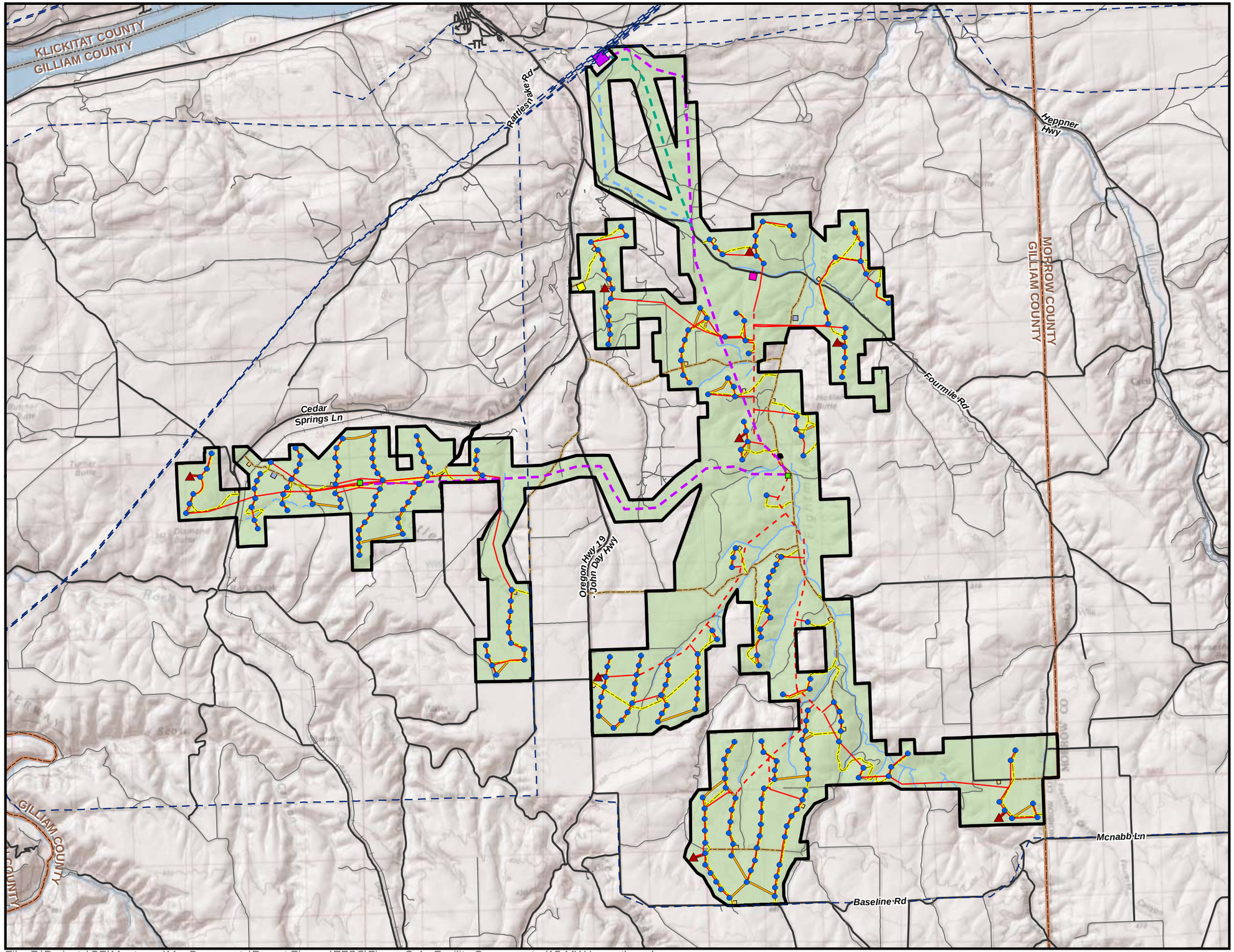

Figure C-4

Facility Components

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public Road
- Private Road
- Major Railroad Line
- Streams
- State Boundary
- BPA Slatt Interconnection Substation
- County Boundary

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Figure C-5a

Facility Components - Detailed View 1 of 4

1.5-MW Turbine Layout
(Maximum Turbine Layout)
Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- BPA Slatt Interconnection Substation
- County Boundary

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Figure C-5b

Facility Components - Detailed View 2 of 4

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- County Boundary

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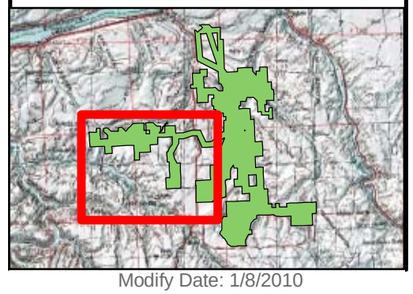

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Figure C-5c

Facility Components - Detailed View 3 of 4

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- County Boundary

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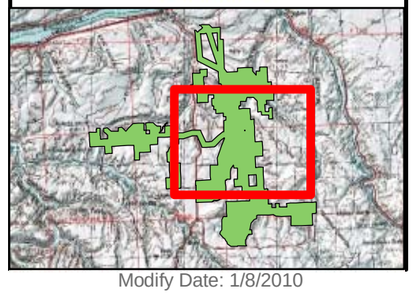

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Figure C-5d

Facility Components - Detailed View 4 of 4

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- County Boundary

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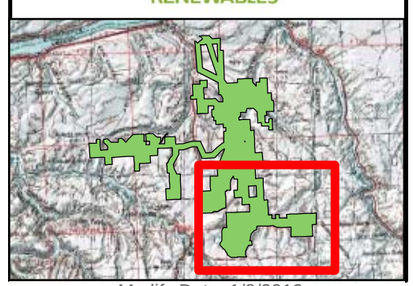

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Modify Date: 1/8/2010

Figure C-6

Facility Components

3.0-MW Turbine Layout
(Minimum Turbine Layout)

Montague Wind Power Facility

KLICKITAT COUNTY
GILLIAM COUNTY
Rattlesnake Rd
Heppner Hwy
MORROW COUNTY
GILLIAM COUNTY
Cedar Springs Ln
Fourmile Rd
Oregon Hwy 19 - John Day Hwy
GILLIAM COUNTY
Mcnabb Ln
Baseline Rd

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Existing Facilities

- Existing Transmission Line
- Public Road
- Private Road
- Major Railroad Line
- Streams
- State Boundary
- BPA Slatt Interconnection Substation
- County Boundary

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Figure C-7a

Facility Components - Detailed View 1 of 4

3.0-MW Turbine Layout
(Minimum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- BPA Slatt Interconnection Substation
- County Boundary

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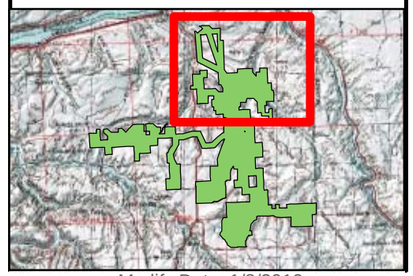

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Figure C-7b

Facility Components - Detailed View 2 of 4

3.0-MW Turbine Layout
(Minimum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed 230-kV Transmission Line
- Proposed 5-Acre Facility Corridor Substation

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- County Boundary

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Modify Date: 1/8/2010

Figure C-7c

Facility Components - Detailed View 3 of 4

3.0-MW Turbine Layout
(Minimum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed 230-kV Transmission Line
- Proposed 5-Acre Facility Corridor Substation

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- County Boundary

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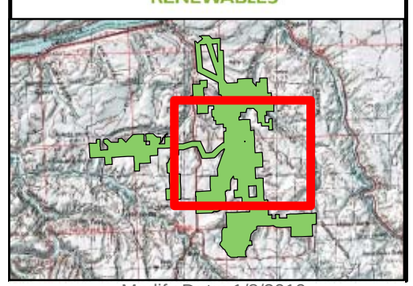

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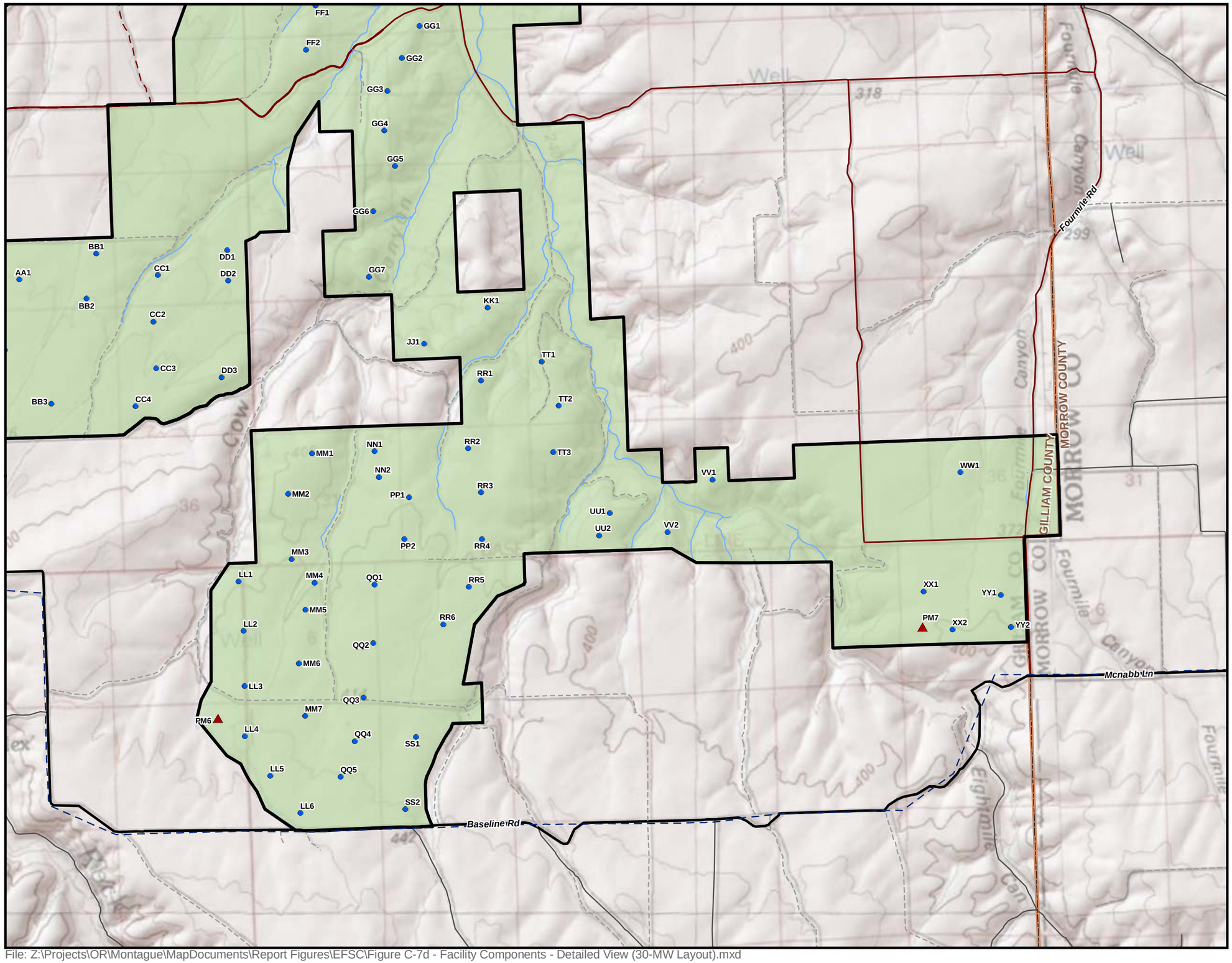
Figure C-7d

Facility Components - Detailed View 4 of 4

3.0-MW Turbine Layout
(Minimum Turbine Layout)

Montague Wind Power Facility



Site Boundary
Micrositing Corridor

Proposed Permanent Facilities

Proposed Turbine
Proposed Met Tower

Existing Facilities

Existing Transmission Line
Public, Paved
Public, Gravel
Other Public Road
Private, Gravel
Other Private Road
Major Railroad Line
Streams
County Boundary

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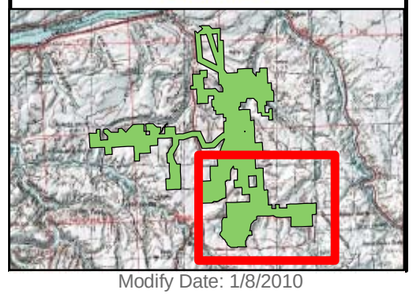
IBERDROLA RENEWABLES



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Modify Date: 1/8/2010

Figure C-8a

Micrositing Corridors Correlated to Table C-1

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor
- Boundary Description Point

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public Road
- Private Road
- Major Railroad Line
- Streams
- State Boundary
- BPA Slatt Interconnection Substation
- County Boundary

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IBERDROLA RENEWABLES

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Modify Date: 1/8/2010

Figure C-8b

Micrositing Corridors Correlated to Table C-1 - Detailed View 1 of 4

1.5-MW Turbine Layout
(Maximum Turbine Layout)
Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor
- Boundary Description Point

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- BPA Slatt Interconnection Substation
- County Boundary

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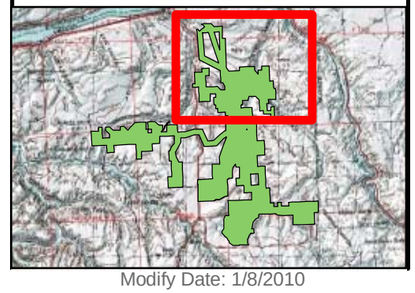
IBERDROLA RENEWABLES



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Modify Date: 1/8/2010

Figure C-8c

Micrositing Corridors Correlated to Table C-1 - Detailed View 2 of 4

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor
- Boundary Description Point

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- County Boundary

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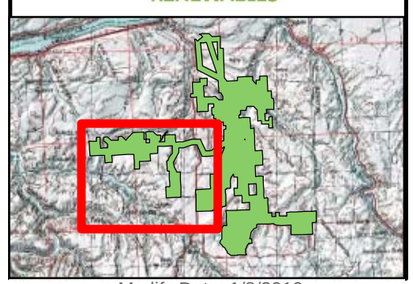
Miles

IBERDROLA RENEWABLES



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Modify Date: 1/8/2010

Figure C-8d

Micrositing Corridors Correlated to Table C-1 - Detailed View 3 of 4

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor
- Boundary Description Point

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- County Boundary

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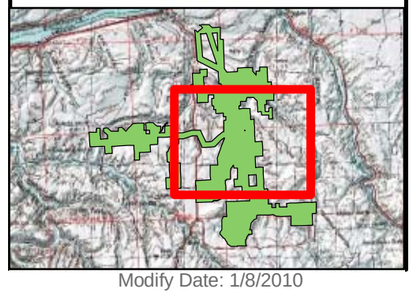
IBERDROLA RENEWABLES



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Modify Date: 1/8/2010

Figure C-8e

Micrositing Corridors Correlated to Table C-1 - Detailed View 4 of 4

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

- Site Boundary
- Micrositing Corridor
- Boundary Description Point

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public, Paved
- Public, Gravel
- Other Public Road
- Private, Gravel
- Other Private Road
- Major Railroad Line
- Streams
- County Boundary

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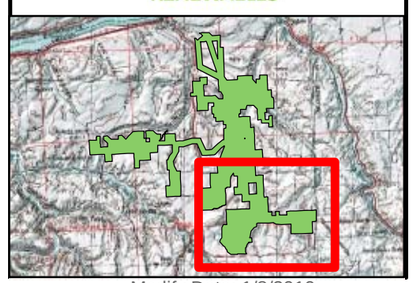
IBERDROLA RENEWABLES



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Modify Date: 1/8/2010

Figure C-9

Temporarily Disturbed Areas

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility

KLICKITAT COUNTY
GILLIAM COUNTY
Rattlesnake Rd
Heppner Hwy
MORROW COUNTY
GILLIAM COUNTY
Fourmile Rd
Cedar Springs Ln
Oregon Hwy 19
John Day HWY
GILLIAM COUNTY
Mcnabb Ln
Baseline Rd

- Site Boundary
- Worst-Case Scenario Footprint (Temporary)
- Micrositing Corridor

Existing Facilities

- Existing Transmission Line
- Public Road
- Private Road
- Major Railroad Line
- Streams
- State Boundary
- BPA Slatt Interconnection Substation
- County Boundary

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Miles

IBERDROLA RENEWABLES

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Modify Date: 1/8/2010

EXHIBIT D

APPLICANT'S ORGANIZATIONAL, MANAGERIAL, AND TECHNICAL EXPERTISE
OAR 345-021-0010(1)(d)

TABLE OF CONTENTS

D.1 INTRODUCTION

OAR 345-021-0010(1)(d) *Information about the organizational expertise of the applicant to construct and operate the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0010, including:*

Response: Iberdrola Renewables, Inc. (IBR; Applicant) will provide the organizational, managerial, and technical expertise to construct and operate the proposed Montague Wind Power Facility (Facility). IBR is a leader in the renewable industry in the United States. Within its power business, IBR is focused on the development and marketing of clean fuel sources, including wind as well as solar, biomass, and natural gas-fired generation. Through direct ownership or power purchase agreements, IBR controls more than 3,100 megawatts (MW) of wind generation currently in operation and then integrates and markets the output from these projects into the wholesale power market.

D.2 APPLICANT'S PREVIOUS EXPERIENCE

OAR 345-021-0010(1)(d)(A) *The applicant's previous experience, if any, in constructing and operating similar facilities;*

Response: IBR has wind projects under construction across the United States and recently embarked on an ambitious program to increase its supply of wind generation and environmental attributes to 4,500 MW by 2011. IBR's U.S. headquarters are located in Portland, Oregon.

IBR regularly carries out power supply transactions with more than 50 counterparties in the Western Electricity Coordinating Council (WECC) region, including public utility districts, investor owned utilities, electric cooperatives, and federal power marketing administrations.

Following the formation of Iberdrola Renovables, the assets of IBR Energy, Inc., were merged with existing Iberdrola wind assets in North America. The resulting company is now called Iberdrola Renewables, Inc. (or IBR, as defined above). Table D-1 presents IBR's combined wind assets, biomass, gas-fired power plants, and natural gas storage facilities.

TABLE D-1. Iberdrola Renewables North America Renewable Project Portfolio and Customers

Project Name	Location	Control Structure	Capacity
Bear Creek	Pennsylvania	Own	6 MW Owned (24 MW Project)
Big Horn	Washington	Own	200 MW
Casselman	Southwest Pennsylvania	Own	35 MW
Colorado Green	Southeast Colorado	50/50 JV with Shell	81 MW
Dillon	Souther California	Own	45 MW
Elk River	Southeast Kansas	Own	150 MW
Flying Cloud	Northwest Iowa	Own	25 MW

TABLE D-1. Iberdrola Renewables North America Renewable Project Portfolio and Customers

Project Name	Location	Control Structure	Capacity
High Winds	Northern California	PPA with FPLE	162 MW
Jersey-Atlantic Wind	New Jersey	Own	2 MW Owned (7.5 MW Project)
Klondike II	Central Oregon	Own	75 MW
Klondike III	Central Oregon	Own	224 MW
Klondike I	Central Oregon	Own	24 MW
Locust Ridge	Pennsylvania	Own	26 MW
Locust Ridge II	Pennsylvania	Own	102 MW
Maple Ridge I	Northern New York	50/50 JV with Horizon	116 MW
Maple Ridge II	Northern New York	50/50 JV with Horizon	45 MW
MinnDakota	Southwest Minnesota	Own	150 MW
Moraine	Southwest Minnesota	Own	44 MW
Mountain View III	Southern California	Own	25 MW
Shiloh	Northern California	Own	150 MW
Southwest Wyoming	Southwest Wyoming	PPA with FPLE	144 MW
Stateline	Oregon/Washington	PPA with FPLE	300 MW
Trimont	Southwest Minnesota	Own	100 MW
Twin Buttes	Southeast Colorado	Own	75 MW
Klondike IIIa	Central Oregon	Own	76 MW
Top of Iowa II	Northern Iowa	Own	80 MW
Peñascal	Texas	Own	202 MW
Barton Chapel	Texas	Own	120 MW
Elm Creek	Southwest Minnesota	Own	100 MW
Hay Canyon	Central Oregon	Own	101 MW
Providence Heights	Illinois	Own	72 MW
Pebble Springs	Central Oregon	Own	99 MW
Simpson Biomass	Western Washington	PPA	43 MW
Barton 1	Iowa	Own	80 MW
Barton 2	Iowa	Own	80 MW
Buffalo Ridge	South Dakota	Own	50 MW
Locust Ridge II	Pennsylvania	Own	102 MW
Lempster	New Hampshire	Own	24 MW
Winnebago	Iowa	Own	20 MW
Farmers City	Missouri	Own	146 MW
Moraine II	Southwest Minnesota	Own	50 MW
Dry Lake	Arizona	Own	63 MW
Total			**3738**

D.3 QUALIFICATIONS OF APPLICANT'S PERSONNEL

OAR 345-021-0010(l)(d)(B) *The qualifications of the applicant's personnel who will be responsible for constructing and operating the facility, to the extent that the identities of such personnel are known when the application is submitted;*

D.3.1 General Qualifications

Response: In wind generation, IBR has developed a vertically integrated capability to reliably and cost-effectively deliver wind power products. More than 300 of IBR's personnel focus on all aspects of renewable development, sales, trading, engineering, construction, operations, and financing. Individual efforts can be classified into the following areas:

- **Development:** IBR is the second largest wind developer in the United States, pursuing greenfield projects, repowering projects, and acquisitions.
- **Operations:** IBR's experienced, highly trained, safety-conscious operations and maintenance (O&M) group currently oversees the operations of more than 3,100 MW of installed wind power capacity in the U.S. In addition, IBR has 24-hour remote operational capability for its projects.
- **Forecasting:** IBR leads the market in its ability to predict wind generation through sophisticated forecasting techniques.
- **Trading:** IBR has established robust systems, including its 24-hour real-time and day-ahead desks, to manage wind energy into short-term markets.
- **Origination:** IBR consistently tailors energy supply contracts to best suit customer's needs, and, as a result, close to 100 percent of IBR's controlled wind is sold under long-term contracts.

