

Exhibit W Retirement

Boardman to Hemingway Transmission Line Project



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Amended Preliminary Application for Site Certificate

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LIST OF ATTACHMENTS

Attachment W-1. Facilities Removal and Site Restoration Cost Estimate

ACRONYMS AND ABBREVIATIONS

Amended Project Order	First Amended Project Order, Regarding Statutes, Administrative Rules and Other Requirements Applicable to the Proposed Boardman to Hemingway Transmission Line (December 22, 2014)
EFSC or Council	Energy Facility Siting Council
IPC	Idaho Power Company
OAR	Oregon Administrative Rules
ODOE	Oregon Department of Energy
Project	Boardman to Hemingway Transmission Line Project

1 **Exhibit W**
2 **Retirement**

3 **1.0 INTRODUCTION**

4 Exhibit W demonstrates the Boardman to Hemingway Transmission Line Project (Project) site,
5 taking into account mitigation, can be restored adequately to a useful, non-hazardous condition.
6 High-voltage transmission lines, including the Project, are designed and maintained to remain in
7 service in perpetuity. For this reason, it is highly unlikely the Project would ever be retired.
8 Nevertheless, Exhibit W describes the actions necessary to restore the Project site in the
9 unlikely event the Project is retired. Further, Exhibit W provides a financial analysis of the costs
10 associated with such site restoration.

11 **2.0 APPLICABLE RULES AND AMENDED PROJECT ORDER**
12 **PROVISIONS**

13 **2.1 General Standards for Siting Facilities**

14 The Retirement Standard set forth at Oregon Administrative Rules (OAR) 345-022-0050(1)
15 requires that:

16 *The site, taking into account mitigation, can be restored adequately to a useful, non-*
17 *hazardous condition following permanent cessation of construction or operation of the*
18 *facility.*

19 **2.2 Site Certificate Application Requirements**

20 OAR 345-021-0010(1)(w) provides Exhibit W must include the following information about site
21 restoration:

22 *(A) The estimated useful life of the proposed facility.*

23 *(B) Specific actions and tasks to restore the site to a useful, non-hazardous condition.*

24 *(C) An estimate, in current dollars, of the total and unit costs of restoring the site to a*
25 *useful, non-hazardous condition.*

26 *(D) A discussion and justification of the methods and assumptions used to estimate site*
27 *restoration costs.*

28 *(E) For facilities that might produce site contamination by hazardous materials, a*
29 *proposed monitoring plan, such as periodic environmental site assessment and*
30 *reporting, or an explanation why a monitoring plan is unnecessary.*

31 **2.3 Amended Project Order Provisions**

32 The Amended Project Order includes the following discussion:

33 *The application shall provide an estimate of retirement costs, including a detailed*
34 *explanation and justification of the methodology it uses to estimate retirement costs. The*
35 *estimated retirement costs should include, but not be limited to information related to all*
36 *facility components. The underlying details regarding the estimated retirement costs for*
37 *the facility components can be included in Exhibit B or in Exhibit W of the application, but*

1 *Exhibit W must clearly articulate the methodology and results. The department will*
 2 *engage expert review of the proposed methodology and the calculations resulting from*
 3 *that methodology.*

4 *The Council's¹ Retirement Standard also requires evidence that the site can be restored,*
 5 *following facility retirement, to a useful and non-hazardous condition consistent with*
 6 *site's zoning. For example, where the proposed transmission line is sited on Exclusive*
 7 *Farm Use land, the application must include evidence that the site can be restored to a*
 8 *condition suitable for the agricultural use prevalent in the surrounding vicinity.*

9 (Amended Project Order, Section III(w)).