The following section contains brief resumes of key personnel responsible for the construction and operation of the Facility.

D.3.2 Qualifications of Key Personnel

D.3.2.1 Management

Ralph Currey is president and chief executive officer of IBR for the U.S. and Canada. Ralph is a member of the original senior management team that grew from what was formerly PPM Energy to an enterprise value of more than $7 billion in 7 years. He has been instrumental in developing the strategic foundation, recruiting key executives, establishing an entrepreneurial culture, and delivering earnings growth. Formerly Senior Vice President for IBR's Energy Management, Ralph headed up an organization of power trading, gas trading, and origination professionals. This role included responsibility for creating liquidity and market presence in geographies and markets ahead of actual asset investments, and for developing LNG marketing alliances. Ralph's 27 years of energy experience also includes positions at Chevron, Texaco, and KCS Energy with positions in operations, engineering, and trading. He earned bachelor's and

master's degrees from West Virginia University as well as a master's degree in economics from the Colorado School of Mines.

D.3.2.2 Wind Business Development

Don Furman is Senior Vice President for Development, Transmission, and Policy. Don is responsible for North American renewables development and for transmission and public policy efforts. He oversees all development activities and transmission rights for the wind business, and he leads relationship management efforts with government, regulators, and organized markets. Don was previously with PacifiCorp, most recently as Senior Vice President of Regulation and External Affairs. While with PacifiCorp, he also held the roles of Vice President of Domestic Mergers and Acquisitions, Vice President of Transmission, and President of the company's unregulated power marketing subsidiary. Before joining PacifiCorp, Don was Senior Vice President for Operations with Citizens Lehman Power LP. He also practiced law with an emphasis on energy transactions and regulation. Don holds a bachelor's degree in economics from Northwestern University and a J.D. from Lewis and Clark Law School.

Jesse Gronner is Director of Wind Business Development in the West. Jesse is responsible for wind development activities in numerous western states. With more than 6 years of experience at IBR, Jesse has successfully led the development of 375 MW of wind projects currently in operation and an additional 175 MW under construction in 2008. Before joining the Project Development group, Jesse managed IBR's original development pipeline of projects and supported the acquisition of IBR's first owned wind project in 2002. Jesse holds a bachelor's degree from the University of Massachusetts at Amherst.

Sara Parsons is a Business Developer in the West region. Sara has been with IBR since 2005 and worked in IBR's permitting department before joining the business development group. As a Permitting Manager, Sara led the environmental permitting efforts for wind projects throughout the United States, including 376 MW of wind projects currently in operation in Oregon and an additional 300 MW under construction in Oregon in 2009 and 2010. Before joining IBR, Sara worked as a biologist and project manager for 6 years at Ecology and Environment, Inc., an environmental consulting firm. She has a bachelor's degree in environmental science from Wesleyan University.

Chase Whitney is a Business Developer in the West region. Chase has been with IBR since 2007 working on wind project development efforts throughout the U.S. Before joining IBR, Chase worked with Clipper Windpower as a project development intern and the National Renewable Energy Lab as an intern in the Technology Transfer Office. Chase holds a bachelor's degree in history and environmental studies from Cornell College and an MBA from the University of Denver.

D.3.2.3 Permitting

Andy Linehan is the Director of Permitting for wind energy projects. Andy has dedicated himself to environmental and permitting studies for wind projects throughout the United States at IBR (where he has been employed since 2004) and in his previous

position at the consulting firm CH2M HILL (where he was employed for 16 years). In that position, he was the consultant project manager for the Stateline Wind Project Site Certificate Application (and two amendments) as well as for the Klondike Wind Project and several wind projects in Washington and other states. In his current role, Andy supports permitting and environmental analysis for IBR's wind projects nationwide. He has a bachelor's degree from Reed College and a master's degree in public affairs from the Woodrow Wilson School at Princeton University.

Jeffrey Durocher oversees permitting efforts for IBR's wind and solar projects in the western states. Before joining IBR, Jeffrey worked as a Project Manager for an environmental consulting firm, where he focused on a variety of projects located in Oregon, Washington, California, Idaho, Utah, Wyoming, and Nevada. His formal training is as an attorney and he practiced energy and environmental law in New York State as a partner in the firm of Read and Laniado, LLP. He is also admitted to the Oregon Bar. Jeffrey graduated from Pace Law School with a certificate in Environmental Law, and from the State University of New York at Plattsburgh with a degree in Environmental Planning and Natural Resources Management.

D.3.2.4 Meteorology

Robert W. Baker is the Manager of Wind Energy Assessment and Evaluation. Bob is a senior meteorologist who has worked in the wind industry for more than 30 years, both in the private sector and in academia. He has been a pioneer in the development of wind resource assessment prospecting techniques and he has applied his expertise in aerial surveillance and ground evaluation to identify viable wind areas, many of which have been or are currently being developed into wind farms in the 50- to 300-MW scale. Bob has authored or co-authored more than 50 publications in technical journals and project reports. He has a master's degree in atmospheric sciences from Oregon State University and is a Certified Consulting Meteorologist (CCM), the professional certification granted by the American Meteorological Society.

D.3.2.5 Transmission Planning and Interconnection

Jon Fischer is the Director of Transmission Origination. He has 14 years of experience in the power business in the WECC. Jon manages IBR's transmission-related activities, including generation interconnection and transmission procurement. He also provides transmission strategies and support for IBR's renewable and thermal origination. His group is part of the IBR origination team that develops and negotiates renewable and nonrenewable structured power sales, exchanges, and other arrangements with wholesale power entities. Jon has detailed knowledge of power and transmission system operations, as well energy trading strategies and operations. Before joining IBR, he managed the middle office function at PacifiCorp's regulated wholesale energy trading floor and provided transmission expertise. He has also worked for the Bonneville Power Administration in a variety of transmission sales, acquisition, and wholesale energy marketing positions. Jon holds a bachelor's degree in economics and political science from Willamette University.

D.3.2.6 Construction Management and Engineering

Allan Query is Vice President of Construction and Operations. He joined Pacific Generation Company (PGC), an earlier unregulated affiliate, in 1991 as Director of Project Engineering. He is currently managing the design and construction of IBR's wind projects throughout the United States. In addition, Allan has managed the design, construction, and startup of the 240-MW Crockett Cogeneration Project and the 484-MW Klamath Cogeneration Project for the project owners, and he has managing engineering oversight for PGC's interest in 13 other generation projects powered by gas, coal, refuse-derived fuel, hydro, and wind. In his current role, he is responsible for management of engineering, construction, and operation of IBR projects. Allan graduated cum laude from Seattle University, is a registered Professional Engineer, and has over 30 years experience in the power generation industry. His group is responsible for project design, engineering and construction specifications, interconnection and substation design, environmental assessments, construction, commissioning, and operations and maintenance.

Wayne E. Mays is Director of Technical Services, with responsibility for project technical support and engineering for North America. Wayne has worked in the energy industry for more than 30 years in a variety of areas including engineering, planning, operations, and project development. He has a master's degree in electrical engineering from Washington State University and is a registered Professional Engineer in the state of Oregon.

D.3.2.7 Origination

Barrett Stambler is Vice President of Renewable Origination. He is responsible for IBR's sales and marketing activities throughout the United States. Barrett has more than 20 years of experience in the renewable energy business with PacifiCorp, U.S. Windpower, Calpine, the U.S. Department of Energy, and IBR. Barrett oversees IBR's wind sales and marketing activities while expanding customer relationships across North America. He has been integral in IBR's wind power business from its earliest days, including the company's first-ever power purchase agreement for Stateline Wind Energy Center in 2001. Barrett holds a bachelor's degree from Pomona College and a master's degree in business administration from Yale University.

Anders Glader, Managing Director of IBR's wind business in California, is responsible for securing long and short-term agreements for the energy output and associated environmental attributes of IBR's WECC-based wind projects. Anders has 15 years of experience in the renewable energy field. At Green Mountain Energy, he held the positions of Director of Supply and Director of Business Development and was responsible for securing energy supply and expanding the company's business in California. Before that, he managed the Electric Power Research Institute's Rural Electrification Program, which evolved into Anders launching his own venture to develop projects and provide consulting services in the South American rural electrification market. Earlier in his career, he worked for Hagler Bailly Consulting, providing services to private companies, multilateral organizations, and governmental

agencies. Anders holds a bachelor's degree in mechanical engineering from Stanford University, a master's degree in environmental studies from Yale University, and a master's degree in business administration from Yale University.

Kourtney Nelson is a Renewable Originator responsible for securing long-term and short-term agreements for the energy output and associated environmental attributes of IBR's WECC-based wind projects. Kourtney has more than 7 years of experience in WECC energy markets, starting her career at Enron North America in the WECC Settlements and Market Fundamentals groups in the Portland, Oregon, offices. Kourtney joined IBR 5 years ago as a Trading Analyst and then a Market Fundamentals Analyst, focusing on short-term market fundamentals for the western wholesale energy markets. She spent 2 years as a Wind Asset Manager, managing a portfolio of IBR's wind assets during their full life cycle, before joining the Renewable Origination team. Kourtney holds a degree in finance from the University of Portland.

D.3.2.8 Energy Management

IBR has an extensive staff of highly experienced term and real-time traders to manage gas and wind generating assets. In addition, IBR is in the process of developing a proprietary trading software package that will create a leading edge in trading and asset management systems.

Tim McCabe is responsible for managing IBR's electricity energy activities in the U.S., executing short- and long-term transactions in the physical and financial power markets, and monetizing the value of company's asset portfolio across the country. Before joining IBR, Tim was responsible for Duke Energy's western gas merchant activities. Tim has more than 20 years of experience in the energy field, including positions at Cinergy, NP Energy, Vitol S.A. and Natural Gas Clearinghouse (Dynegy). He has been involved in major facets of the energy business, including natural gas trading, transportation and storage, power trading, origination, and asset development at both the utility and merchant level. Tim earned a bachelor's degree in petroleum engineering from Texas A&M University.

D.3.2.9 Asset Management

Gerry Froese, Managing Director of Wind Asset Management, has more than 27 years of experience in all aspects of the energy business and is responsible for managing IBR's wind portfolio across the United States and Canada. Before joining Wind Asset Management, Gerry managed IBR's Power Origination team, where he was responsible for IBR's west-based, nonrenewable portfolio. His experience includes trading in Eastern and Western markets.

D.3.2.10 Operations

Kevin Devlin, Vice President of Commercial Operations, is responsible for IBR's Commercial Operations team, including wind equipment and service procurement, as well as IBR's operations and maintenance (O&M) business services for others. Kevin joined IBR in 2005 and was responsible for new business initiatives, including offering

O&M services to third parties and expanding IBR's wind business into Canada. Kevin previously headed up the commercial development team for Scottish Power, with responsibility for originated power and gas transactions, coal trading and procurement, and environmental products. Kevin has more than 18 years experience in the energy industry, including 10 years with Exxon in various roles within the upstream natural gas business and downstream oil supply and transportation. Kevin holds a BEng in mechanical engineering from the Queens University of Belfast.

D.3.2.11 Finance

Dani Alcain, Vice President of Finance, is responsible for all finance and treasury activities for IBERDROLA, S.A. in North America. Dani joined IBR in 2001 and has worked in various capacities, including strategic planning for control areas in Brazil and Guatemala. Most recently, Dani worked in the Structured Finance Department in Spain where he was in charge of the financing engineering, gas and generation business and other international activities of IBR in Bolivia and Mexico. In addition, Dani lead treasury integration efforts for PPM Energy and Iberdrola Renewables Energies USA. Dani has degrees in economy and law from Universidad de Valladolid in Spain.

D.4 QUALIFICATIONS OF KNOWN CONTRACTORS

OAR 345-021-0010(1)(d)(C) *The qualifications of any architect, engineer, major component vendor, or prime contractor upon whom the applicant will rely in constructing and operating the facility, to the extent that the identities of such persons are known when the application is submitted*;

Response: IBR has not selected a prime contractor to construct the Facility. Selection criteria will center on qualified engineers, manufacturers, and contractors who are experienced in the wind industry.

D.5 APPLICANT'S PAST PERFORMANCE

OAR 345-021-0010(1)(d)(D) *The past performance of the applicant, including but not limited to the number and severity of any regulatory citations in constructing or operating a facility, type of equipment, or process similar to the proposed facility;*

Response: IBR has successfully developed, managed the construction of, and operated wind energy projects. No regulatory citations have been issued to IBR in connection with the construction or operation of project facilities in Oregon.

IBR holds itself to a high standard on safety, and all construction general contractors are required to meet strict safety qualifications. A strong environmental health and safety (EHS) record is exemplified by the title of IBR's EHS Policy: "People & the Environment First." IBR has had zero employee lost-time accidents for all company operations in the United States and Canada for more than 7 years. Before 2008, there were no accidents involving employees or contractors. In 2008, IBR contractors had four minor lost-time accidents with a total of 8 days lost time. In 2009, one minor lost-time accident involving an employee resulted in 5 days of lost time. Tragically, a serious accident occurred at an

IBR-owned wind project, Klondike III in Oregon, constructed and operated by turbine manufacturer Siemens. One of the Siemens employees was killed, and another injured. The accident was investigated by Siemens with an IBR oversight team, and Siemens was precluded from operating until all IBR-required corrective actions were implemented. The Oregon Occupational Safety and Health Division (Oregon OSHA) also thoroughly investigated the accident and subsequently issued Siemens a citation and fine. This is the first known fine and serious citation against an IBR contractor. IBR received no citation from Oregon OSHA as a result of its investigation. Further, IBR is working diligently to prevent the recurrence of this kind of accident, both with its employees and contractors, and through its leadership position on the American Wind Energy Association Safety Committee.

No regulatory citations have been issued to the Applicant; however, the Applicant has worked with state agencies to remedy several instances of potential noncompliance. The following additional information relates to construction and operation of wind projects in the United States, but outside of Oregon, by IBR and its predecessor, PPM Energy. Neither received any serious violations or citations and no monetary penalties have been imposed from the period of February 1, 2006, to the present. IBR and PPM Energy have received some letters or minor citations, which have all been corrected as described.

- In 2006, IBR (then PPM Energy) was notified by the U.S. Corps of Engineers about a shotcrete-lined culvert crossing apparently constructed by Northwestern Windpower as part of the Klondike I project over 5 years prior to the Corps notification. PPM performed remedial action in conjunction with completion of construction for the Klondike III project.

- In 2006-2007, the Solano County Department of Resource Management inspected Shiloh Wind Project and notified IBR (then PPM Energy) that a Hazardous Materials Release and Response Plan & Hazardous Waste Inventory was required to be submitted to the County for plant operations. PPM took corrective action and the County acknowledged actions taken. An Enforcement Letter of Warning was received from the Washington Department of Ecology, which claimed that erosion control was not completed for the construction of the Big Horn Wind Project, Klickitat County, Washington. PPM took corrective action. Finally, a Request for Information from Minnesota Pollution Control Agency claimed that erosion control was not completed at the Trimont Wind Project, Martin and Jackson counties, Minnesota. IBR (then PPM Energy) contractors took action; no further agency action was taken.

- In 2008, a letter was received by the Iowa Department of Natural Resources for failure to request a permit extension or discontinue the Stormwater NPDES permit for the Top of Iowa II, Kensett, Iowa. The oversight was rectified.

D.6 APPLICANT WITH NO PREVIOUS EXPERIENCE

OAR 345-021-0010(1)(d)(E) *If the applicant has no previous experience in constructing or operating similar facilities and has not identified a prime contractor for construction or operation of the proposed facility, other evidence that the applicant can successfully construct and operate*

the proposed facility. The applicant may include, as evidence, a warranty that it will, through contracts, secure the necessary expertise; and

Response: Not applicable.

D.7 ISO CERTIFIED PROGRAM

OAR 345-021-0010(1)(d)(F) *If the applicant has an ISO 9000 or ISO 14000 certified program and proposes to design, construct and operate the facility according to that program, a description of the program;*

Response: IBR does not have an ISO 9000 or 14000 certified program.

D.8 MITIGATION

OAR 345-021-0010(1)(d)(G) *If the applicant relies on mitigation to demonstrate compliance with any standards of Division 22 or 24 of this chapter, evidence that the applicant can successfully complete such proposed mitigation, including past experience with other projects and the qualifications and experience of personnel upon whom the applicant will rely, to the extent that the identities of such persons are known at the date of submittal.*

Response: Mitigation for the Facility may be required for impacts to wildlife habitat and other resources. IBR has developed and implemented mitigation projects at multiple sites, including Klondike III as described in the Application for Site Certificate for that project. IBR has also funded basic research on biological impacts of wind energy. For example, the company is now in its fourth year of funding for the Bat Wind Energy Cooperative, which is evaluating interactions of bats and wind projects at several wind project sites. IBR has made a 4-year commitment to funding research into the potential displacement impacts of wind energy on grassland nesting avian species such as prairie chickens. In designing and executing these and other mitigation projects, IBR relies on in-house expertise (including Mr. Linehan and Ms. Parsons) and on the selection and management of qualified outside contractors such as Karen Kronner and other biologists from Northwest Wildlife Consultants, Inc.

EXHIBIT E

PERMITS NEEDED FOR CONSTRUCTION AND OPERATION

OAR 345-021-0010(1)(e)

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E.1 INTRODUCTION

OAR 345-021-0010(1)(e) *Information about permits needed for construction and operation of the facility, including:*

Response: Sections E.2 through E.8 provide information about permits needed for construction and operation of the proposed Montague Wind Power Facility (Facility).

E.2 IDENTIFICATION OF NECESSARY PERMITS

OAR 345-021-0010(1)(e)(A) *Identification of all federal, state and local government permits needed before construction and operation of the proposed facility, legal citation of the statute, rule or ordinance governing each permit, and the name, address and telephone number of the agency or office responsible for each permit.*

Response: Sections E.2.1 through E.2.4 identify necessary federal, state, and local permits.

E.2.1 Federal Permits

Permit: **Record of Decision/National Environmental Policy Act Compliance**
(For Bonneville Power Administration's decision to interconnect the Facility to BPA's transmission network)

Agency: Bonneville Power Administration
Andrew M. Montaño, Environmental Project Manager
905 NE 11th Avenue
Portland, OR 97208
(503) 230-4145

Authority: National Environmental Policy Act (NEPA), Section 102 (42 USC § 4332); 40 CFR § 1500

Permit: **Clean Water Act, Section 404**

Agency: Mary Hoffman, Permit Evaluator
35002 Highway 30
La Grande, OR 97850
(541) 962-0401

Authority: Clean Water Act, Section 404 (33 USC § 1344); 33 CFR §§ 320, 323, 325-28, and 330

Permit: **Notice of Proposed Construction or Alteration (Form 7460.1)**

Agency: Federal Aviation Administration
Earl Newalu
OE Airspace Analyst, FAA
1701 Columbia Ave
College Park, GA 30337
707-909-4401

Authority: Federal Aviation Act of 1958 (14 USC § 44718); 14 CFR § 77

E.2.2 State Permits: Not Federally Delegated

The Energy Facility Siting Council (EFSC) determines compliance with Oregon statutes and rules for state agencies. This section lists state permits issued by EFSC.

Permit: Energy Facility Site Certificate

Agency: Oregon Department of Energy
John White
Energy Facility Siting Council
625 Marion St. NE
Salem, OR 97301
(503) 378-3194

Authority: ORS 469.300 *et seq.*; OAR Chapter 345, Divisions 1, 21-24.

Permit: Removal/Fill Permit

Agency: Oregon Department of State Lands
Sarah Kelly
Eastern Region
1645 NE Forbes Rd., Suite 112
Bend, OR 97701
(541) 388-6060

Authority: ORS 196; OAR Chapter 141, Division 85

Permit: Onsite Sewage Disposal Construction-Installation Permit

Agency: Oregon Department of Environmental Quality
Bob Marshall
Water Quality Onsite Program
Eastern Region
700 SE Emigrant #330
Pendleton, OR 97801
(541) 278-4600
(800) 304-3513

Authority: ORS 454 and 468B; OAR Chapter 340, Divisions 71 and 73

Permit: Water Right Permit or Water Use Authorization

Agency: Oregon Water Resources Department
Scott White
Water Rights Section
District 21
PO Box 427
Condon, OR 97823
(541) 384-4207

Authority: ORS 537; OAR Chapter 690, Divisions 310, 340, 410 and 507

Permit: Oversize Load Movement Permit/Load Registration

Agency: Oregon Department of Transportation
Motor Carriers Transportation Division
550 Capitol Street NE
Salem, OR 97301
(503) 378-1289

Authority: ORS 818.030; OAR Chapter 734, Division 82

Permit: Permit to Construct a State Highway Approach

Agency: Oregon Department of Transportation
ODOT District 09
3313 Bret Clodfelter Way
The Dalles, OR 97058
(541) 296-2215

Authority: OAR Chapter 734, Division 51

Permit: Archaeological Permit

Agency: Oregon Parks and Recreation Department, State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301
(503) 986-0707

Authority: ORS 97, 197, 358, and 390; OAR Chapter 736, Division 51

E.2.3 State Permits: Federally Delegated

EFSC does not determine compliance with statutes and rules if the federal government has delegated the decision on compliance to a state agency other than EFSC. This section lists state permits issued by state agencies under federally delegated programs.