10 **3.0 ANALYSIS**

11 **3.1 Estimated Useful Life**

12 OAR 345-021-0010(1)(w)(A): The applicant shall include: the estimated useful life of the
 13 proposed facility.

14 As a general matter and with respect to the Project, Idaho Power Company (IPC) designs,
 15 constructs, and operates its transmission system with the intent that the system's transmission
 16 lines and related facilities (including stations) will remain in service in perpetuity. Over time, and
 17 as necessary, transmission line components and related facilities may be rebuilt using new
 18 materials and hardware. However, the transmission projects as a whole are expected to be
 19 operated, in order to provide reliable and safe transmission capacity, for an indefinitely long
 20 duration.

21 IPC's estimate regarding the perpetually useful life of the Project is based on the company's
 22 experience as well as research regarding other utility companies' operations. IPC has never
 23 retired any transmission line. Moreover, IPC has found such retirements are extremely rare
 24 throughout the industry—occurring only when a line is rerouted. Given the high demand for
 25 transmission services, the high cost of building new transmission lines, and the intrinsic value of
 26 transmission rights-of-way, it virtually never makes sense to retire a transmission line project.

27 Accordingly, IPC estimates that the Project will have a perpetual useful life. To the extent the
 28 Council requires IPC to identify a more definite timeframe, IPC estimates that the useful life of
 29 the Project will be in excess of 100 years.

30 **3.2 Site Restoration Activities**

31 OAR 345-021-0010(1)(w)(B): Specific actions and tasks to restore the site to a useful, non-
 32 hazardous condition.

33 OAR 345-022-0050(1): The site, taking into account mitigation, can be restored adequately
 34 to a useful, non-hazardous condition following permanent cessation of construction or
 35 operation of the facility.

36 In the unlikely event IPC is required to retire the Project, it will do so in accordance with an
 37 EFSC-approved retirement plan, as required by OAR 345-027-0020(9). The retirement plan
 38 would include, pursuant to OAR 345-027-0110(5), the following information:

39 *(a) A plan for retirement that provides for completion of retirement without significant*
 40 *delay and that protects public health, safety and the environment.*

¹ Energy Facility Siting Council (EFSC or Council)

1 (b) A description of actions the certificate holder proposes to take to restore the site to a
2 useful, non-hazardous condition, including information on how impacts to fish, wildlife
3 and the environment would be minimized during the retirement process.

4 (c) A current detailed cost estimate and a plan for ensuring the availability of adequate
5 funds for completion of retirement.

6 (d) An updated list of the owners of property located within or adjacent to the site of the
7 facility, as described in OAR 345-021-0010(1)(f).

8 With respect to the actions to be taken to restore the site, the retirement plan will provide for,
9 among other things, the following:

- 10 • Removal of all facilities. For the transmission line, these facilities include all support
11 structures, conductors, overhead shield wires, and communication sites. For the station,
12 these facilities include an interconnecting bus system, switches, breakers, and
13 instrumentation for the control and protection of the equipment.
- 14 • Removal of the foundations for each support structure to a depth of one (1) foot below
15 grade, depending on ground slope. Any foundations in Exclusive Farm Use zoned lands
16 will be removed to a depth 3 feet below grade.
- 17 • Restoration of all structure locations and access roads to a useful, non-hazardous
18 condition consistent with site zoning, including Exclusive Farm Use zoning (see Exhibit
19 K, Attachment K-1 for the Agricultural Mitigation Plan). This restoration will include
20 restoring the site to a condition suitable for uses comparable with the surrounding land
21 uses, intended land use, and then-current technologies.

22 To ensure the Project site, taking into account mitigation, can be restored adequately to a
23 useful, non-hazardous condition following permanent cessation of construction or operation of
24 the facility, IPC proposes that the Council include the following conditions in the site certificate
25 providing for the same:

26 ***Retirement and Financial Assurances Condition 1:*** Throughout the life of the
27 Project, the site certificate holder shall prevent the development of any conditions
28 on the site that would preclude restoration of the site to a useful, non-hazardous
29 condition to the extent that prevention of such site conditions is within the control
30 of the certificate holder.