Permit: **NPDES Stormwater Discharge Permit 1200-C**

Agency: Todd Hess
Oregon Department of Environmental Quality
Eastern Region
475 NE Bellevue Drive, Suite 110
Bend, OR 97701
(541) 633-2026

Authority: Clean Water Act, Section 402 (33 USC § 1342); 40 CFR § 122; ORS 468 and 468B; OAR Chapter 340, Division 45

Permit: **401 Water Quality Certification**

Agency: Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204
(503) 229-5279

Authority: Clean Water Act, Section 401 (33 USC § 1341); OAR Chapter 340, ORS 468B, 035-468B.047 Division 48

E.2.4 Local Permits

Permit: **Zoning Permit**

Agency: Planning Department & Planning Commission
Gilliam County
Susie Anderson, Planning Director
221 Oregon Street
P.O. Box 427
Condon, OR 97823
(541) 384-3768

Authority: GCZO Ordinance Article 11—Administrative Provisions

E.3 DESCRIPTION OF NECESSARY PERMITS

OAR 345-021-0010(1)(e)(B) *A description of each permit and the reasons the permit is needed for construction or operation of the facility.*

Response: Sections E.3.1 through E.3.4 describe the necessary permits.

E.3.1 Federal Permits

Record of Decision/NEPA Compliance

42 USC 4332; 40 CFR § 1500 (2007)

Interconnection to Bonneville Power Administration's (BPA) transmission system is subject to review under NEPA. BPA will issue a Record of Decision (ROD) if it

concludes that the interconnection is within the scope of the Business Plan Final Environmental Impact Statement (BP EIS). The Applicant has submitted a generation interconnection request to BPA to integrate electricity generated from the proposed Facility to the Federal Columbia River Transmission System. BPA will review the interconnection pursuant to NEPA and determine whether a Categorical Exclusion, environmental assessment, or EIS is required. The Applicant has begun discussions with the BPA Environmental Project Manager regarding their NEPA review. While the Applicant's view is that a Categorical Exclusion or EA would be sufficient, this is a decision that would be made by BPA.

Any additional interconnection to BPA's transmission system will be subject to additional, BPA-led review under NEPA, the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and related cultural resources protection statutes.

Clean Water Act, Section 404

33 USC § 1344; 33 CFR §§ 320, 323, 325-28, and 330 (2007)

A Clean Water Act Section 404 permit is triggered if there are impacts to waters of the U.S., including wetlands, by construction of the proposed Facility.

The Applicant has prepared a Joint Permit Application (JPA) for submittal to the U.S. Army Corps of Engineers (USACE) and Oregon Division of State Lands (DSL) for potential impacts to jurisdictional waters (Attachment J-2 to Exhibit J). Based on the proposed layout and prior experience in this area, and subject to review by USACE staff, the Applicant expects construction to be authorized pursuant under a U.S. Army Corps of Engineers Nationwide Permit.

Notice of Proposed Construction or Alteration (Form 7460.1)

14 USC § 44718; 14 CFR §§ 77.13, 77.15, 77.17 (2008)

The Facility's turbine towers will be more than 200 feet in height and therefore will trigger review by the Federal Aviation Administration (FAA) pursuant to 14 CFR part 77. Upon review of tower latitude, longitude, and height, the FAA issues a determinative notice if the Facility will interfere with flight paths or will require further conditions of the site certificate, such as minimum lighting requirements. The FAA also identifies when notification of actual construction is required. However, no permit is issued by the FAA.

Notice of Actual Construction or Alteration (Form 7460.2)

14 USC § 44718; 14 CFR § 77 (2008)

The FAA identifies when notification of actual construction is required. Submission of the Actual Construction or Alteration form is typically required 5 days before erecting a turbine. However, no permit is issued by the FAA.

E.3.2 State Permits: Not Federally Delegated

Energy Facility Site Certificate

ORS 469.300 et seq.
OAR Chapter 345, Divisions 1, 21-24

An Energy Facility Site Certificate is required before construction or operation because the Applicant has requested a site certificate under OAR 345-015-0110.

Removal/Fill Permit

ORS 196; OAR Chapter 141, Division 85

A Removal/Fill Permit is required if there are impacts to waters of the State, including wetlands, by construction of the proposed Facility. In addition, a Removal/Fill Permit is required if removal and fill will be greater than the required threshold to obtain a permit (50 cubic yards). Construction of the Facility will involve removal/fill within state jurisdictional waters, as described in Exhibit J. The Applicant has prepared a JPA for potential impacts to federal or state jurisdictional waters, included as Attachment J-2 to Exhibit J.

Onsite Sewage Disposal Construction-Installation Permit

ORS 454 and 468B; OAR Chapter 340, Divisions 71 and 73

Facilities with an onsite sewage disposal system and a projected daily sewage flow of less than 2,500 gallons must obtain a Construction-Installation Permit before construction.

A Construction-Installation permit will be obtained for the Montague operations and maintenance (O&M) facility(s).

Water Right Permit or Water Use Authorization

ORS 537; OAR Chapter 690, Divisions 310, 340, 410 and 507

During Facility construction, the construction contractor will be responsible for identifying water sources and assuring that any needed permits or approvals are obtained for construction water use. Water will either be obtained from the city of Arlington or from an existing well or new onsite well permitted under a limited license issued by the Oregon Water Resources Department. See Exhibit O for further discussion.

During operation, to meet the Facility's water needs at the O&M facility(s), the Facility will rely on the statutory exemption from water right permitting requirements, which authorizes the use of up to 5,000 gallons per day of groundwater for industrial and commercial uses. Per Susie Anderson, the Gilliam County Planning Director, a local land use or building permit is not required for drilling the well (Anderson, pers. comm.).

Oversize Load Movement Permit/Load Registration

ORS 818.030; OAR Chapter 734, Division 82

This permit is required for hauling oversized or heavy loads on state highways.

Permit to Construct a State Highway Approach

OAR Chapter 734, Division 51

This permit is required for modifying a highway approach.

Archaeological Permit

ORS 97, 197, 358, and 390; OAR Chapter 736, Division 51

No archeological permit application has been submitted. In the event that archaeological sites are inadvertently disturbed during construction, construction work will cease and the Applicant will direct the site archaeologist accordingly.

E.3.3 State Permits: Federally Delegated

NPDES Stormwater Discharge Permit 1200-C, Construction General Stormwater Permit

33 USC § 1342; 40 CFR § 122 (2007); ORS 468 and 468B; OAR Chapter 340, Division 45

This NPDES permit authorizes stormwater discharges associated with construction activity. The permit is required for construction projects that disturb more than 1 acre of ground.

The Applicant has prepared the 1200-C permit application, included as Attachment I-1 to Exhibit I. The Applicant anticipates receiving a permit decision 45 days after the permit application is submitted to the Oregon Department of Environmental Quality (DEQ).

Water Quality Certification

Clean Water Act, Section 401 (33 USC § 1341); OAR Chapter 340, Division 48

Under Section 401 of the Clean Water Act, a Water Quality Certification is required if there is a federal permit to conduct an activity that may result in a discharge to waters of the State. The Applicant does not anticipate that an individual 401 certification will be required for this Facility because the U.S. Army Corps of Engineers Nationwide Permit No. 12 have been precertified by DEQ.

E.3.4 Local Permits

Gilliam County Land Use Approval

Gilliam County Zoning Ordinance, Article 11—Administrative Provisions

The Applicant elects to demonstrate compliance with local land use criteria though the site certificate process. Gilliam County will act as a special advisory group to EFSC when EFSC considers whether the Facility complies with the applicable Gilliam County land use approval criteria, including those criteria listed above.

E.4 NON-FEDERALLY DELEGATED PERMIT APPLICATION

OAR 345-021-0010(1)(e)(C) *For any state or local government permits, licenses or certificates that are subject to the Council's siting decision, evidence to support findings by the Council that construction and operation of the proposed facility will comply with the statutes, rules and standards applicable to the permit. The applicant may show this evidence:*

(i) In Exhibit J for permits related to wetlands;

Response: See Exhibit J.

(ii) In Exhibit O for permits related to water rights.

Response: See Exhibit O. Oregon law allows exempt industrial and commercial uses up to 5,000 gallons per day from groundwater wells without a water right permit (ORS 537.545(1)(f)). Exempt industrial uses include water for drinking, flushing toilets, and using sinks, as well as other industrial uses during construction and operation of the Facility. During Facility operation, a well to be located near the proposed O&M building(s) will provide water and produce less than 5,000 gallons per day.

During Facility construction, the construction contractor will be responsible for identifying water sources and assuring that any needed permits or approvals are obtained for construction water use. Water would either be obtained from the City of Arlington or from an existing well or new onsite well permitted under a limited license issued by the Oregon Water Resources Department. See Exhibit O for further discussion.

E.5 FEDERALLY DELEGATED PERMIT APPLICATION

OAR 345-021-0010(1)(e)(D) *For federally-delegated permit applications, evidence that the responsible agency has received a permit application and the estimated date when the responsible agency will complete its review and issue a permit decision.*

Response: The Applicant has prepared an NPDES 1200-C permit application for the Facility included as Attachment I-1 to Exhibit I.

E.6 STATE OR LOCAL PERMIT ISSUED TO A THIRD PARTY

OAR 345-021-0010(1)(e)(E) *If the applicant relies on a state or local government permit or approval issued to a third party, identification of any such third-party permit and for each:*

(i) Evidence that the applicant has, or has a reasonable likelihood of entering into, a contract or other agreement with the third party for access to the resource or service to be secured by that permit;

Response: The third-party contractor has obtained similar permits in the past and there are no outstanding issues that would prevent the contractor(s) from obtaining the necessary permits in this case. Otherwise, it is not anticipated that any third-party permits will be required to construct the Facility.

(ii) Evidence that the third party has, or has a reasonable likelihood of obtaining, the necessary permit; and

Response: Not applicable.

(iii) An assessment of the impact of the proposed facility on any permits that a third party has obtained and on which the applicant relies to comply with any applicable Council standard.

Response: Not applicable.

E.7 FEDERALLY DELEGATED PERMIT ISSUED TO A THIRD PARTY

OAR 345-021-0010(1)(e)(F) *If the applicant relies on a federally-delegated permit issued to a third party, identification of any such third-party permit and for each:*

(i) Evidence that the applicant has, or has a reasonable likelihood of entering into, a contract or other agreement with the third party for access to the resource or service to be secured by that permit;

Response: No federally-delegated permits will be needed by a third party in order to construct the Facility.

(ii) Evidence that the responsible agency has received a permit application; and

Response: Not applicable.

(iii) The estimated date when the responsible agency will complete its review and issue a permit decision.

Response: Not applicable.

E.8 MONITORING PROGRAM

OAR 345-021-0010(1)(e)(G) *The applicant's proposed monitoring program, if any, for compliance with permit conditions.*

Response: Monitoring requirements, if any, will be determined by the Council and federal agencies responsible for issuing permits or approvals for the Facility. The monitoring measures proposed by the Applicant for compliance with permit conditions

are described in this application, e.g., NPDES 1200-C permit requirements for erosion control monitoring and reporting and avian/bat mortality monitoring.

E.9 REFERENCE

Anderson, Susie, Gilliam County Planning Director. 2006. Personal communication with Erin Toelke, CH2M HILL. December 4, 2006.

EXHIBIT F

PROPERTY OWNERSHIP
OAR 345-021-0010(1)(f)

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ATTACHMENTS

F.1 INTRODUCTION

OAR 345-021-0010(1)(f) *A list of the names and mailing addresses of all owners of record, as shown on the most recent property tax assessment roll, of property located within or adjacent to the site boundary as defined in OAR 345-001-0010. The applicant shall submit an updated list of property owners as requested by the Department before the Department issues notice of any public hearing on the application for a site certificate as described in OAR 345-015-0220. In addition to incorporating the list in the application for a site certificate, the applicant shall submit the list to the Department in electronic format acceptable to the Department for the production of mailing labels. Property adjacent to the proposed site of the facility or corridor means property that is:*

OAR 345-021-0010(1)(f)(A) *Within 100 feet of the site boundary where the site, corridor or micrositing corridor is within an urban growth boundary;*

OAR 345-021-0010(1)(f)(B) *Within 250 feet of the site boundary where the site, corridor or micrositing corridor is outside an urban growth boundary and not within a farm or forest zone; and*

OAR 345-021-0010(1)(f)(C) *Within 500 feet of the site boundary where the site, corridor or micrositing corridor is within a farm or forest zone.*

Response: The Montague Wind Power Facility (Facility) site, including the collector cables and transmission line, is within an exclusive farm use zone. Section F.2 summarizes the methodology used by Iberdrola Renewables, Inc. (Applicant) to acquire the names and mailing addresses of all owners of record.

F.2 SUMMARY

The Applicant assembled the relevant sections of the current Gilliam County tax maps and reviewed the tax maps to identify tax lots wholly or partially within the areas required by OAR 345-021-0010(1)(f). Attachment F-1 provides a list of the names and mailing addresses of all owners of record, as shown on the most recent Gilliam County property tax assessment roll, of property located within 500 feet of the Facility site boundary. Attachment F-2 provides the same list in electronic format suitable for the production of mailing labels.

ATTACHMENT F-1

Gilliam County Landowners Within 500 Feet of Proposed Site Boundary

ATTACHMENT F-2

Electronic Label Format: Gilliam County Landowners Within 500 Feet of Proposed Site Boundary

TABLE F-1
Gilliam County Landowners within 500 feet of Proposed Site Boundary

MAPTAXLOT	OwnerName	CareOfName	OwnerAdrs2	City, State	Mail_Zip
01N22E00501					
01N22E01800	AMERICAN EXCHANGE SERVICES, INC.		320 CHURCH STREET	Salem, OR	97308-0652
01N22E02600	AMERICAN EXCHANGE SERVICES, INC.		320 CHURCH STREET	Salem, OR	97308-0652
01S22E00500	ANDERSON, ALLEN F. & CHERYL K.	RIETMANN, JOE D. & DONNA M.	PO BOX 304	Ione, OR	97843
01S22E00502	ANDERSON, ALLEN F. & CHERYL K.	RIETMANN, JOE D. & DONNA M.	PO BOX 304	Ione, OR	97843
02N21E01500	ARLINGTON GREEN FARMS		7908 3RD AVE.	Brooklyn, NY	11209
02N21E01600	ARLINGTON GREEN FARMS		7908 3RD AVE.	Brooklyn, NY	11209
02N22E02501	ARLINGTON GREEN FARMS		7908 3RD AVE.	Brooklyn, NY	11209
01N21E01000	ATHEARN, ROBERT F.		333 ROSE COURT	Mt. Vernon, WA	98273
01N21E00900	ATHEARN, ROBERT F. LIVING TRUST	ATHEARN, ROBERT F. TRUSTEE	333 ROSE COURT	Mt. Vernon, WA	98273
01N21E01900	ATHEARN, ROBERT F. LIVING TRUST	ATHEARN, ROBERT F. TRUSTEE	333 ROSE COURT	Mt. Vernon, WA	98273
01N22E00800	ATHEARN, ROBERT F. LIVING TRUST	ATHEARN, ROBERT F. TRUSTEE	333 ROSE COURT	Mt. Vernon, WA	98273
01N22E01701	CARR, JERRY		69838 W. WILSON RD.	Boardman, OR	97818
01S22E00303	CRUM ENTERPRISES LTD PTNRSHIP		PO BOX 67	Ione, OR	97843
01S22E00600	CRUM ENTERPRISES LTD PTNRSHIP		PO BOX 67	Ione, OR	97843
01N22E03200	DAVIDSON, ANDREW J.		PO BOX 16401	Portland, OR	97292-0401
01S22E00102	DAVIDSON, CHARLES LEE		350 N 1ST STREET	Irrigon, OR	97844
01N22E03202	DAVIDSON, GEORGE G. TRUST	DAVIDSON, GEORGE G. TRUSTEE	3002 S.E. 66TH	Portland, OR	97206
01N20E00500	DAVIS, RONALD W.		PO BOX 245	Condon, OR	97823
01N20E03201	DAVIS, RONALD W. & WILLIE R.		PO BOX 245	Condon, OR	97823
02N21E01104	GILLIAM COUNTY (INDUSTRIAL PARK)	GILLIAM COUNTY COURT	PO BOX 427	Condon, OR	97823
01N22E02500	HAGUEWOOD, KELWAYNE O.		59610 BASEY CANYON ROAD	Heppner, OR	97836
02N22E03400	HAGUEWOOD, KEVEN		PO BOX 195	Ione, OR	97843
02N22E03500	HAGUEWOOD, KEVEN		PO BOX 195	Ione, OR	97843
01N22E00100	HAGUEWOOD, KEVEN ETAL		PO BOX 195	Ione, OR	97843
01N22E00200	HAGUEWOOD, KEVEN ETAL		PO BOX 195	Ione, OR	97843
01N22E00300	HAGUEWOOD, KEVEN ETAL		PO BOX 195	Ione, OR	97843
02N22E03600	HAGUEWOOD, KEVEN ETAL		PO BOX 195	Ione, OR	97843
02N22E03700	HAGUEWOOD, KEVEN ETAL		PO BOX 195	Ione, OR	97843
01N22E01700	HAGUEWOOD, KEVEN O.		PO BOX 195	Ione, OR	97843
01N22E02300	HAGUEWOOD, RONALD W.		PO BOX 407	Ione, OR	97843
01N21E00400	HARPER, RICHARD E. &	WEATHERFORD-HARPER, ALICE	PO BOX 8	Ione, OR	97843
01S22E00400	HARPER, RICHARD E. &	WEATHERFORD-HARPER, ALICE	PO BOX 8	Ione, OR	97843
01S22E00503	HARPER, RICHARD E. &	WEATHERFORD-HARPER, ALICE	PO BOX 8	Ione, OR	97843
02N21E01300	HICKERSON, WM. C. & JOYCE A.		STAR ROUTE	Arlington, OR	97812
01N20E00300	HOAG, JAMES & PHYLLIS		9670 S.E. STARR QUARRY RD.	Amity, OR	97101
02N20E02701	HOAG, JAMES & PHYLLIS		9670 S.E. STARR QUARRY RD.	Amity, OR	97101
02N20E02702	HOAG, JAMES & PHYLLIS		9670 S.E. STARR QUARRY RD.	Amity, OR	97101
02N21E01704	HOLTZ ET AL				
01N21E00300	HOLTZ, TIM H. & DEBORAH L.	RIETMANN, JERRY L. & LISA G.	PO BOX 131	Ione, OR	97843
01N21E00804	HOLTZ, TIM H. & DEBORAH L.	RIETMANN, JERRY L. & LISA G.	PO BOX 131	Ione, OR	97843
01N20E00100	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
01N20E00200	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
01N20E03204	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
01N20E03205	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
01N21E00500	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
02N20E02800	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
02N20E02901	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
02N21E01200	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
02N21E02100	HOLZAPFEL LAND & CATTLE, LP.		PO BOX 1027	Willows, CA,	95988
02N21E01701	HOLZAPFEL, HERBERT R. & VIRGINIA W.		PO BOX 1027	Willows, CA,	95988
02N20E02700	HOLZAPFEL, HERBERT R. ETAL		PO BOX 1027	Willows, CA,	95988
02N22E02500	HUGHES, WAYNE		PO BOX 217	Arlington, OR	97812

TABLE F-1
Gilliam County Landowners within 500 feet of Proposed Site Boundary

MAPTAXLOT	OwnerName	CareOfName	OwnerAdrs2	City, State	Mail_Zip
02N22E01300	ICE BROS.	HEIDEMAN, DANA L. & TONYA J. TRSTES	68809 FOUR MILE CANYON	Ione, OR	97843
02N22E01301	JANSEN, VIC 50%	ALLRED, RANDY & NANCY 50%	406 W. BROADWAY, STE. F	Moses Lake, WA	98837
02N22E00600	KREBS, CLINTON H. & MAUREEN C.		69956 HWY 74	Ione, OR	97843
02N22E01400	KREBS, CLINTON H. & MAUREEN C.		69956 HWY 74	Ione, OR	97843
03N22E00701	KREBS, CLINTON H. ET AL		69956 HIGHWAY 74	Ione, OR	97843
02N21E00100	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
02N21E00101	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
02N21E00102	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
02N22E00800	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
02N22E00900	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
02N22E00901	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
02N22E01001	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
03N21E00500	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
03N21E00503	KREBS, J.R.		PO BOX 8	Arlington, OR	97812
01N22E01600	LEMLEY, DUANE C. & DARLENE ET AL	EASTERN Z FARMS, LLC.	12423 RIVER RD. N.	Gervais, OR	97026
02N22E02700	MADDEN, OLIVE		34004 S.E. 34TH STREET	Woodland, WA	98671
01N22E03100	MASON, BERTELL JR. TRUST	MASON, BERTELL JR., TRUSTEE	15108 S.E. RIVER ROAD	Milwaukie, OR	97222
01S22E00200	MCELLIGOTT, JOSEPH P. & JERI D.		PO BOX 4	Ione, OR	97843
01N22E00900	MEYER, ANDRE & STEIN-MEYER,KATHLEEN		PO BOX 459	Lexington, OR	97839
01N22E01000	MEYER, ANDRE & STEIN-MEYER,KATHLEEN		PO BOX 459	Lexington, OR	97839
01N22E01001	MEYER, ANDRE & STEIN-MEYER,KATHLEEN		PO BOX 459	Lexington, OR	97839
01N22E01100	MEYER, ANDRE & STEIN-MEYER,KATHLEEN		PO BOX 459	Lexington, OR	97839
01N22E02200	MEYER, ANDRE & STEIN-MEYER,KATHLEEN		PO BOX 459	Lexington, OR	97839
01N22E00500	MILLER, RC & GAYLEEN		PO BOX 490	Lexington, OR	97812
01N22E00600	MONTAGUE CEMETERY				
01S22E00300	MONTY CRUM RANCHES, LLC.	CRUM, MONTY L.	PO BOX 121	Ione, OR	97843
02N22E01500	MONTY CRUM RANCHES, LLC.		PO BOX 121	Ione, OR	97843
01N21E00100	PLATEAU FARMS NO. 2		1200 S.W. MAIN BLDG.	Portland, OR	97205
01N22E00700	PLATEAU FARMS NO. 2		1200 S.W. MAIN BLDG.	Portland, OR	97205
02N21E00700	POTTER, MILDRED M.		STAR ROUTE	Arlington, OR	97812
02N21E00900	POTTER, MILDRED M.		STAR ROUTE	Arlington, OR	97812
02N21E01000	POTTER, MILDRED M.		STAR ROUTE	Arlington, OR	97812
02N21E00800	POTTER, MILDRED M. ET AL		STAR ROUTE	Arlington, OR	97812
01N20E00800	RAMSAY, DONALD D. ET UX		STAR ROUTE	Arlington, OR	97812
01N20E00900	RAMSAY, DONALD D. ET UX		STAR ROUTE	Arlington, OR	97812
01N20E01100	RAMSAY, DONALD D. ET UX		STAR ROUTE	Arlington, OR	97812
01N21E01300	RAMSAY, DONALD D. ET UX		STAR ROUTE	Arlington, OR	97812
02N22E03100	REASONER, ROBERT R. & PEGGY J.		PO BOX 297	Arlington, OR	97812
02N22E03200	REASONER, ROBERT R. & PEGGY J.		PO BOX 297	Arlington, OR	97812
02N22E03201	REASONER, ROBERT R. & PEGGY J.		PO BOX 297	Arlington, OR	97812
01N21E00805	RIETMANN, JERRY L. & LISA G.	HOLTZ, TIM H. & DEBORAH L.	PO BOX 131	Ione, OR	97843
01N21E00806	RIETMANN, JERRY L. & LISA G.	HOLTZ, TIM H. & DEBORAH L.	PO BOX 131	Ione, OR	97843
01N22E02900	RIETMANN, JOE D. & DONNA M.		PO BOX 304	Ione, OR	97843
01N22E02901	RIETMANN, JOE D. & DONNA M.		PO BOX 304	Ione, OR	97843
01N22E02902	RIETMANN, JOE D. & DONNA M.		PO BOX 304	Ione, OR	97843
01S22E00501	RIETMANN, JOE D. & DONNA M.		PO BOX 304	Ione, OR	97843
01S22E01200	RIPER, BARBARA J. TRUSTEE	RIPER, BARBARA J.	1670 EDGEWOOD DR.	Palo Alto, CA	94303
01N21E00802	ROBERTS, DIANA L. & DONALD V.		68766 WEATHERFORD RD	Arlington, OR	97812
01S22E01100	RUCKER FARMING	RUCKER, JIM I. & SARAH D.	68618 HIGHWAY 19	Arlington, OR	97812
01N21E01100	RUCKER, JIMMY I & SARAH D.FAM TRUST	RUCKER, JIMMY I & SARAH D.,TRUSTEES	68618 HWY 19	Arlington, OR	97812
01N21E01200	RUCKER, JIMMY I & SARAH D.FAM TRUST	RUCKER, JIMMY I & SARAH D.,TRUSTEES	68618 HWY 19	Arlington, OR	97812
01N21E01002	RUCKER, JIMMY I. & SARAH D. TRUST	RUCKER, JIMMY I. & SARAH D.,TRUSTEE	68618 HWY 19	Arlington, OR	97812
01N21E00401	RUNCKEL, JOHN L. DR.		117 FOOT HILLS RD.	Lake Oswego, OR	97034

TABLE F-1
Gilliam County Landowners within 500 feet of Proposed Site Boundary

MAPTAXLOT	OwnerName	CareOfName	OwnerAdrs2	City, State	Mail_Zip
01N21E00700	RUNCKEL, JOHN L. DR.		117 FOOT HILLS RD.	Lake Oswego, OR	97034
01N22E03201	STAMATE, MABEL L.		980 S.E. 5TH STREET	Hermiston, OR	97838
01S22E00101	STAMATE, MABEL L.		980 SE 5TH STREET	Hermiston, OR	97838
02N21E01400	SUMNER, PHYLLIS A. TRUST	SUMNER, PHYLLIS A., TRUSTEE	71667 HWY 19 BOX 8	Arlington, OR	97812
02N21E02500	SUMNER, PHYLLIS A. TRUST	SUMNER, PHYLLIS A., TRUSTEE	71667 HWY 19 BOX 8	Arlington, OR	97812
02N22E02300	SUMNER, PHYLLIS A. TRUST	SUMNER, PHYLLIS A., TRUSTEE	71667 HWY 19 BOX 8	Arlington, OR	97812
02N22E02600	SUMNER, PHYLLIS A. TRUST	SUMNER, PHYLLIS A., TRUSTEE	71667 HWY 19 BOX 8	Arlington, OR	97812
01N21E00800	SUTTON, EVELYN M. & ROBERT H.	TRUSTEES UNDER DECL. OF TRUST	1460 WESTBROOK DRIVE NW	Lake Oswego, OR	97304
02N22E02900	THURSTON, HELEN	CUSTARD, BEVERLY	1951 E. 68TH ST.	Tacoma, WA	98404
01N20E03200	UNION PACIFIC RAILROAD	PROPERTY TAX DEPT.	1400 DOUGLAS STOP 1640	Omaha, NE	68179-1640
01N20E03208	UNION PACIFIC RAILROAD	PROPERTY TAX DEPT.	1400 DOUGLAS STOP 1640	Omaha, NE	68179-1640
02N20E02900	UNION PACIFIC RAILROAD	PROPERTY TAX DEPT.	1400 DOUGLAS STOP 1640	Omaha, NE	68179-1640
02N21E02600	UNION PACIFIC RAILROAD	PROPERTY TAX DEPT.	1400 DOUGLAS STOP 1640	Omaha, NE	68179-1640
01N22E02100	USA	BUREAU OF LAND MANAGEMENT	PRINEVILLE DISTRICT	Prineville, OR	97754
01N22E02800	USA	BUREAU OF LAND MANAGEMENT	PRINEVILLE DISTRICT	Prineville, OR	97754
01N22E03000	USA	BUREAU OF LAND MANAGEMENT	PRINEVILLE DISTRICT	Prineville, OR	97754
02N22E00500	USA	BUREAU OF LAND MANAGEMENT	PRINEVILLE DISTRICT	Prineville, OR	97754
02N22E01100	USA	BUREAU OF LAND MANAGEMENT	PRINEVILLE DISTRICT	Prineville, OR	97754
02N22E02100	USA	BUREAU OF LAND MANAGEMENT	PRINEVILLE DISTRICT	Prineville, OR	97754
02N22E02400	USA	BUREAU OF LAND MANAGEMENT	PRINEVILLE DISTRICT	Prineville, OR	97754
02N22E03000	USA	BUREAU OF LAND MANAGEMENT	PRINEVILLE DISTRICT	Prineville, OR	97754
03N21E00506	USA	BONNEVILLE POWER ADMINISTRATION	P.O. Box 3621	Portland, OR	97208-3621
02N22E02502	WALSH, GORDON		PO BOX 387	Arlington, OR	97812
01N21E00200	WALTERS, KENNETH A. FAMILY TRUST		69759 HWY 19	Arlington, OR	97812
02N20E02301	WASTE MANAGEMENT	CWM OF THE NORTHWEST, INC.	PO BOX 1450	Chicago, IL	60690
02N20E02302	WASTE MANAGEMENT	CWM OF THE NORTHWEST, INC.	PO BOX 1450	Chicago, IL	60690
02N20E02703	WASTE MANAGEMENT	CWM OF THE NORTHWEST, INC.	PO BOX 1450	Chicago, IL	60690
02N21E01100	WASTE MANAGEMENT	OREGON WASTE SYSTEMS, INC.	PO BOX 1450	Chicago, IL	60690
02N21E01101	WASTE MANAGEMENT	OREGON WASTE SYSTEMS, INC.	PO BOX 1450	Chicago, IL	60690
02N21E01102	WASTE MANAGEMENT	OREGON WASTE SYSTEMS, INC.	PO BOX 1450	Chicago, IL	60690
02N21E01201	WASTE MANAGEMENT	CWM OF THE NORTHWEST, INC.	PO BOX 1450	Chicago, IL	60690
02N21E01209	WASTE MANAGEMENT	WASTE MANAGEMENT SYSTEMS	PO BOX 1450	Chicago, IL	60690
02N21E01210	WASTE MANAGEMENT	WASTE MANAGEMENT SYSTEMS	PO BOX 1450	Chicago, IL	60690
02N21E01800	WASTE MANAGEMENT	OREGON WASTE SYSTEMS, INC.	PO BOX 1450	Chicago, IL	60690
02N21E02102	WASTE MANAGEMENT	WASTE MANAGEMENT SYSTEMS	PO BOX 1450	Chicago, IL	60690
02N21E02103	WASTE MANAGEMENT	WASTE MANAGEMENT SYSTEMS	PO BOX 1450	Chicago, IL	60690
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01N21E02001	WEATHERFORD, MARION T.		PO BOX 727	Condon, OR	97823
01N21E02002	WEATHERFORD, MARION T.		PO BOX 727	Condon, OR	97823
01N22E02000	WEATHERFORD, MARION T.		PO BOX 727	Condon, OR	97823
01N21E01500	WEEDMAN RANCHES, INC.	ANDERSON, ERIC & MARGARET G.TRUSTEE	68040 HWY 19	Arlington, OR	97812
01N21E02100	WEEDMAN RANCHES, INC.	ANDERSON, ERIC & MARGARET G.TRUSTEE	68040 HWY 19	Arlington, OR	97812
01N22E01900	WEEDMAN RANCHES, INC.	ANDERSON, ERIC & MARGARET G.TRUSTEE	68040 HWY 19	Arlington, OR	97812
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EXHIBIT G

MATERIALS ANALYSIS
OAR 345-021-0010(1)(g)

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G.1 INTRODUCTION

Iberdrola Renewables, Inc. (Applicant) proposes to construct the Montague Wind Power Facility (Facility) in Gilliam County, Oregon, with generating capacity of up to 404 megawatts (MW).

G.2 MATERIALS ANALYSIS

OAR 345-021-0010(1)(g) *A materials analysis, including:*

Response: The evidence below provides an inventory of industrial materials of substantial quantity moving into and out of the proposed Facility and a description of plans developed by the Applicant to manage hazardous substances and nonhazardous waste materials during construction and operation of the Facility.

G.3 INVENTORY OF INDUSTRIAL MATERIALS

OAR 345-021-0010(1)(g)(A) *An inventory of substantial quantities of industrial materials flowing into and out of the proposed facility during construction and operation;*

Response: Responses are provided in sections G.3.1 and G.3.2.

G.3.1 Construction

Response: Table G-1 provides an inventory of industrial materials that will be used within the Facility site boundary in substantial quantities during Facility construction. Table G-1 also presents the quantity of related or supporting facilities associated with the Facility. The primary construction materials are rock, gravel, water, concrete, steel, and assorted electrical equipment.

G.3.1.1 Rock and Gravel

It is expected that construction of new and improved roads will require an estimated 470,745 tons of rock and gravel, based on an estimated 4,950 tons of virgin rock per linear mile of access road. This includes approximately 70 miles of new road, approximately 24 miles of improved roads, and gravel for the turbine spur roads and foundations. The rock and gravel will be acquired by the construction contractor from existing or new commercial gravel pit sources that provide gravel to Gilliam County or other customers. If the rock acquired is recycled rock, then approximately 4,560 tons will be used per mile of access road, for a total of 433,656 tons.

Gravel will also be used within the area surrounding up to two operations and maintenance (O&M) facilities. Approximately 34,000 tons of gravel will be used to cover approximately 10 acres around each O&M facility, for a total of 20 acres.

Clean washed rock will be used around the perimeter of two proposed new Facility Collector Substations (collector substations). Approximately 31,400 tons of clean washed

rock will be used to cover approximately 5 acres surrounding each of the two substations.

G.3.1.2 Water and Concrete

An estimated 50,000 to 120,000 gallons of water will be applied daily to roads and construction areas during construction for road compaction and to reduce dust. The actual water usage will depend on site conditions. The amount of water incorporated into the concrete used to construct the turbine foundations will vary depending on the final design of the Facility. The maximum water usage would result from construction of 134 of the larger 3.0-MW concrete turbine foundations where an additional 2,840,000 gallons of water will be combined with 94,700 cubic yards of concrete to construct up to 134 concrete turbine foundations (one for each 3.0-MW turbine). See Exhibit O for a more detailed discussion of water use and sources.

G.3.1.3 Steel

An estimated 46,600 to 591,800 tons of steel will be required to construct up to 269 turbine towers, based on approximately 220 tons of steel per 1.5-MW turbine, or 348 tons of steel per 3.0-MW turbine.

G.3.1.4 Other Materials

A number of other materials will be brought onsite to construct the turbines and related or supporting facilities.

Mounted on top of each of the turbine towers is a nacelle—the unit that houses the turbine itself, the rotor, blades, hub, and gearbox. An electrical transformer will be adjacent to each turbine tower. Transformers will contain nonpolychlorinated biphenyl (PCB) mineral oil and will be sealed; the oil will not be changed. If the transformer is contained within the nacelle, the transformer will not contain any oil. Underground electrical cable will be used to connect the turbines, except where overhead electrical cable will be used to span canyons, intermittent streams, wetlands, and rugged terrain.

The Facility will require a total of approximately 76 miles of underground collector cable, which includes circuits running parallel to each other, and approximately 15 miles of overhead collector cable. The Facility will also include approximately 17 miles (up to 19 miles) of new 230-kilovolt (kV) transmission line, which will connect the collector substations with the existing 500-kilovolt (kV) Bonneville Power Administration (BPA) transmission system at the Slatt Interconnection Substation located approximately 1.5 miles southeast of the city of Arlington, Oregon. A maximum of 27 miles of the collector system will be aboveground.

An inventory of materials is provided in Table G-1.

Table G-1. Inventory of Materials to be Used During Construction and Operation of the Montague Facility

Material	Quantity/Units	Ultimate Disposition
CONSTRUCTION		
Rock/gravel for construction	434,000 to 471,000, tons for approximately 94 miles of road (approximately 70 miles of new road, and 24 miles of existing road improvement).	Maintained as onsite roadbed or graveled area associated with the O&M facility(s) and collector substations.
	34,000 tons for approximately 20 acres of graveled areas associated with the operations and maintenance (O&M) facility(s).	
	31,400 tons of clean washed rock for approximately 10 acres of rocked areas associated with the collector substations.	
Water for dust control and road compaction	50,000 to 120,000 gallons per day	Absorbed or evaporated.
Water for concrete mixing	8,250 to 21,210 gallons of water per turbine foundation	Incorporated into concrete.
Concrete	275 to 707 cubic yards per turbine foundation	Incorporated into turbine pads.
Steel	220 to 348 tons per turbine	Incorporated into turbine towers.
Nacelles (include turbine, rotor, blades, hub, and gearbox)	Up to 269 units	Mounted on turbine towers.
Electrical transformers	Up to 269 units	Mounted on concrete pad adjacent to turbine tower.
Meteorological tower	Up to 8 units	Aboveground structure.
34.5-kV electrical collection system	Approximately 76 miles	Buried underground.
34.5-kV overhead collection system	Approximately 15 miles	Aboveground electrical collection system and support structures.
230-kV transmission line	Approximately 17 miles but no more than 19 miles	Aboveground connection and support structures from the collector substations to the BPA 500-kV transmission line.
Facility Collector Substations	2 units	Constructed in a central location within the Facility.
Operations and maintenance (O&M) facility(s)	Up to 2 units	Aboveground structure and graveled parking area.
OPERATIONS AND MAINTENANCE		
Mineral oils (turbine lubricant and transformer coolant)	3 gallons per turbine	Stored in O&M building(s); added to turbine as needed.
Synthetic oils (turbine lubricant, gear oil)	10 gallons per turbine	Stored in O&M building(s); added to turbine as needed.

Table G-1. Inventory of Materials to be Used During Construction and Operation of the Montague Facility

Material	Quantity/Units	Ultimate Disposition
Simple Green (general cleaner)	3 gallons per turbine	Stored in O&M building(s).
WD-40; grease (general lubricant)	5 gallons per turbine	Stored in O&M building(s).
Ethylene glycol (anti-freeze)	3 gallons per turbine	Stored in O&M building(s).
Round-up and 2,4-D (weed control)	0—subcontract out for weed control	Stored in O&M building(s).

G.3.2 Operations

Response: No substantial quantities of industrial materials will be brought onto or removed from the Facility site during operations. The only materials that will be brought onto the site will relate to maintenance or replacement of Facility elements (e.g., nacelle or turbine components, electrical equipment). The only materials that will be removed from the site will be parts or elements replaced during maintenance activities. The materials replaced and removed will not constitute significant amounts. Minor and potentially hazardous materials could include oily rags or similar materials related to turbine lubrication and other maintenance. Table G-1 lists materials and amounts that will be used for operations and maintenance.

No industrial wastewater will be generated during operations. Blade washing is not anticipated to occur because the manufacturer does not recommend it. However, if the manufacturer were to recommend blade washing in the future, the washwater created by blade washing would not be considered industrial wastewater. The amount of water required would be below the Oregon Department of Environmental Quality (DEQ) threshold. According to the DEQ rules, the following activities are considered to have a de minimis impact on the environment and are allowed without obtaining a permit:

> "Businesses that wash less than 8 vehicles or pieces of equipment per week are permitted provided there is no runoff off-site or discharge to surface waters, storm sewer or dry wells. Cleaning is restricted to the exterior of the vehicle or equipment (no engines, transmissions, or undercarriages) (see AH G-1)."

If implemented at the Facility, blade washing would have a de minimis impact on the environment because it would involve a small amount of water per turbine (estimated to be approximately 50 gallons per blade) and would require washing of less than eight turbines per week. In addition, the blade washwater would not contain oil residue or other contaminants found in vehicle washwater, given that potentially hazardous materials are contained within the turbine nacelle and tower. According to turbine manufacturers, blades would also likely be washed with a biodegradable solution such as Simple Green, rather than with harsh soaps or other cleaners. Water used to wash turbine blades would evaporate during washing or infiltrate into surrounding soils. The water would not discharge offsite or discharge to surface waters. If washing is required near seasonal streams, it would be done in a manner to direct the washing activity away from the stream.

DEQ has provided an opinion (Attachment G-1) that a wastewater permit is not required for blade washing activities.

G.4 MANAGEMENT OF HAZARDOUS SUBSTANCES

OAR 345-021-0010(1)(g)(B) *The applicant's plans to manage hazardous substances during construction and operation, including measures to prevent and contain spills; and*

Response: Hazardous materials that will be used on the Facility site include lubricating oils, cleaners, and pesticides, as shown in Table G-1. These materials will be used primarily during operations but potentially during construction, as well. Hazardous materials will be stored at the Facility O&M building(s). The small amounts of lubricating oils and greases necessary for equipment maintenance will also be stored in the containment area. Vehicle fuel (diesel) will be used on the Facility site but will not be stored onsite during Facility construction or operation.

Hazardous materials will be used in a manner that is protective of human health and the environment and will comply with all applicable local, state, and federal environmental laws and regulations. Accidental releases of hazardous materials (e.g., vehicle fuel during construction or lubricating oil for turbines) will be prevented or minimized through proper containment of these substances during use and transportation to the Facility site, and used primarily within the turbines themselves, where any spill will be contained. Any oily waste, rags, or dirty or hazardous solid waste will be collected in sealable drums and removed for recycling or disposal by a licensed contractor.

In the unlikely event of an accidental hazardous materials release, any spill or release will be cleaned up and the contaminated soil or other materials disposed of and treated according to applicable regulations. See Exhibit CC for a listing of applicable regulations. Spill kits containing items such as absorbent pads will be located on equipment and in onsite temporary storage facilities to respond to accidental spills, if any were to occur. Employees handling hazardous materials will be instructed in the proper handling and storage of these materials as well as where spill kits are located.

G.5 MANAGEMENT OF NONHAZARDOUS WASTE MATERIALS

OAR 345-021-0010(1)(g)(C) *The applicant's plans to manage non-hazardous waste materials during construction and operation.*

Response: Solid waste materials, such as excess construction materials or steel, will be generated during construction. When feasible, the waste generated during construction will be recycled. Steel scraps from turbine towers will be separated and recycled to the extent feasible. Wood from concrete forms will be reused when possible and then recycled. Excess excavated material will be used to restore ground contours after construction, and to provide fill onsite or at the nearby Arlington Landfill.

The only material that has the potential to be disposed of onsite will be waste concrete generated during construction. Waste concrete will consist of concrete solids contained in the concrete chute washout water. Concrete solids and washout water will be

contained within a confined area of the foundation excavation. The washout water and any solids will be buried as part of backfilling the turbine foundation. Batches of concrete that do not meet specification will be sent back to the concrete plant. Any excess concrete will be incorporated into the foundation, rather than disposal of the material. There will be no disposal of hardened waste concrete onsite other than as described here.

Packaging waste (such as paper and cardboard) and refuse will be separated, accumulated in dumpsters, and periodically removed for recycling or disposal at the Arlington Landfill by a licensed waste hauler. Portable toilets will be provided for onsite sewage handling during construction and will be pumped and cleaned regularly by the construction contractor.

Little solid waste will be generated from Facility operations. Office waste generated at the O&M building(s) will be separated and periodically removed for recycling or disposal at the Arlington Landfill. Sewage from the O&M building(s) will be disposed of onsite with a septic system.

G.6 CONCLUSION

Based on the above information, the Applicant has satisfied the requirements of OAR 345-021-0010(1)(g).

ATTACHMENT G-1

Wastewater Permit Determination from Oregon Department of Environmental Quality

Oregon
Theodore Kulongoski, Governor

Department of Environmental Quality
Eastern Region Bend Office
2146 NE 4th, Suite 104
Bend, OR 97701
(541) 388-6146
FAX (541) 388-8283

December 13, 2006

Sara McMahon
PPM Energy
1125 NW Couch, Suite 700
Portland, OR 97209

Re: Permitting Requirements For
Washing Turbine Blades
WQ – Gilliam County

Dear Ms. McMahon:

This letter is in response to your request regarding the Department's interpretation of deminimus washing activities as defined under our Water Pollution Control Facilities (WPCF) 1700-B Wash Water Permit (copy enclosed). Condition 3. of Schedule A in the general wash water permit describes deminimus washing activities that are not required to obtain a permit.

The Department believes that some washing activities are considered to have a deminimis impact on the environment. Therefore, these washing activities are allowed without obtaining a permit by the Department.

The Department considers washing of turbine blades for the removal of accumulated dirt as a deminimus washing activity provided there is no runoff off-site or discharges to surface waters, storm sewer, or dry wells. Washing under this interpretation shall be restricted to the exterior of the turbine blades. The use of acids, bases, or metal brighteners, is prohibited. The use of biodegradable, phosphate-free cleaners with cold water is allowed. Cleaning only with cold water is recommended. Chemicals, soaps or detergents shall be used sparingly.

If a facility is found to be adversely affecting water quality the Department will require a wash water permit to obtain obtained.

Please call me in Bend at (541) 388-6146 ext. 232 if you have any questions regarding this letter.

Sincerely,

Walter I. West, P.E.
Senior Environmental Engineer
Eastern Region - Bend Office

Enclosure (GEN 1700B PERMIT)

cc: Erin Toelke, CH2M HILL, Inc., 2020 SW 4th Ave., Suite 300, Portland, OR 97201

GENERAL PERMIT
WATER POLLUTION CONTROL FACILITIES
WASTEWATER DISCHARGE PERMIT

Department of Environmental Quality
811 Southwest Sixth Avenue, Portland, OR 97204
Telephone: (503) 229-5279

Issued pursuant to ORS 468B.050

ISSUED TO:

All Owners or Operators of Facilities
Conducting Activities that are Covered by this
Permit

SOURCES COVERED BY THIS PERMIT: Vehicle, equipment, building, and pavement cleaning activities that discharge wash water by means of evaporation, seepage and/or irrigation. This permit covers discharges from fixed washing operations and mobile washing operations.

ACTIVITIES NOT COVERED BY THIS PERMIT: This general permit does not cover the following: hydroblasting (See Schedule D for definition) or the use of abrasives to remove paint or oxidized metal; and washing the inside of trailers, railroad cars, and other large commodity-carrying containers. This permit also does not cover discharges from boat washing activities.

Michael T. Llewelyn, Administrator
Water Quality Division

Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

All direct discharges to public waters are prohibited unless covered by NPDES permit.

SCHEDULE A

EXEMPTED ACTIVITIES

1. Any facility that **collects, treats, and recycles ALL wastewater with no discharge** to dry wells, surface waters or groundwater may operate without a permit from the Department of Environmental Quality (DEQ).

2. Any facility that **collects ALL wastewater and discharges to a municipal sanitary sewerage** system (see schedule D for definition) may operate without a permit from the DEQ. This includes those facilities that may collect and hold wastewater for later disposal to the municipal sewerage system. A permit for discharge to sanitary sewer may be required by the local city or county.

DEMINIMIS ACTIVITIES

3. The following washing activities are considered to have a **deminimis** impact on the environment and are allowed without obtaining a permit. However, any facility found to be adversely affecting water quality will be required to obtain a permit. Such a facility would then be subject to all terms and conditions of this permit.

   a) *ACTIVITIES WITH **NO** DISCHARGE TO SURFACE WATERS, STORM SEWERS OR DRY WELLS* - The use of acids, bases, metal brighteners, steam, or heated water is prohibited. The use of biodegradable, phosphate-free cleaners with cold water is allowed. However, cleaning only with cold water is recommended. Chemicals, soaps or detergents shall be used sparingly.

      i) The washing of **buildings** is permitted provided there is no runoff off-site or discharge to surface waters, storm sewer or dry wells.

      ii) The washing of **roads, parking lots, sidewalks, and other paved surfaces** is permitted provided surfaces are swept prior to washing and there is no runoff off-site or discharge to surface waters, storm sewer or dry wells.

      iii) The rinsing of the chute and exterior of **ready-mix concrete trucks** at the construction site is permitted provided there is no runoff off-site or discharge to surface waters, storm sewer or dry wells.

      iv) The washing of **construction equipment and vehicles** at construction sites, **logging equipment and vehicles** at the logging site, or **farming equipment and vehicles** at the agricultural or silvicultural site for the removal of accumulated dirt is permitted provided there is no runoff off-site or discharge to surface waters, storm sewer or dry wells. Washing shall be restricted to the exterior of the vehicle or equipment (no engines, transmissions, undercarriages, or interior surfaces of pesticide containers or spray solution tanks).

      v) The washing of **golf carts and mowing machines** is permitted provided there is no runoff off-site or discharge to surface waters, storm sewer or dry wells.

      vi) The washing of **new or used vehicles or equipment** awaiting **sale, lease or delivery** is permitted provided washing is restricted to the exterior of the vehicle or piece of equipment (no engines, transmissions, or undercarriages) and there is no runoff off-site or discharge to surface waters, storm sewer or dry wells. Rental vehicles and rented equipment are not included in this exemption.

vii) **Businesses** that wash **less than 8** vehicles or pieces of equipment per week are permitted provided there is no runoff off-site or discharge to surface waters, storm sewer or dry wells. Washing is restricted to the exterior of the vehicle or equipment (no engines, transmissions, or undercarriages). When washing large trucks, the tractor and trailer are counted as separate pieces.

For facilities that do not discharge to surface waters or storm sewers, the Department may allow 8 or more vehicles or pieces of equipment per week to be washed if the operator demostrates that this activity will not impact the soils and the groundwater at the site. This approval shall be obtained in writing from the Department.

b) *REFER TO 1700A PERMIT FOR DEMINIMIS ACTIVITIES WITH DISCHARGE TO SURFACE WATERS AND STORM SEWERS.*

c) *NON-PROFIT ACTIVITIES* - Vehicle washing by private citizens and fund-raising groups such as schools, churches, boy scouts, girl scouts, etc. is permitted. Fund-raising groups shall employ the best management practices outlined in the Department's fact sheet on non-profit activities.

LIMITATIONS

4. Prohibitions - The use of organic solvents or non-biodegradable chemicals, soaps and detergents is prohibited for all washing activities covered by this permit, including activities in Condition 3 above. All chemicals, soaps or detergents used shall be phosphate-free. The use of chemicals to maintain proper operation of treatment facilities is allowed.

5. Construction and Use of Dry Wells - **The construction of new dry wells for disposal of wash water is prohibited.** The use of existing dry wells is allowed provided written approval is obtained from the Department. Prior to discharge to an approved dry well, the wash water shall comply with the limitations established in Condition 9. The use of any chemicals, soaps, detergents, steam, or hot water *is prohibited* when discharging to existing dry wells.

6. On-Site Treatment/Disposal Systems - **The construction of new on-site treatment and disposal systems (i.e. septic tank & drainfields) for disposal of wash water is prohibited.** The use of approved systems that have been designed and constructed specifically to treat wash water is allowed provided the system is functioning properly.

7. Lagoons/Ponds - The Department may require lagoons/ponds to be lined in areas of shallow groundwater or highly permeable soils to prevent adverse impacts to ground water.

8. Groundwater Protection - No activities shall be conducted that could adversely impact groundwater quality. If adverse impacts to groundwater quality are suspected from a facility covered by this permit, the Department may require the permittee to perform a groundwater investigation.

9. Limits for all washing activities covered by this permit except activities listed in Schedule A, Condition 3 - Wash water shall be collected and treated prior to disposal by seepage or land irrigation. The treated wash water shall comply with the following limitations:

Parameters	Limitations (Daily Maximum)
Oil & Grease	15 mg/l
pH	Shall be within 6.0 - 9.0 range

10. Engine Washing, Acid/Caustic/Metal Brightener Washing, or Steam/Heated Water Washing Activities. Facilities that conduct engine washing, acid/caustic/metal brightener washing, or steam/heated water washing shall conduct these operations on an **impermeable** surface.

11. When disposing of wash water by means of evaporation, seepage and/or irrigation, the permittee shall do so in a manner to prevent the following:
    a) Surface runoff or subsurface drainage through drainage tile.
    b) The creation of odors, fly and mosquito breeding or other nuisance conditions.
    c) The overloading of land with nutrients or organics.
    d) Contamination of the soil and/or ground water.

SCHEDULE B

MONITORING REQUIREMENTS

1. Excluding activities listed in Schedule A, Condition 3 (Deminimis Activities), all other washing operations covered by this permit shall monitor their discharge in accordance with the following frequency:

   For the first year of operation and until compliance is attained*:

Parameters	Frequency	Sample Type
Oil and Grease	1/month	Grab
pH**	1/month	Grab

   After the first year of operation if compliance is attained*:

Parameters	Frequency	Sample Type
Oil and Grease	1/quarterly	Grab
pH**	1/month	Grab

   * Compliance will be based on consistently meeting effluent limits over a six-month period.
   ** pH paper that has the capability of determining pH to one-tenths (0.1) standard units or a properly calibrated portable pH meter may be used to make field measurement of pH.

REPORTING REQUIREMENTS

3. The reporting period is the calendar year. Reports must be submitted to the Department by the 15th day of January of the following year. Once a facility has attained compliance (as defined above) with the effluent limits in the permit, the permittee shall notify the Department in its annual monitoring report that compliance with effluent limits has been achieved and the facility is monitoring at the reduced frequency.

4. The permittee shall install and operate any necessary treatment facilities in accordance with Schedule C of the permit. The permittee shall submit a letter to the Department stating that treatment facilities are installed and operational within 14 days after completion.

SCHEDULE C

COMPLIANCE CONDITIONS AND SCHEDULES

1. Existing facilities (i.e. facilities that are in operation at the time the permit is issued) shall have until September 15, 1998, to achieve compliance with the effluent limits in Schedule A, Condition 9 of this permit. An existing facility shall comply with all other conditions in the permit at the time of permit assignment. New facilities shall comply with all conditions in the permit upon commencement of discharge from the facility.

SCHEDULE D

SPECIAL CONDITIONS

1. The permittee shall implement whenever practicable the best management practices listed in the DEQ's guidance document titled *Recommended Best Management Practices for Washing Activities.*

2. The changing of vehicle fluids is prohibited in wash bay areas.

3. Catch basins and sediment traps shall be cleaned on a routine basis to prevent concentration of pollutants and re-contamination of the discharge.

4. Solids removed in any cleaning process shall be collected and disposed of in accordance with methods approved by DEQ and the local city or county.

5. Washing operations shall be conducted in a manner that will prevent erosion at the site.

6. The Director may revoke a general permit as it applies to any person and require such person to apply for and obtain an individual NPDES or WPCF permit if:

   a) The permitted source or activity is a significant contributor of pollution or creates other environmental problems;
   b) The permittee is not in compliance with the terms and conditions of this general permit; or
   c) Conditions or standards have changed so that the source or activity no longer qualifies for a general permit.

7. Any permittee not wishing to be covered or limited by this general permit may make application for an individual WPCF or NPDES permit in accordance with WPCF or NPDES procedures in OAR 340-14-020 and 340-45-030.

8. Definitions:

   Hydroblasting - The use of high pressure to remove paint or oxidized metals from a surface. Typically, pressures of 2000 psi and greater are used to remove paint or oxidized metal, however, lower pressures may also remove paint or oxidized metal. This permit does not cover hydroblasting activities.

   Storm sewer - A system that collects runoff from rainfall, snowmelt, and discharges from human activities (i.e., wash water). This water is typically discharged to nearby waterways with little or no treatment.

   Sanitary sewer - A system that collects wastewater from residential, commercial and industrial sources. The wastewater is then directed to a sewage treatment plant for treatment and subsequent discharge.

   Impermeable surface - A surface that prevents water from seeping into the ground and allows water to be collected. Examples of impermeable surfaces include paved areas using asphalt, concrete, or cement, and synthetic materials such as plastics.

SCHEDULE F
WPCF GENERAL CONDITIONS

SECTION A. STANDARD CONDITIONS

1. Property Rights
The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws, or regulations.

2. Liability
The Department of Environmental Quality, its officers, agents, or employees shall not sustain any liability on account of the issuance of this permit or on account of the construction or maintenance of facilities because of this permit.

3. Permit Actions
After notice by the Department, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including but not limited to the following:

   a. Violation of any term or condition of this permit, any applicable rule or statute, or any order of the Commission;

   b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts.

4. Transfer of Permit
This permit shall not be transferred to a third party without prior written approval from the Department. Such approval may be granted by the Department where the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of this permit and the rules of the Commission. A transfer application and filing fee must be submitted to the Department.

5. Permit Fees
The permittee shall pay the fees required to be filed with this permit application and to be paid annually for permit compliance determination as outlined in the Oregon Administrative Rules.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance
The permittee shall at all times maintain in good working order and properly operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

2. Standard Operation and Maintenance
All waste collection, control, treatment, and disposal facilities shall be operated in a manner consistent with the following:

   a. At all times, all facilities shall be operated as efficiently as possible and in a manner which will prevent discharges, health hazards, and nuisance conditions.

   b. All screenings, grit, and sludge shall be disposed of in a manner approved by the Department such as to prevent any pollutant from such materials from reaching any waters of the state, creating a public health hazard, or causing a nuisance condition.

   c. Bypassing of untreated waste is generally prohibited. No bypassing shall occur without prior written permission from the Department except where unavoidable to prevent loss of life, personal injury, or severe property damage.

3. Noncompliance and Notification Procedures

In the event the permittee is unable to comply with all the conditions of this permit because of surfacing sewage, a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, the permittee shall:

a. Immediately take action to stop, contain, and clean up the unauthorized discharges and correct the problem.

b. Immediately notify the Department's Regional office, so that an investigation can be made to evaluate the impact and the corrective actions taken and determine additional action that must be taken.

c. Within 5 days of the time the permittee becomes aware of the circumstances, the permittee shall submit to the Department a detailed written report describing the breakdown, the actual quantity and quality of resulting waste discharges, corrective action taken, steps taken to prevent a recurrence, and any other pertinent information.

Compliance with these requirements does not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit or the resulting liability for failure to comply.

4. Wastewater System Personnel
The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and monitoring requirements to assure continuous compliance with the conditions of this permit.

SECTION C. MONITORING AND RECORDS

1. Inspection and Entry
The permittee shall, at all reasonable times, allow authorized representatives of the Department of Environmental Quality to:

a. Enter upon the permittee's premises where a waste source or disposal system is located or where any records are required to be kept under the terms and conditions of this permit;

b. Have access to and copy any records required to be kept under the terms and conditions of this permit;

c. Inspect any treatment or disposal system, practices, operations, monitoring equipment, or monitoring method regulated or required by this permit; or

d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

2. Averaging of Measurements
Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean, except for bacteria which shall be averaged as specified in the permit.

3. Monitoring Procedures
Monitoring must be conducted according to test procedures specified in the most recent edition of **Standard Methods for the Examination of Water and Wastewater**, unless other test procedures have been approved in writing by the Department and specified in this permit.

SECTION D. REPORTING REQUIREMENTS

1. Plan Submittal
Pursuant to Oregon Revised Statute 468B.055, unless specifically exempted by rule, no construction, installation or modification of disposal systems, treatment works, or sewerage systems shall be commenced until plans and specifications are submitted to and approved in writing by the Department. All

construction, installation or modification shall be in strict conformance with the Department's written approval of the plans.

2. Change in Discharge
Whenever a facility expansion, production increase, or process modification is anticipated which will result in a change in the character of pollutants to be discharged or which will result in a new or increased discharge that will exceed the conditions of this permit, a new application must be submitted together with the necessary reports, plans, and specifications for the proposed changes. No change shall be made until plans have been approved and a new permit or permit modification has been issued.

3. Signatory Requirements
All applications, reports or information submitted to the Department shall be signed and certified by the official applicant of record (owner) or authorized designee.

SECTION E. DEFINITIONS

1. BOD_5 means five-day biochemical oxygen demand.
2. TSS means total suspended solids.
3. FC means fecal coliform bacteria.
4. NH_3-N means Ammonia Nitrogen.
5. NO_3-N means Nitrate Nitrogen.
6. NO_2-N means Nitrite Nitrogen.
7. TKN means Total Kjeldahl Nitrogen.
8. Cl means Chloride.
9. TN means Total Nitrogen.
10. mg/l means milligrams per liter.
11. ug/l means micrograms per liter.
12. kg means kilograms.
13. GPD means gallons per day.
14. MGD means million gallons per day.
15. The term "bacteria" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.
16. Total residual chlorine means combined chlorine forms plus free residual chlorine.
17. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.
18. Composite sample means a combination of samples collected, generally at equal intervals over a 24-hour period, and apportioned according to the volume of flow at the time of sampling.
19. Week means a calendar week of Sunday through Saturday.
20. Month means a calendar month.
21. Quarter means January through March, April through June, July through September, or October through December.

EXHIBIT H

GEOLOGY AND SEISMICITY

OAR 345-021-0010(1)(h)

TABLE OF CONTENTS

Tables

Figures

H.1 INTRODUCTION

OAR 345-021-0010(1)(h) *Information from reasonably available sources regarding the geological and soil stability within the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0020, including:*

Response: Iberdrola Renewables, Inc. (Applicant) proposes to construct the Montague Wind Power Facility (Facility) in Gilliam County, Oregon, with generating capacity of up to 404 megawatts (MW). Up to 269 turbines will be located within the Facility site boundary, depending on the final turbine size and vendor (as further described in Exhibit B, Section B.1.3). Please refer to Exhibit C, Figures C-1, C-2, and C-3, and C-4 through C-7, for maps of the site vicinity, Facility location, and Facility components, respectively.

OAR 345-021-0010(1)(h) requires that the site certificate application for the proposed facility address geological and soil stability and that the Applicant provide sufficient evidence to support Council findings under OAR 345-022-0020. OAR 345-022-0020(1) requires the following:

"Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that:

(a) The applicant, through appropriate site-specific study, has adequately characterized the site as to Maximum Considered Earthquake Ground Motion identified at International Building Code (2003 edition) Section 1615 and maximum probable ground motion, taking into account ground failure and amplification for the site specific soil profile under the maximum credible and maximum probable seismic events; and

(b) The applicant can design, engineer, and construct the facility to avoid dangers to human safety presented by seismic hazards affecting the site that are expected to result from maximum probable ground motion events. As used in this rule "seismic hazard" includes ground shaking, ground failure, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement, and subsidence;

(c) The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soils hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility; and

(d) The applicant can design, engineer and construct the facility to avoid dangers to human safety presented by the hazards identified in subsection (c)."

OAR 345-022-0020 is not a directly applicable approval criterion for wind energy facilities like the proposed Facility. See OAR 345-022-0020(2). Rather, the Council may apply the requirements in OAR 345-022-0020(1) as conditions on the Facility's site certificate. Therefore, this Exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1) and provides evidence to support a finding by the Council as required by OAR 345-022-0020. In short, this Exhibit

demonstrates that based on the Applicant's site-specific characterization of seismic, geologic, and soils hazards in the vicinity of the Facility, there is a low potential for risk. This characterization is based on a review of regional geologic information as referenced below, along with a surface site reconnaissance of the Facility site boundary. The Facility will be designed and constructed to standards that adequately protect the Facility and the public from seismic, geologic, and soils hazards.

H.2 GEOLOGIC REPORT

OAR 345-021-0010(1)(h)(A) *A geologic report meeting the guidance in Oregon Department of Geology and Mineral Industries open file report 00-04 "Guidelines for Engineering Geologic Reports and Site-Specific Seismic Hazard Reports."*

Response: Topographic and geologic conditions and hazards within the site boundary were evaluated by reviewing available reference materials (such as topographic and geologic maps, and aerial photographs) as part of a desktop study, and by conducting a field reconnaissance. The findings of the literature review and field reconnaissance are described in the following sections. Prior to design and construction, subsurface explorations, testing, and engineering analysis will be conducted for final design of the Facility.

H.2.1 Topographic Setting

The distance from the city of Arlington to the Bonneville Power Administration (BPA) Slatt Interconnection Substation (Slatt substation) in the northwest portion of the proposed Facility site boundary is approximately 1.5 miles and the distance from the city of Arlington to the site boundary with the nearest Facility turbine is approximately 3.8 miles.

The Facility is located in the Columbia Plateau Physiographic Province, which consists of a large plateau underlain by a series of basalt flows. The top of the plateau tends to be relatively flat to gently rolling, but streams have dissected the plateau into steep-sided canyons. Elevations at the site range from approximately 600 feet in Alkali Canyon to 1,200 feet above mean sea level on the plateau under the south side of the site. Most of the site is upon a relatively flat plateau, with drainages eroded into it by ephemeral streams.

Ephemeral streams flow generally north to northwest from the site toward the Columbia River, which is located northwest of the site boundary. Drainages include Alkali Canyon, Eightmile Canyon, Fourmile Canyon, and several smaller unnamed tributary drainages. Figure H-1 shows the site boundaries.

H.2.2 Geologic Setting

The Columbia Plateau is underlain by a series of layered basalt flows extruded from vents (located mainly in southeastern Washington and northeastern Oregon) during the Miocene epoch (between 7 million and 16 million years before present [B.P.]) (Swanson et al., 1979). Collectively, these basalt flows are known as the Columbia River Basalt

Group. On the basis of lithological properties, geochemistry, and magnetic polarity, the Columbia River Basalt Group has been subdivided into a number of formations and members. The individual basalt flows are up to 300 feet thick, and are infrequently separated by soil interbed deposits that are typically less than a few feet thick. These flood basalts cover an area of more than 77,220 square miles in Washington, Oregon, and western Idaho (Hooper et al., 2002; Camp et al., 2003).

A variety of sedimentary materials that range from Pliocene to Miocene (2 million to 7 million years B.P.) are interbedded within the individual flows of the Columbia River Basalt Group. The basalt is often mantled with wind-blown loess deposits.

H.2.3 Site Geologic Setting

H.2.3.1 Site Geology

The geologic setting generally consists of loess and weak sedimentary rock overlying basalt bedrock. In some valley locations, catastrophic flood deposits (gravel and cobble bars overlain by silt) have been deposited by ancient catastrophic floods. The geologic descriptions below are summarized from a geologic map prepared by Bela (1982), and from site observations made during the site reconnaissance. Site-specific subsurface information and descriptions of the geologic units were also obtained from a geotechnical investigation conducted for an adjacent wind power project with similar geologic conditions (Barr, 2009).

The geologic units within the Facility site boundary are shown in Figure H-1.

Bedrock Geologic Units

Basalt flows mapped in the site vicinity include the Wanapum and Saddle Mountains basalt formations. The Saddle Mountains Basalt is exposed in the valley walls along Oregon Highway 19 (OR 19; also known as John Day Highway) in Alkali Canyon, lower Eightmile Canyon, and Fourmile Canyon. The Saddle Mountains Basalt has been divided into 10 members, each with unique petrographic and paleomagnetic characteristics. It is typically black, aphyric, and dense, with even grain size. The Wanapum Basalt (which includes the Priest Rapids and Frenchman Springs Members) is exposed across the southern portion of the site along upper Eightmile Canyon. This unit is described as fine- to coarse-grained basalt with reversed magnetic polarity. Based on subsurface data from Barr (2009), the basalt varies from intact to weathered, with low to high vesicularity, and an unconfined compressive strength that ranges from approximately 3,000 to 20,000 psi. The depth to basalt near the Facility site boundary varies from 4.5 to 61.5 feet, based on drilling data.

The Selah Member of the Ellensburg Formation is exposed in valleys in the vicinity of the Facility, primarily along OR 19 and along Cedar Springs Lane. This unit was mapped by Bela (1982) but is not shown in Figure H-1. This unit is described as poorly indurated, massive, greenish-white, yellow-, and buff-colored tuff occurring near Arlington, Oregon. This unit was deposited as a thick interbed in between basalt flows.

At the Facility, this geologic unit is exposed in slopes along creek valleys, and is mostly overlain on the flat plateaus by the Alkali Canyon Formation.

The Alkali Canyon Formation of The Dalles Group underlies a large portion of the Facility site (denoted as "Tuffaceous Sedimentary Rocks and Tuff – Ts in Figure H-1). This formation consists of imbricated, basaltic cobble gravel with interbedded tuffaceous sands and silts that are weakly cemented in places. It ranges from approximately 30 to 130 feet thick in the area. This formation was exposed primarily in in-road cuts and erosional gullies in the Facility vicinity (see Figure H-1). Exposures of the Alkali Canyon Formation showed that the material consists of rounded, basaltic, stratified, weakly-cemented, fine gravel to cobbles. Based on subsurface data from Barr (2009), the Alkali Canyon Formation consists of medium dense to very dense, cemented, poorly graded gravel with interbedded tuffaceous sand and silt.

Unconsolidated Geologic Units

Catastrophic flood deposits were deposited in the Facility vicinity during the late Pleistocene. These deposits are not shown in Figure H-1, but they were mapped along Alkali Canyon by Bela (1982) and were observed during the site visit along Alkali Canyon, Fourmile Canyon, and Eightmile Canyon. These deposits consist primarily of coarse, unsorted, poorly bedded basalt gravel and sand. Gravels are partially openwork, and forest beds are common along the southern side of the Columbia River. Layers of sand and silt deposited by receding floodwaters were observed overlying the gravels in tributary canyons.

Loess deposits mantle the flatter plateau and upland areas. Loess is composed of wind-deposited fine sand and silt, and it mantles much of the Columbia Plateau. The loess is typically 15 to 30 feet thick, but it thins to less than 3 feet thick in upland areas (Bela, 1982). Loess is not typically mapped in the Facility vicinity, primarily because the map is intended to show structural and stratigraphic relationships (as noted by Bela). Based on observations made during the site reconnaissance, the thickness of the loess in the northern portion of the site is thin to nonexistent. Exposures in gravel pits and road cuts along Montague Lane, Fourmile Canyon, and Eightmile Canyon showed that the loess is very thin to absent. In addition, stony (loess-free) soils were observed at the surface of the plateau in several areas. Loess appears to be absent from most side slopes, either due to lack of deposition on slopes or subsequently having been stripped away by erosion. In the cultivated areas on the site, the loess is not well exposed and the thickness is unknown. Based on subsurface information from an adjacent project, the loess consists of very loose to very dense, quartzose silt to fine sand and has layers of caliche. The loess is highly variable in thickness, and is more than 60 feet thick in some areas (Barr, 2009).

H.2.3.2 Structural Geologic Features

The Shutler Lineament, which consists of a northwest-trending combination of anticlines and normal faults, is mapped northeast of the site. The northwest-trending Turner Butte Anticline is mapped west of the site. The Willow Creek Monocline is an east-northeast trending fold that is mapped to the south and southeast of the site. The Turner Butte–

Rock Creek Lineament and Turner Butte Anticline trend southeast near the southwest corner of the site, near the upper part of Alkali Canyon. The Umatilla Syncline trends east-northeast and crosses through the northern portion of the site in the vicinity of the proposed transmission line alignment.

No faults are mapped within the site boundary (Bela, 1982). Figure H-1 shows two northwest-trending lineaments that are interpreted to be faults. Potentially active faults are discussed in Section H.7. The lineation that crosses lower Alkali Canyon is part of the Shutler Lineament. The lineation that crosses just southwest of the site boundary is part of the Turner Butte Anticline/Fault.

H.2.3.3 Groundwater/Springs

The depth to groundwater is anticipated to vary based on local ground surface elevations. Alkali Canyon and Eightmile Canyon are incised up to 300 feet in the surrounding plateau. It is anticipated that groundwater is relatively deep (in excess of 50 feet from the ridge backs and turbine locations where deep excavations may be planned during construction). Locally and seasonally perched water that forms as a result of infiltration of excess irrigation water may be encountered, depending on local conditions and time of year.

H.3 SITE-SPECIFIC GEOTECHNICAL WORK

OAR 345-021-0010(1)(h)(B) *A description and schedule of site-specific geotechnical work that will be performed before construction for inclusion in the site certificate as conditions.*

Response:

H.3.1 Work Performed to Prepare This Exhibit

CH2M HILL conducted a limited geotechnical and geological site reconnaissance of the entire site boundary and portions of the surrounding area to observe the existing features at the site and look for evidence of past or potential geologic hazards. The site reconnaissance included evaluation of existing exposures of soil and rock (in road cuts, quarries, and drainages), classification of soils, and observation of typical slopes in the proposed turbine and transmission line areas.

A detailed literature review of the regional geology and the entire site boundary also was performed. The review included evaluation of published literature and geologic mapping. The literature review also included a detailed evaluation of seismic hazards at the site, which is presented in Section H.7.

H.3.2 Future Work

A detailed geotechnical exploration of the Facility will be conducted prior to construction. The exploration will be substantially similar to the site-specific geotechnical exploration conducted for other wind energy facilities permitted by EFSC (for example, Stateline and Klondike III). The exploration will assess subsurface soil and

geologic conditions, and provide information that will be used to identify geological or geotechnical hazards and facilitate design of turbine foundations and foundations of other related and supporting facilities. The exploration will also provide data for the installation of underground collector cables and overhead collector and transmission lines.

The site-specific detailed exploration currently is planned for the Facility following EFSC approval and micrositing, after the final turbine locations have been determined. As noted above, the geotechnical work will be substantially similar to operating projects permitted by EFSC. The exploration will include detailed geologic hazard evaluation to identify specific areas of potential slope instability; geotechnical drilling at proposed turbine and Facility locations to evaluate soil and rock properties, depth to rock, and suitable foundation types; test pit excavations or geophysical testing to determine subsurface conditions; and laboratory testing to confirm local soil parameters for use in trench backfill for thermal protection of buried power cable and corrosion potential of steel and concrete. Geotechnical engineering evaluation of this information will be used to finalize design parameters pertaining to building and turbine siting and foundation design, site/civil grading, utilities, roadways, and electrical installation.

H.4 EVIDENCE OF CONSULTATION WITH OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

OAR 345-021-0010(1)(h)(C) *Evidence of consultation with the Oregon Department of Geology and Mineral Industries regarding the appropriate site-specific geotechnical work that must be performed before submitting the application for the Department to determine that the application is complete.*

Response: While preparing this Exhibit, CH2M HILL consulted DOGAMI publications and other guideline documents (Oregon Board of Geologist Examiners and the Oregon Board of Examiners for Engineering and Land Surveying, 1996).

A CH2M HILL geotechnical engineer contacted Bill Burns at DOGAMI on November 20, 2009, to discuss the findings of the site visit. Mr. Burns indicated that Lidar data could be useful during the final design geotechnical exploration. He was interested to hear that during the site reconnaissance, the CH2M HILL team had recognized potential areas of landslides within the site boundary that are not part of DOGAMI's Statewide Landslide Information Database for Oregon (SLIDO).

The Applicant consulted with DOGAMI during the preparation of this Exhibit (Burns, 2009) and will consult with DOGAMI again prior to the site-specific geotechnical exploration, after micrositing has occurred.

H.5 TRANSMISSION LINE

OAR 345-021-0010(1)(h)(D) *For all transmission lines, a description of locations along the proposed route where the applicant proposes to perform site-specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, dead ends, corners, and portions of the proposed route where geologic reconnaissance and other site-specific studies*

provide evidence of existing landslides or marginally stable slopes that could be made unstable by the planned construction.

Response: A new overhead 230-kilovolt (kV) transmission line will connect the Facility Collector Substations (collector substations) to the existing 500-kV BPA Slatt-Buckley transmission line at the Slatt substation located approximately 1.5 miles southeast of Arlington, Oregon. The new overhead 230-kV transmission line will run from the Facility's western collector substation to the central collector substation and from the central collector substation to BPA's Slatt substation. The overhead 230-kV transmission line segment from the western collector substation to the central collector substation is approximately 8.2 miles or up to 9 miles in length. Three potential routes are under evaluation for the transmission line segment from the central collector substation to the Slatt substation: a preferred transmission line route that is approximately 8.8 miles long, an Alternate 1 route that is approximately 8.2 miles long, and an Alternate 2 route that is approximately 8.8 miles long. The portion of the transmission line from the central collector substation to the Slatt substation will be up to 10 miles in length. The three routes are shown in Figures C-4 and C-6.

The portion of the transmission line from the Facility's western collector substation to the central collector substation will include potential overhead crossings of unnamed north-south trending canyons where Weatherford Road, OR 19, and an unnamed road east of OR 19 run. These canyons have up to approximately 180 feet of vertical relief from the plateau to the bottom of the drainage. The slopes in this vicinity along these drainages appear to be stable. No evidence of landslides was observed in this area, and no landslides are mapped in the geological literature that was reviewed during preparation of this Exhibit.

The largest road crossing of the preferred transmission line route will be over Fourmile Road. This route crosses stable, relatively flat plateau areas and flood-scoured basalt rock. No evidence of landslides or geologic hazards was observed along this portion of the alignment.

The Alternate 1 and Alternate 2 transmission line routes are located between Fourmile Road and the Slatt substation. These routes cross over stable, relatively flat plateau areas and flood-scoured basalt rock. No evidence of landslides or geologic hazards was observed along these routes.

On the basis of observations made in the field, transmission tower foundations can be located along the preferred transmission line route and both alternate routes without having an adverse effect on slope stability or long-term erosion. No discrete areas of unstable slopes were observed that would require specific geotechnical investigations. If necessary, as part of the design process, a geotechnical investigation will be conducted for the final transmission line route. This investigation may include soil borings at major angle points, corners, end points, and on both sides of stream crossings. Information from these borings will be used to characterize the subsurface materials for design of the tower foundations.

H.6 PIPELINES

OAR 345-021-0010(1)(h)(E) *For all pipelines that would carry explosive, flammable or hazardous materials, a description of locations along the proposed route where the applicant proposes to perform site-specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, and portions of the proposed alignment where geologic reconnaissance and other site-specific studies provide evidence of existing landslides or marginally stable slopes that could be made unstable by the planned construction.*

Response: Not applicable. The Facility does not include pipelines.

H.7 SEISMIC HAZARD ASSESSMENT

OAR 345-021-0010(1)(h)(F) *An assessment of seismic hazards. For the purposes of this assessment, the maximum probable earthquake (MPE) is the maximum earthquake that could occur under the known tectonic framework with a 10 percent chance of being exceeded in a 50-year period. If seismic sources are not mapped sufficiently to identify the ground motions above, the applicant shall provide a probabilistic seismic hazard analysis to identify the peak ground accelerations expected at the site for a 500-year recurrence interval and a 5000-year recurrence interval. In the assessment, the applicant shall include*:

(i) Identification of the Maximum Considered Earthquake Ground Motion shown at International Building Code (2003 edition) Section 1615 for the site.

Response: For new construction, the site should be designed for the maximum considered earthquake, according to the International Building Code (IBC, 2003) as amended by the Oregon Structural Specialty Code (OSSC, 2004). The design event has a 2 percent probability of exceedance in 50 years (or a 2,475-year return period). For the Facility, this event has a peak ground acceleration (PGA) of 0.19g at the bedrock surface. This value of PGA on rock is an average representation of the acceleration most likely to occur at the site for all seismic events (crustal, intraplate, or subduction).

Seismic design parameters were developed in accordance with the International Building Code (2003). Using the subsurface information currently available, the Facility would be designed for Site Class D (*stiff soil profile*), according to IBC requirements. Once additional subsurface information is collected, it is likely (based on experience at nearby sites) that Site Class C may apply in certain portions of the site. Final site class determination cannot be made until further site exploration is performed, including evaluation of shear wave velocity in rock and drilling at specific turbine sites. The current recommended seismic design parameters are summarized in Table H-1.

Table H-1. Seismic Design Parameters—Maximum Considered Earthquake

Site Class	Earthquake Magnitude	Peak Horizontal Ground Acceleration on Bedrock	Soil Amplification Factor, F_a	Peak Horizontal Ground Acceleration at Ground Surface
S_D	6.0	0.19g	1.42	0.28g

g = acceleration from gravity.

The following additional parameters for the Maximum Considered Earthquake may be used for structural design:

- Short period (0.2-second) spectral response acceleration, S_{MS} = 0.69g for Site Class S_D
- 1-second period spectral response acceleration, S_{M1} = 0.37g for Site Class S_D

The design spectral response accelerations, S_{DS}, for both short period and 1-second period are determined by multiplying the Maximum Considered Earthquake spectral response accelerations (S_{MS} and S_{M1}) by a factor of 2/3.

H.7.1 Earthquake Sources

(ii) Identification and characterization of all earthquake sources capable of generating median peak ground accelerations greater than 0.05g on rock at the site. For each earthquake source, the applicant shall assess the magnitude and minimum epicentral distance of the maximum credible earthquake (MCE).

Response: The potential seismic hazards in the Facility vicinity result from three seismic sources: Cascadia Subduction Zone (CSZ) interplate events, CSZ intraslab events, and crustal events (Geomatrix, 1995).

Two of the potential seismic sources, interplate and intraslab events, are related to the subduction of the Juan de Fuca plate beneath the North American plate. Interplate events are caused by the frictional interface between these two tectonic plates. Intraslab events originate within the subducting Juan de Fuca plate, and they are generally associated with normal faulting that results from bending stresses built up within the plate as it is subducted beneath the North American plate. The combination of these factors is often referred to as the CSZ source mechanism. The CSZ is located beneath western Oregon, Washington, and British Columbia. The two source mechanisms associated with the CSZ are currently thought to be capable of producing maximum earthquakes with moment magnitudes of approximately 9.0 and 7.5 for the interplate and intraslab events, respectively (Geomatrix, 1995; USGS, 2009c, 2009d).

Earthquakes caused by movements along crustal faults, generally in the upper 10 to 15 miles, result in the third source mechanism. In the Facility vicinity, earthquakes occur within the crust of the North American tectonic plate when built-up stresses near the surface are released through fault rupture. The specific crustal faults in the Facility vicinity are discussed in Section H.2.3.2; the faults in the immediate Facility vicinity are shown in Figure H-1.

The primary potentially active crustal faults are within the Wallula Fault system. The age of most recent faulting in the Wallula Fault system is poorly known, but several studies indicate latest Quaternary displacement on at least one structure in the system.

The PGA at the site resulting from a seismic event on one of these source mechanisms was estimated using information developed by the United States Geological Survey (USGS) in its National Seismic Hazard Mapping Database (USGS, 2009c, 2009d, 2009e). This information includes estimated PGA at a theoretical soft rock/stiff soil interface for

different probabilities of exceedance. The USGS database also provides the seismic deaggregation information for the seismic hazard, including estimates of the mean earthquake moment magnitude and mean epicentral distance associated with given probability of exceedance at a given location.

The maximum probable earthquake (MPE) is considered to be an earthquake that has a 10 percent probability of exceedance in 50 years (a nominal 500-year recurrence interval). The maximum credible earthquake (MCE) is considered to be an earthquake with a nominal 2,500-year recurrence interval (a 2 percent probability of exceedance in 50 years). To provide an estimate of magnitudes for seismic events with epicentral distances ranging from 0 to 60 miles and from 60 to 100 miles, the PGA and a Spectral Acceleration (SA) at a period of 2.0 seconds were estimated using the USGS seismic hazard database (USGS, 2009c, 2009d). These estimates of magnitude, epicentral distance, and PGA are provided in Table H-2.

Table H-2. MPE and MCE Source Characterization Parameters

Earthquake Event	Mean Moment Magnitude	Epicentral Distance (miles)	Peak Ground Acceleration (PGA)
Maximum Probable Earthquake (MPE) Events	5.2 (crustal) 9.0 (subduction)	9 (crustal) 175 (subduction)	0.09g
Maximum Considered Earthquake Events	6.2 (mean)	39 (mean)	0.19g

Note: The parameters for both events are for a frequency that corresponds to the PGA.
g = acceleration from gravity.

Figures H-2 and H-3 show the probabilistic seismic hazard deaggregation for the MPE and maximum considered earthquake events, respectively.

H.7.2 Recorded Earthquakes

(iii) *A description of any recorded earthquakes within 50 miles of the site and of recorded earthquakes greater than 50 miles from the site that caused ground shaking at the site more intense than the Modified Mercalli III intensity. The applicant shall include the date of occurrence and a description of the earthquake that includes its magnitude and highest intensity and its epicenter location or region of highest intensity.*

Response: Table H-3 provides the date of occurrence, location, and reported magnitude and intensity at the epicenter (unless otherwise noted) of earthquakes causing Modified Mercalli (MM) III shaking intensity or greater at the Facility. For reference, an intensity of MM III is associated with shaking that is "*noticeable indoors, but may not be recognized as an earthquake*." An intensity of MM VII is "*noticed by people driving cars, everyone runs outdoors and slight to moderate damage is caused to well-built, ordinary buildings*." The largest recorded earthquake in the region was the magnitude 5.8 Milton-Freewater earthquake in 1936, which caused shaking intensity of MM VII at its epicenter. The largest recorded earthquake magnitude within 50 miles (80 kilometers) of the Facility is 4.8.

Information in Table H-3 was developed by screening information from earthquake databases given by DOGAMI (Madin, 1994) and the USGS National Earthquake Information Center (USGS, 2009c). For earthquakes that were reported in terms of magnitude, a relationship between PGA and Modified Mercalli intensity (Kramer, 1996) was used to define a PGA associated with an MM III event. A distance-attenuation relationship then was used to determine the combination of earthquake magnitude and distance producing an intensity of MM III at the Facility. A mean Joyner and Boore attenuation relationship was used to develop the magnitude-distance information (Joyner and Boore, 1988). The most distant event affecting the site was a magnitude 3.9 earthquake occurring on July 13, 1971, and located more than 84 miles from the site.

Table H-3. Significant Historical Earthquakes Within 50 Miles (80 Kilometers) of the Montague Facility

Year	Month	Day	Latitude	Longitude	Magnitude	Intensity
1893	3	7	45.90	119.40	--	VII
1918	11	1	46.70	119.50	--	VI
1921	9	14	46.07	118.33	--	VI
1922	10	16	45.83	119.23	--	III
1922	12	12	45.67	118.75	--	III
1924	1	6	46.07	118.33	--	IV
1924	1	6	45.83	118.33	--	V
1924	5	27	46.07	118.33	--	IV
1926	4	11	46.07	118.33	--	III
1926	4	23	46.07	118.33	--	IV
1936	7	16	45.83	118.67	--	III
1936	7	16	45.75	118.50	--	III
1936	7	18	45.92	118.30	--	III
1936	7	18	46.00	118.30	--	V
1936	7	30	46.07	118.33	--	IV
1936	7	30	45.93	118.32	--	IV
1936	7	30	45.93	118.30	--	IV
1936	8	4	45.92	118.78	--	V
1936	8	24	45.93	118.28	--	III
1936	8	24	45.93	118.27	--	III
1936	8	28	45.95	118.32	--	V
1936	11	17	46.07	118.33	--	III
1936	11	17	46.07	118.33	--	III
1936	11	17	46.07	118.33	--	III
1937	2	8	46.07	118.33	--	III
1937	2	9	46.07	118.33	--	IV
1937	6	4	46.07	118.33	--	IV
1938	8	11	45.95	118.30	--	IV
1938	10	27	45.95	118.28	--	IV
1939	1	26	45.67	118.67	--	IV
1939	1	26	45.67	118.67	--	IV

Table H-3. Significant Historical Earthquakes Within 50 Miles (80 Kilometers) of the Montague Facility

Year	Month	Day	Latitude	Longitude	Magnitude	Intensity
1944	9	2	46.07	118.33	--	IV
1944	9	2	46.07	118.33	--	IV
1945	9	23	46.07	118.33	--	IV
1951	1	7	45.92	119.23	--	V
1959	1	21	46.07	118.33	--	IV
1965	8	19	44.60	118.40	4.4	--
1966	7	23	47.20	119.50	4.3	--
1969	4	19	45.78	119.70	3.2	--
1969	9	27	46.63	118.08	3.1	--
1969	11	5	47.13	118.15	3.5	--
1969	11	21	46.62	118.88	3.6	--
1970	1	1	46.27	118.35	3.0	--
1970	1	30	46.85	118.22	3.1	--
1971	1	4	46.22	119.35	3.1	--
1971	3	17	46.68	118.87	3.0	--
1971	7	13	44.98	117.95	3.8	--
1971	7	13	44.82	117.88	3.9	--
1971	10	25	46.70	119.55	3.7	--
1974	12	13	45.26	-121.6	4	--
1976	4	8	44.97	-120.8	--	--
1976	4	13	45.22	-120.77	4.8	--
1976	4	17	45.08	-120.8	4.2	--
1980	7	7	45.22	-121.69	3.3	--
1981	6	14	45.95	-120.49	3.1	--
1987	9	8	45.18	-120.08	3.1	--
1987	9	29	45.19	-120.11	2.7	--
1988	7	11	45.25	-120.13	2.9	--
1988	9	29	45.85	-120.26	3.5	--
1989	3	27	45.82	-120.26	3.1	--
1989	9	15	45.37	-121.71	3.5	--
1990	10	19	45.34	-121.69	3.5	--
1991	4	20	45.35	-120.14	2.8	--
1993	12	16	45.2	-120.09	3	--
1993	12	18	45.25	-120.11	3.1	--
1994	4	13	45.14	-120.85	2.8	--
1994	4	16	45.14	-120.84	2.6	--
1994	9	22	45.69	-120.16	2.9	--
1994	11	17	45.7	-120.18	2.7	--
1996	4	7	45.37	-121.72	3	--
1997	4	17	45.19	-120.08	3.2	--
1997	8	17	45.65	-120.19	2.8	--

Table H-3. Significant Historical Earthquakes Within 50 Miles (80 Kilometers) of the Montague Facility

Year	Month	Day	Latitude	Longitude	Magnitude	Intensity
1997	9	10	45.65	-120.2	2.7	--
1997	11	11	45.85	-120.57	2.8	--
1998	2	3	45.81	-120.2	3.1	--
1998	4	28	45.26	-120.28	2.7	--
1998	10	31	45.1	-120.82	2.7	--
1998	11	1	45.1	-120.83	2.9	--
1999	1	11	45.32	-121.65	2.9	--
1999	1	11	45.32	-121.65	3.2	--
1999	1	14	45.33	-121.66	3.2	--
1999	1	14	45.33	-121.67	3	--
1999	2	15	45.32	-121.66	2.6	--
1999	8	31	45.19	-120.09	3.2	--
2000	1	30	45.2	-120.12	4.1	--
2000	1	30	45.19	-120.1	3.4	--
2000	1	30	45.18	-120.11	2.8	--
2000	2	1	45.19	-120.11	3.6	--
2000	2	1	45.19	-120.12	2.8	--
2000	7	25	45.34	-121.68	2.8	--
2000	7	28	45.17	-120.14	2.6	--
2000	8	3	45.21	-120.07	2.8	--
2000	8	17	45.31	-120.04	3.2	--
2001	9	14	45.31	-121.73	2.9	--
2002	1	31	45.69	-120.17	2.7	--
2002	5	6	45.33	-121.69	2.8	--
2002	6	29	45.33	-121.69	4.5	--
2002	6	29	45.33	-121.68	3.2	--
2002	6	29	45.34	-121.68	3.8	--
2002	6	30	45.34	-121.68	2.7	--
2002	7	2	45.34	-121.68	2.8	--
2002	10	25	45.19	-120.09	2.7	--
2002	12	12	45.36	-121.7	2.7	--
2003	6	1	45.19	-120.11	2.8	--
2003	7	7	45.33	-121.69	3.3	--
2005	4	6	45.37	-121.71	2.8	--
2006	12	30	45.12	-120.94	2.6	--
2007	1	1	45.12	-120.93	2.5	--
2007	1	4	45.12	-120.94	3	--
2007	1	20	45.12	-120.94	3	--
2007	2	13	45.12	-120.94	2.9	--
2007	2	13	45.12	-120.93	2.7	--
2007	3	1	45.12	-120.93	3.6	--

Table H-3. Significant Historical Earthquakes Within 50 Miles (80 Kilometers) of the Montague Facility

Year	Month	Day	Latitude	Longitude	Magnitude	Intensity
2007	4	1	45.13	-120.95	2.6	--
2007	4	8	45.13	-120.94	3.1	--
2007	5	2	45.13	-120.94	3.3	--
2007	6	3	45.13	-120.96	2.7	--
2007	6	14	45.13	-120.94	3.9	--
2007	7	16	45.12	-120.94	2.5	--
2007	7	19	45.12	-120.95	2.6	--
2007	8	20	45.13	-120.95	2.9	--
2007	11	21	45.13	-120.94	3.3	--
2008	1	3	45.13	-120.95	2.7	--
2008	2	4	45.13	-120.94	3.3	--
2008	3	20	45.13	-120.93	3.1	--
2008	4	5	45.13	-120.94	3.6	--
2008	4	16	45.13	-120.95	2.9	--
2008	4	28	45.13	-120.96	3.1	--
2008	6	1	45.13	-120.95	3.4	--
2008	6	5	45.14	-120.95	2.6	--
2008	6	20	45.13	-120.94	3.2	--
2008	7	14	45.13	-120.95	4.2	--
2008	9	16	45.13	-120.95	2.7	--
2008	11	16	45.13	-120.95	3.4	--
2008	12	27	45.13	-120.95	3.6	--
2009	3	20	45.13	-120.96	3	--
2009	4	20	45.13	-120.96	3.6	--
2009	4	20	45.13	-120.95	2.5	--
2009	6	6	45.12	-120.94	2.6	--

Sources: Madin, 1994; USGS, 2009c.

H.7.3 Median Ground Response Spectrum

(iv) Assessment of the median ground response spectrum from the MCE and the MPE and identification of the spectral accelerations greater than the design spectrum provided in the Oregon Structural Specialty Code (2004 edition). The applicant shall include a description of the probable behavior of the subsurface materials and amplification by subsurface materials and any topographic or subsurface conditions that could result in expected ground motions greater than those characteristic of the Maximum Considered Earthquake Ground Motion identified above.

Response: Figure H-4 compares the design response spectrum given in the 2003 IBC with the OSSC. Response spectra are provided for the maximum considered earthquake and the MPE. For the maximum considered earthquake, separate response spectra modified by the amplification factors for Site Class D (S_D) and also Site Class B (S_B) are

provided. On the basis of the current subsurface information available, it is recommended that the Facility be designed for Site Class D. However, the site reconnaissance indicates that shallow, weakly cemented sedimentary rock may exist at certain locations, whereby either the S_B or S_C response spectra would apply.

H.7.4 Seismic Hazards Expected to Result from Seismic Events

(v) An assessment of seismic hazards expected to result from reasonably probable seismic events. As used in this rule "seismic hazard" includes ground shaking, ground failure, landslide, lateral spreading, liquefaction, tsunami inundation, fault displacement and subsidence.

Response: For facilities designed to the current IBC and OSSC guidelines for Site Class D (or B), the design seismic event will have a 2,500-year recurrence interval. For this very-low-probability event, the Facility will be designed for no permanent structural damage from either the vibrational response of the structure or from secondary hazards associated with ground movement or failure, such as landslides, lateral spreading, liquefaction, fault displacement, or subsidence. It is generally assumed that if structural damage can be prevented, the risk to human safety will be minimal.

Potential seismic hazards associated with a design seismic event include fault displacement, instability from landslides or subsurface movement, and adverse effects from groundwater or surface water. These hazards are anticipated to be low, as discussed below.

Potential for Fault Displacements. Lineaments and anticlines have been identified in Figure H-1, but no potentially active faults that could cause a surface rupture have been mapped within the Facility site boundary.

Behavior of Subsurface Materials. The potential for seismically induced landslides exists within the site boundary, although this potential is anticipated to be low and limited to canyon slopes. Areas where large, prehistoric landslides (primarily along the slopes of Alkali Canyon) may have oversteepened slopes could be prone to slightly reduced shear strength. These areas could potentially be reactivated by a change in land use, flooding, or loading near the crest of existing slopes.

Rockfall hazards may exist at outcrop areas, or beneath overly steep excavated slopes, but these will tend to be of limited extent and are not expected to affect the performance of the Facility. Areas with exposed rock are very rare and finite at the Montague site.

Areas of steep slopes, exceeding 10 feet in height and composed of thick soil deposits, generally are not present at the locations of Facility components. However, should these areas exist near Facility components, a seismic event could induce a landslide and cause an unacceptable amount of soil movement. Results of simplified seismic stability analyses suggest that loess slopes could be unstable for the 500-year event when the slope is steeper than 30 degrees and that slopes steeper than 21 degrees could be unstable for the 2,500-year event. Sliding of the soil is not expected to be a design consideration for the turbine structures because they will be located on relatively flat

ground, and the geometry of the slope movement is not anticipated to be great enough to encompass the turbine locations. Other facilities, such as roads, may exist below slopes steeper than 21 to 30 degrees in some locations. Soil movement could affect these facilities if the slopes were to fail. Because these roads are used infrequently, however, the risk associated with slope movement is very low.

Adverse Effects from Groundwater or Surface Water. The site generally consists of flat terrain with a deep groundwater table and relatively shallow depth to either basalt or weakly cemented sedimentary rock. Therefore, hazard potential associated with landslides, liquefaction, lateral spreading, and subsidence is very low. The site is also located well above the Columbia River and more than 150 miles from the coast, so risk from flooding or tsunami is also estimated to be low to nonexistent.

Because the potential for seismic-induced hazards is low at the Facility, mitigation measures to address these hazards in the siting, design, and construction of the Facility are not necessary. The design of the turbine tower can readily accommodate the level of seismic energy described in Section H.7.3, Median Ground Response Spectrum.

H.8 NONSEISMIC GEOLOGICAL HAZARDS

OAR 345-021-0010(1)(h)(G) *An assessment of soil-related hazards such as landslides, flooding and erosion which could, in the absence of a seismic event, adversely affect or be aggravated by the construction or operation of the facility.*

Response:

Potential nonseismic geologic hazards at the site could include slope instability, erosion potential, collapse potential of loess, and volcanic eruptions. Each of these hazards is discussed briefly below. Possible mitigation measures that could be used to address potential nonseismic geologic hazards are discussed in Section H.10.

H.8.1 Slope Instability

No landslides are shown within the site boundary on SLIDO. The closest mapped landslides on SLIDO are located at the lower end of Eightmile Canyon where it intersects Highway 74, approximately 4 miles northeast of the Facility site boundary.

Areas of slope instability were observed during the site visit, primarily in the form of prehistoric landslides. These areas are shown in Figure H-1. These landslides are formed primarily in the slopes of Alkali Canyon and would not underlie Facility components or turbine layouts. Apparent prehistoric landslides were also observed near the intersection of OR 19 and Montague Lane. These landslides appear to be formed in lacustrine sediments and the weakly cemented Selah Interbed. On the basis of site observations and the literature review, it is interpreted that these landslides were triggered by saturation of sediments and subsequent rapid drawdown resulting from periodic and repeated inundation during catastrophic flooding that occurred between 12,000 and 15,000 years ago (Allen et al., 1986). The present-day crest elevation of many of these slides is approximately 1,000 feet; the crest of catastrophic floods in the

Arlington area is estimated to have been approximately 1,180 feet, which supports the inference that these were caused by saturation of the sediments and rapid dewatering. It does not appear that these landslides are still active, primarily because of the unsaturated conditions that currently exist.

Although these landslides are not anticipated to be active, soil strength and slope stability can be reduced in areas where landslides have occurred. Therefore, it is recommended that specific areas with the potential for slope instability be identified during siting of turbine strings to avoid this potential hazard (see Section H.10 for additional description of this recommended measure).

H.8.1.1 Erosion Potential

The erosion factor (K) indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Data from the NRCS Web Soil Survey (NRCS, 2006) indicate that the silt loam soils on the site have an erodibility (K) that ranges from 0.43 to 0.64. Given the range of K for the Facility, the soils could be considered moderately to highly erodible and subject to sheet erosion and rill erosion by water.

The Facility will comply with the requirements of a National Pollutant Discharge Elimination System (NPDES) stormwater construction permit. The NPDES permit requires development of an erosion control plan and implementation of erosion control best management practices (BMPs).

Section H.10 describes mitigation measures for potential soil erosion. Exhibit I includes a more detailed discussion of soil properties and mitigation measures that will be used to offset potential erosion. The NPDES permit application is included as Attachment I-1 to Exhibit I.

H.8.1.2 Collapse Potential of Loess

Because of the nature of its depositional formation, loess has a structure that is sometimes susceptible to collapse and/or swelling. This occurs from saturation and rearrangement of the soil particles, and it can have a detrimental effect on foundations constructed on loess. Although loess soils within the Facility site may become temporarily saturated near the ground surface during spring thaw or a heavy rainstorm, the overall strata of loess soils are unlikely to maintain long-term saturation because of their position above the groundwater table and floodplain.

Facility construction is not expected to cause saturation of materials that have not previously experienced saturation. In addition, loess materials used for construction of embankments are not expected to retain a high void ratio structure that is subject to

collapse or swell after excavation, placement, and compaction. Based on laboratory testing of the collapse potential of the loess, the collapse potential is negligible (Barr, 2009). Therefore, the collapse and swell potential is anticipated to be minimal for the loess soils. However, during design the collapse and swell potential of the loess should be further evaluated through laboratory testing and analysis.

H.8.1.3 Volcanic Eruption

The Pacific Northwest region is home to a large number of active volcanoes along the Cascade Mountain Range. Volcanic eruptions will continue to occur in the region. The nearest active volcanoes are Mount Hood, Mount Adams, and Mount Saint Helens, which are approximately 75, 75, and 100 miles to the west and northwest of the site, respectively. Mount St. Helens and Mount Hood have both erupted in the last 200 years.

Direct impacts include the effects of lava flows, blast, ash fallout, and avalanches of volcanic products. Indirect effects include ashfall, mudflows, flooding, and sedimentation. Hazards from future volcanic eruptions are anticipated to be limited to ashfall at the site. Depending on the prevailing wind direction at the time of the eruption and on the source of the eruption, ash fallout may occur in the region surrounding the Facility.

H.9 SEISMIC HAZARD MITIGATION

OAR 345-021-0010(1)(h)(H) *An explanation of how the applicant will design, engineer and construct the facility to avoid dangers to human safety from the seismic hazards identified in paragraph (F). The applicant shall include proposed design and engineering features, applicable construction codes, and any monitoring for seismic hazards.*

Response: The State of Oregon uses the 2003 IBC, with current amendments by the OSSC and local agencies. Pertinent design codes as they relate to geology, seismicity, and near-surface soil are contained in IBC Chapter 16, Section 1613, with slight modifications by the current amendments of the State of Oregon and local agencies. The Facility will be designed to meet or exceed the minimum standards required by these design codes.

A geologic hazard assessment has been performed for the Facility. Prehistoric landslides have been identified at the Facility, but the mechanism believed to have induced these landslides (late Pleistocene catastrophic flooding) is no longer present. The information collected during the final design geotechnical exploration will be used to design and construct the Facility to mitigate potential hazards that could be created during a seismic event. The hazard of a surficial rupture along a fault trace is anticipated to be low, given the low probability that a fault rupture would actually displace the ground surface at the location of one of the wind turbines or the underground cables between turbines.

In addition, the rock types in the area generally are not prone to large-scale landslides given the current site conditions. Ancient landslides were observed primarily along the canyon slopes, away from the Facility components. Hazards typically associated with saturated soils are also anticipated to be low or nonexistent because of the relatively arid

climate and dry landscape of the site. For these reasons, the Applicant has demonstrated that the Facility meets OAR 345-022-0020(1)(b).

H.10 NONSEISMIC HAZARD MITIGATION

OAR 345-021-0010(1)(h)(I) *An explanation of how the applicant will design, engineer and construct the facility to adequately avoid dangers to human safety presented by the hazards identified in paragraph (G).*

Response:

As discussed in Section H.8, nonseismic geologic hazards could potentially include landslides, volcanic eruptions, collapsing soils/piping, and soil erosion. Typical mitigation measures for nonseismic hazards include avoidance of potential hazards, creation of detailed geologic hazard maps to aid in laying out facilities, characterization of the subsurface soils to determine soil strength and foundation conditions, and provision of warnings in the event of hazards. Additional discussion of possible mitigation measures for each potential hazard is provided below.

Landslides. In order to mitigate potential landslide hazards, areas that have potential for slope instability will be identified and delineated during the final design geotechnical exploration. The turbines will be located safe distances from steep slopes so that if slope failure should occur, the turbines and their associated foundation structures will not be affected. It appears that the Facility components typically will not be located on unstable slopes or landslide-prone terrain.

Volcanic Eruptions. In the event of a volcanic eruption that could damage or affect Facility components, the components will be shut down until safe operating conditions return. If an eruption should occur during construction, a temporary shutdown most likely will be required to protect equipment and human health.

Collapsing Soils/Piping. Potentially collapsible soils (such as loess) will be identified during the final design geotechnical exploration, and the collapse potential will be evaluated by laboratory testing. If necessary, collapse potential of loess will be mitigated by construction techniques (overexcavating, wetting, compacting) during subgrade preparation.

Soil Erosion. To reduce the potential for soil erosion, construction of roads and turbine foundation will be regulated by an erosion control plan and NPDES 1200-C construction permit (see Exhibit I, Attachment I-1) that will require best management practices to minimize possible impacts from erosion or other impacts to soils.

Work on the access roads will include grading and regraveling of existing roads, and construction of new roads. Erosion control measures will meet local, county, and state erosion control measures, including procedures described in Exhibit V. Specific erosion control measures to be installed during the work on the access roads could include but are not limited to the following:

- **Stabilized Construction Entrance/Exit:** A stabilized construction entrance/exit will be constructed at locations where soil (exposed, disturbed land) or newly constructed roads intersect existing paved roads. Stabilized entrances will also be constructed at the laydown areas. The stabilized construction entrance/exits will be inspected and maintained for the duration of Facility life.
- **Maintain Existing Vegetation:** To the extent practicable, existing vegetation will be preserved.
- **Silt Fencing:** Silt fencing will be installed at various locations throughout the Facility. It will be installed on contour downgradient of all excavations, including construction of the turbine footings. Silt fencing will also be installed downgradient of the operations and maintenance (O&M) facility(s) and collector substations. Silt fencing will be used as perimeter control, and it will be installed around the perimeter of material stockpiles and the perimeter of construction staging areas.
- **Straw Wattles:** Straw wattles may be installed to decrease the velocity of sheet flow stormwater. The wattles will be used along the downgradient edge of access roads adjacent to slopes or sensitive areas.
- **Mulching:** Mulch will be provided to immediately stabilize soil exposed as a result of land-disturbing activities. Mulch will also be used during the reseeding of disturbed areas.
- **Stabilization Matting:** Jute matting, straw matting, or turf reinforcement matting may be used to stabilize slopes that could become exposed during installation of access roads, or to stabilize intermittent streams disturbed during construction of road crossings. The use of erosion control matting, along with revegetation techniques, will allow for stabilization.
- **Soil Binders and Tackifiers:** Soil binders and tackifiers may be used on exposed slopes to stabilize them until vegetation is established.
- **Concrete Washout Area:** Concrete chutes and trucks will be washed out in dedicated areas near the turbine foundation construction area. Soil from the concrete washout area will be backfilled with the stockpiled soil over the completed footing to ensure that the surface soils maintain infiltration capacity. Concrete washout will be handled via this method to prevent concrete washout water from leaving a localized area, and to ensure that the restored surface soil maintains positive infiltration.
- **Stockpile Management:** To facilitate installation of the turbine footings, large excavations may be created. The soil from these excavations will be temporarily stockpiled and used as backfill at the completion of the footing. While the material is stockpiled, silt fencing will be used as perimeter control, and the stockpiled material will be covered with a thick layer of mulch or with plastic sheeting that is adequately anchored.

- **Revegetation:** At the completion of land-disturbing activities, the site will be revegetated with an approved seed mix. The seed mix will be applied with mulch to protect the seeds as the grass establishes.
- **Check Dams and Sediment Traps:** Check dams and sediment traps will be used during the construction of low-impact ford crossings or culvert installations. The check dams and sediment traps will minimize downstream sedimentation during construction of the stream crossings.
- **Pollutant Management:** During construction, source control measures will be implemented to reduce the potential of chemical pollution to surface water or groundwater during construction. Chemical pollution could occur as a release of diesel fuel or lubricating oils, or from improper debris and waste handling. All fuels and oils will be stored in a dedicated area, and construction vehicles will be fueled and maintained only in dedicated areas. All handling, storage, and disposal of materials will be consistent with federal, state, and local ordinances, and in a manner that will not cause stormwater contamination.

Final Design Geotechnical Exploration. A detailed geotechnical exploration of the Facility will be conducted prior to construction. The exploration will assess subsurface soil and geologic conditions, and provide information that will be used to identify geological or geotechnical hazards and facilitate design of turbine foundations and foundations of other related and supporting facilities. The exploration will also provide data for the installation of underground collector cables and overhead collector lines and transmission line.

H.11 CONCLUSION

The risk of seismic hazards to human safety at the proposed Facility is low. The Applicant has adequately characterized the site in accordance with OAR 345-022-0020(1)(a) and considered seismic events and amplification for the Facility's specific soil profile. The Facility will include improved roadways, wind turbine towers, and underground collector cables. There will be no continually staffed facilities other than the Facility office (O&M building); in general, the area is used for agriculture or cattle grazing and is sparsely populated. As a result, the probability of a large seismic event occurring while the Facility is occupied is much lower than for a normal building or similar facility. This very low probability results in minimal risk to human safety. Therefore, because this is a wind power generation Facility in a sparsely populated area, and not a more critical structure (such as a petroleum pipeline or an earth dam), the risks to human safety related to seismic hazards are minimal.

Further, the Applicant has demonstrated in accordance with OAR 345-022-0020(1)(b) that the Facility can be designed, engineered, and constructed to avoid dangers to human safety in case of a design seismic event by adhering to IBC requirements. These standards require that under the design earthquake, the factors of safety used in design exceed certain values. For example, in the case of slope design, a factor of safety of at least 1.1 is normally required during the evaluation of seismic stability. This factor of safety is introduced to account for uncertainties in the design process and to ensure that

performance is acceptable. In the event that factors of safety for slope stability are not met, the Facility components will either be relocated or else remedial measures to improve slope stability will be implemented. For slope stability, the remedial measures could include use of ground improvement methods (such as retaining structures) to limit the movement to acceptable levels. Given the relatively low level of risk for the Facility, adherence to the IBC requirements will ensure that appropriate protection measures for human safety are met.

The Applicant has provided appropriate site-specific information and demonstrated in accordance with OAR 345-022-0020(1)(c) that the construction and operation of the proposed Facility, in the absence of a seismic event, will not adversely affect or aggravate the geological or soil conditions of the Facility site or vicinity. The risks posed by nonseismic geologic hazards are generally considered to be low because the Facility components will be located on relatively flat plateau and stable uplands. The primary landslide hazard is on slopes, upon which no structures will be placed.

Soil erosion hazards that could result from water and wind action will be minimized with the implementation of an engineered erosion control plan. Finally, the Applicant has demonstrated pursuant to OAR 345-022-0020(1)(d) that the Facility can be designed, engineered, and constructed to avoid dangers to human safety resulting from the geological and soil hazards of the site. Site-specific studies have been conducted, additional geotechnical investigation and analysis will be performed once the final locations of the turbines are selected, and adequate measures will be implemented to control erosion. Accordingly, given the relatively small risks these hazards pose to human safety, standard methods of practice—including implementation of the current IBC—will be adequate for the design and construction of the Facility.

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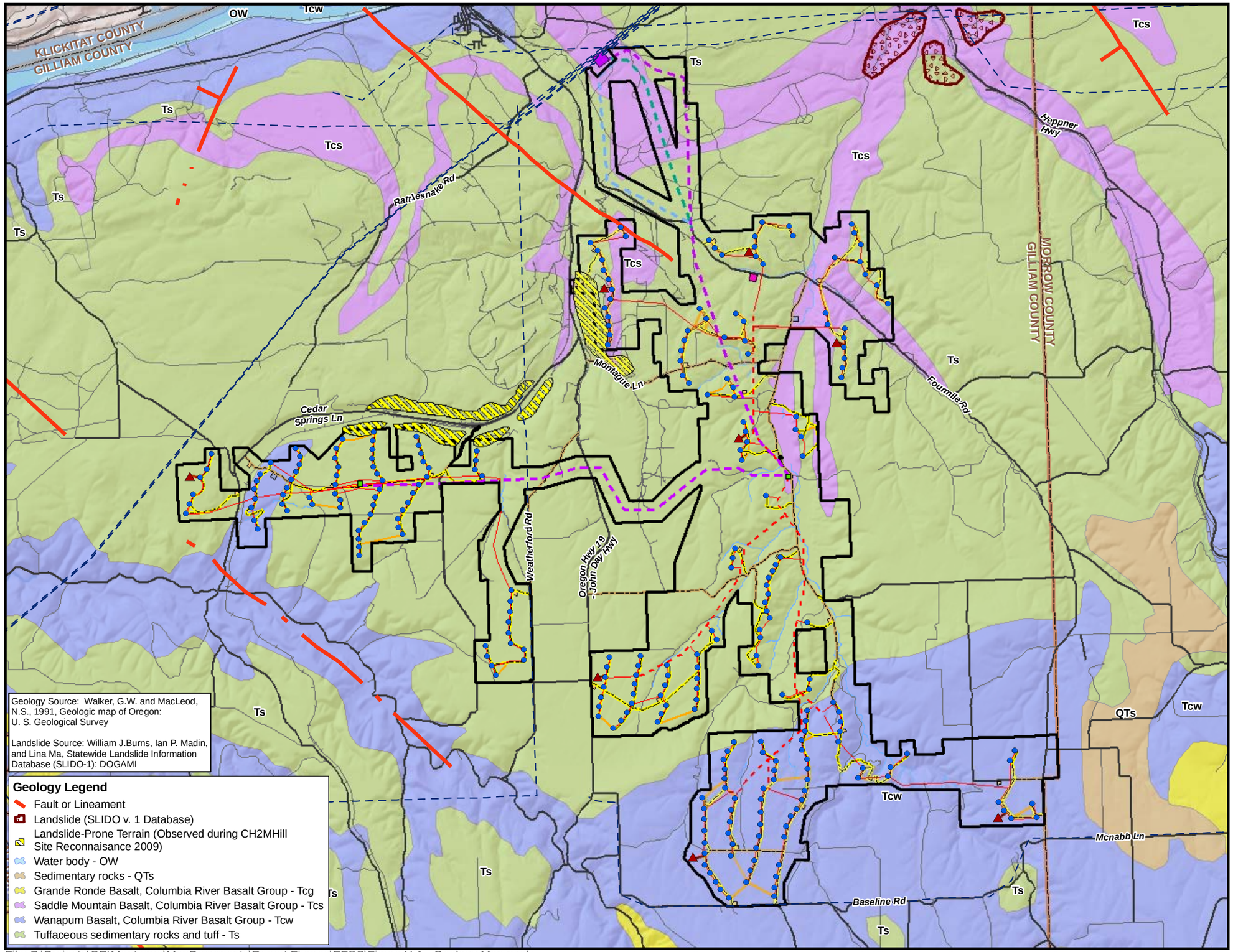
Figures

Figure H-1

Geology Map

1.5-MW Turbine Layout
(Maximum Turbine Layout)

Montague Wind Power Facility



Geology Source: Walker, G.W. and MacLeod, N.S., 1991, Geologic map of Oregon: U. S. Geological Survey

Landslide Source: William J.Burns, Ian P. Madin, and Lina Ma, Statewide Landslide Information Database (SLIDO-1): DOGAMI

Geology Legend

- Fault or Lineament
- Landslide (SLIDO v. 1 Database)
- Landslide-Prone Terrain (Observed during CH2MHill Site Reconnaisance 2009)
- Water body - OW
- Sedimentary rocks - QTs
- Grande Ronde Basalt, Columbia River Basalt Group - Tcg
- Saddle Mountain Basalt, Columbia River Basalt Group - Tcs
- Wanapum Basalt, Columbia River Basalt Group - Tcw
- Tuffaceous sedimentary rocks and tuff - Ts

- Site Boundary/Micrositing Corridor

Proposed Permanent Facilities

- Proposed Turbine
- Proposed Met Tower
- Proposed New Turbine Road
- Proposed New Met Tower Road
- Proposed Improved Road
- Proposed Underground 34.5-kV Line
- Proposed Overhead 34.5-kV Line
- Proposed 230-kV Transmission Line
- Alternate 1 230-kV Transmission Line
- Alternate 2 230-kV Transmission Line
- Proposed 5-Acre Facility Collector Substation
- Proposed 10-Acre O&M Facility and Staging Area
- Alternate 10-Acre O&M Facility and Staging Area

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2.5-Acre Staging Area
- Proposed 5-Acre Staging Area

Existing Facilities

- Existing Transmission Line
- Public Road
- Private Road
- Major Railroad Line
- Streams
- State Boundary
- BPA Slatt Interconnection Substation
- County Boundary

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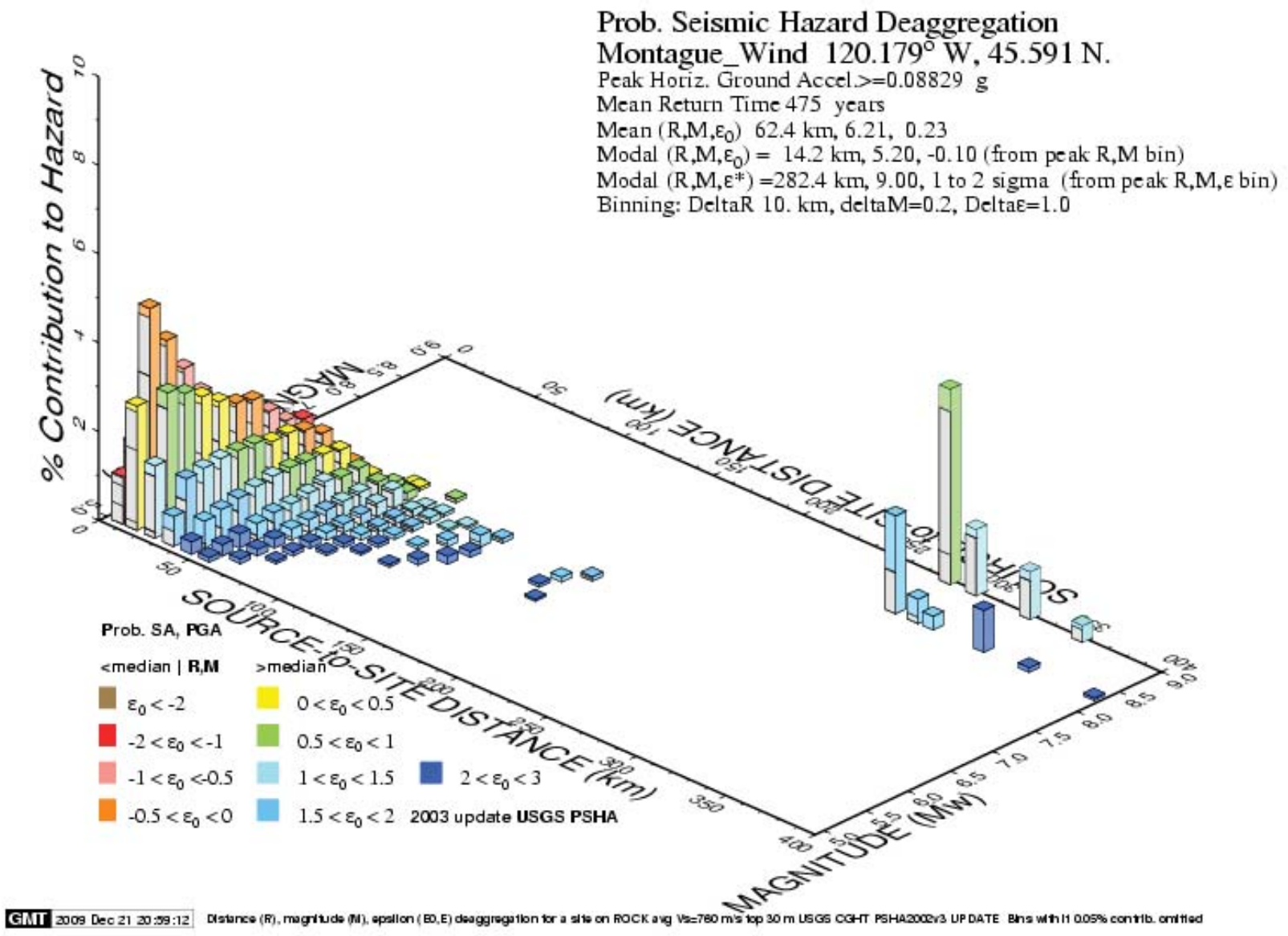

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FIGURE H-2

Probabilistic Seismic Hazard Deaggregation—475-Year Return Time

MONTAGUE WIND POWER FACILITY

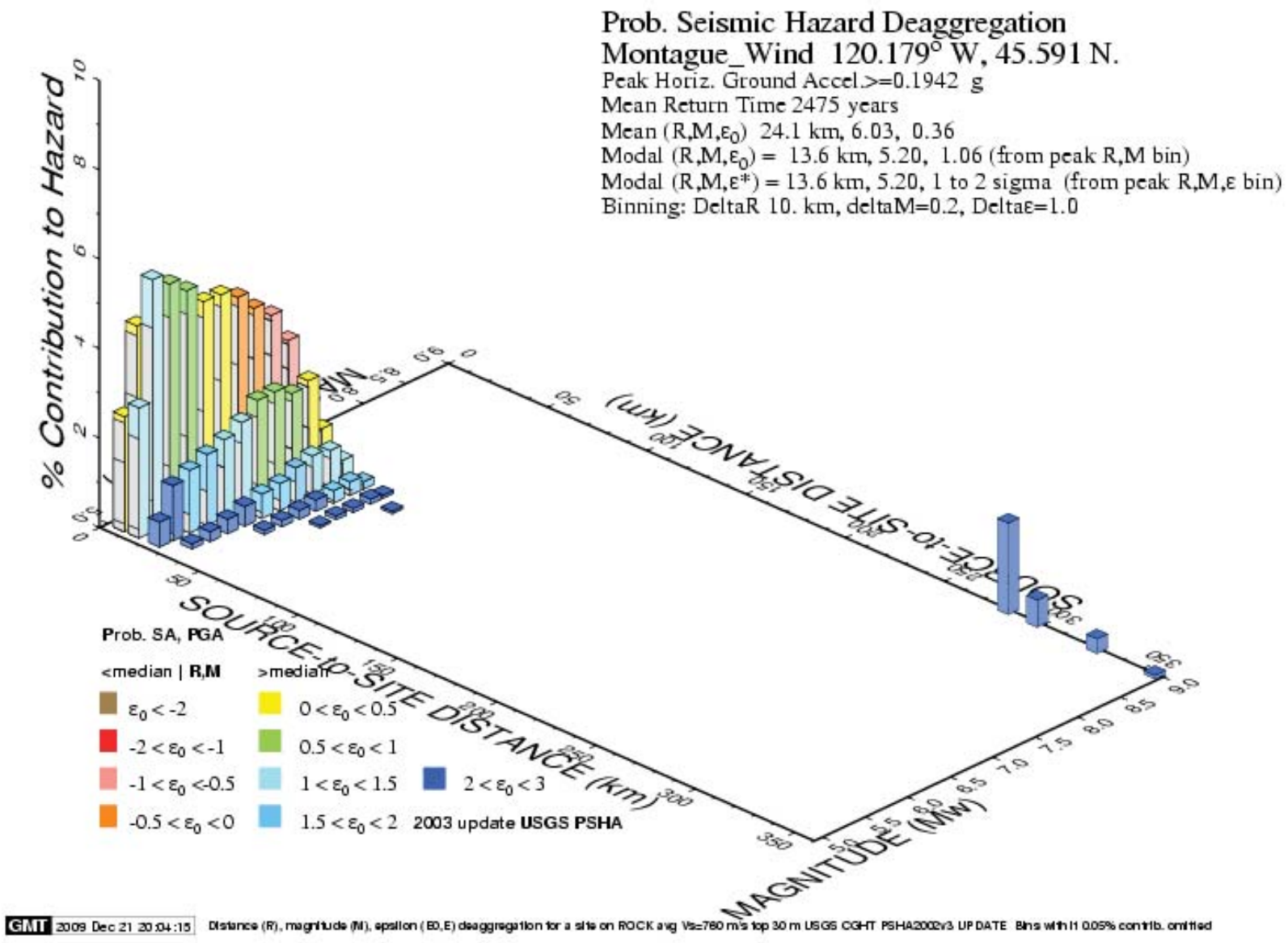

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FIGURE H-3
Geographic Deaggregation Seismic Hazard—475-Year Return Time
MONTAGUE WIND POWER FACILITY

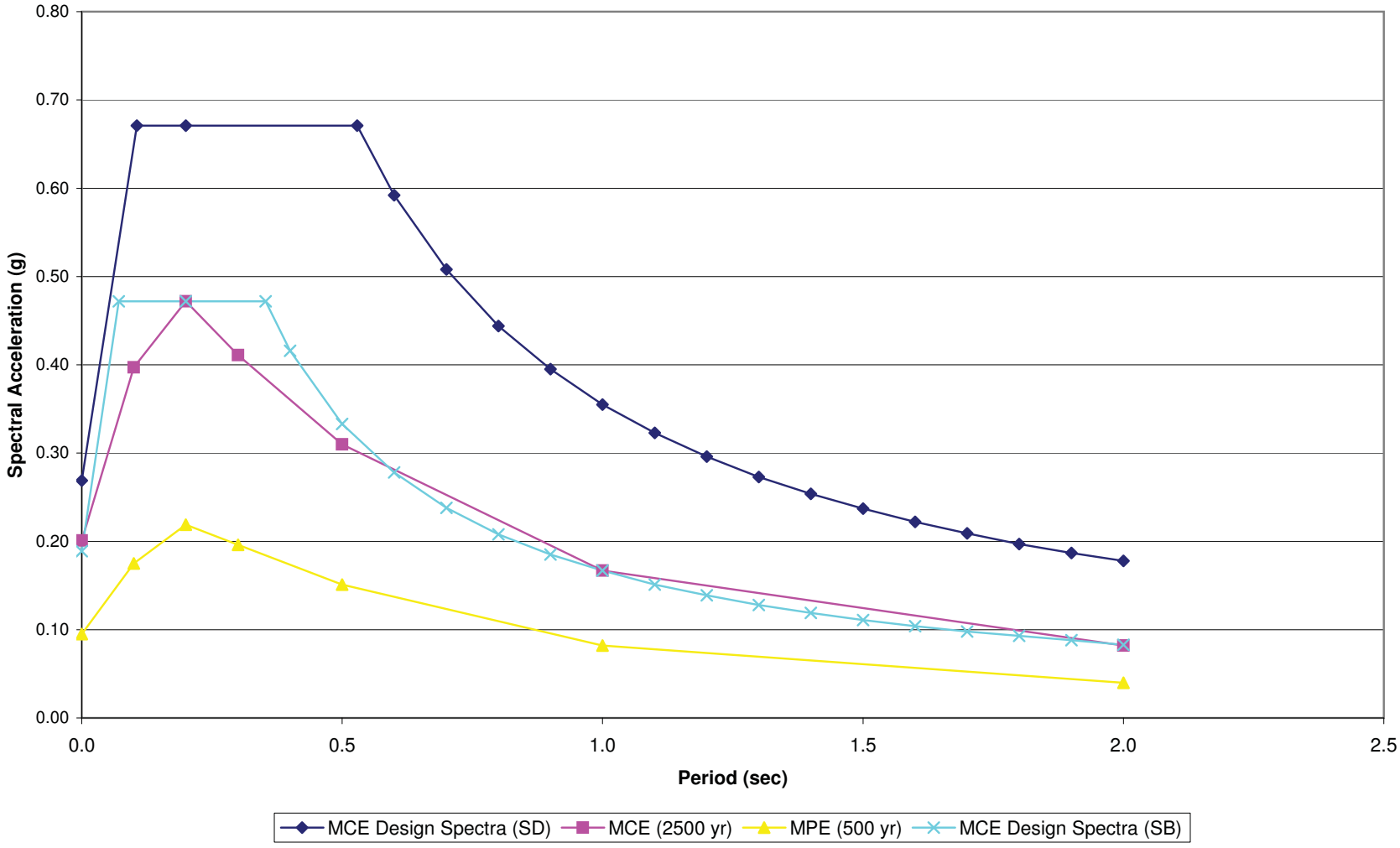

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FIGURE H-4
Ground Response Spectra
MONTAGUE WIND POWER FACILITY