31 ***Retirement and Financial Assurances Condition 4:*** During retirement, the site
32 certificate holder must retire the facility in accordance with a retirement plan
33 approved by the Council if the site certificate holder permanently ceases
34 construction or operation of the facility. The retirement plan must describe the
35 activities necessary to restore the site to a useful, non-hazardous condition, as
36 described in OAR 345-027-0110(5). After Council approval of the plan, the
37 certificate holder must obtain the necessary authorization from the appropriate
38 regulatory agencies to proceed with restoration of the site.

39 ***Retirement and Financial Assurances Condition 5:*** During retirement, the site
40 certificate holder is obligated to retire the facility upon permanent cessation of
41 construction or operation. If the Council finds that the certificate holder has
42 permanently ceased construction or operation of the facility without retiring the
43 facility according to a final retirement plan approved by the Council, as described
44 in OAR 345-027-0110, the Council must notify the certificate holder and request
45 that the certificate holder submit a proposed final retirement plan to the
46 department within a reasonable time not to exceed 90 days. If the certificate

1 holder does not submit a proposed final retirement plan by the specified date, the
2 Council may direct the department to prepare a proposed final retirement plan for
3 the Council's approval.

4 Upon the Council's approval of the final retirement plan, the Council may draw on
5 the bond or letter of credit described in OAR 345-027-0020(8) to restore the site
6 to a useful, non-hazardous condition according to the final retirement plan, in
7 addition to any penalties the Council may impose under OAR Chapter 345,
8 Division 29. If the amount of the bond or letter of credit is insufficient to pay the
9 actual cost of retirement, the certificate holder must pay any additional cost
10 necessary to restore the site to a useful, non-hazardous condition. After
11 completion of site restoration, the Council must issue an order to terminate the
12 site certificate if the Council finds that the facility has been retired according to
13 the approved final retirement plan.

14 In Exhibit M, IPC shows that it has a reasonable likelihood of obtaining a bond or letter of credit
15 in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous
16 condition. To ensure such financial assurances are in place, IPC proposes that the Council
17 include the following conditions in the site certificate providing for the same:

18 **Retirement and Financial Assurances Condition 2:** During construction, the
19 site certificate holder shall submit to the State of Oregon, through the Council, a
20 bond or letter of credit naming the State of Oregon, acting by and through the
21 Council, as beneficiary or payee. The bond or letter of credit, which may be
22 issued by one or more financial institutions, shall remain in effect during the
23 Construction Phase.

24 a. For purposes of this condition, the "Construction Phase" is defined as the
25 period commencing at the time work is performed on the site the cost of which
26 exceeds \$250,000—excluding surveying, exploration, or other activities to define
27 or characterize the site—and ending when the facility is placed in service.

28 b. The amount of the bond or letter of credit will be increased on a quarterly basis
29 to correspond with the progress of the construction of the facility at the beginning
30 of each quarter. The amount of the bond or letter of credit at the beginning of any
31 such quarterly period will be equal to the product of (i) the site certificate holder's
32 estimate of the total decommissioning costs for the facility, which is
33 \$140,902,000; and (ii) a fraction, the numerator of which is the number of
34 quarters that have passed since commencement of construction, and the
35 denominator of which will be the number of quarters the site certificate holder
36 estimates to complete the Construction Phase; provided that in all cases the
37 number resulting from the calculation shall not exceed 1.0.

38 c. To begin with, the site certificate holder and the department shall assume a 3-
39 year Construction Phase period comprising twelve quarterly periods. Therefore,
40 for the first quarter of the Construction Phase, the bond or letter of credit will be
41 maintained in an amount equal to one-twelfth (1/12) of the total estimated
42 decommissioning costs. At the end of the first year of construction—i.e., four
43 quarters—the amount of the bond or letter of credit will be equal to four-twelfths
44 (4/12) or 33 percent of the total estimated decommissioning costs.

45 d. The amount of the bond or letter of credit may be amended from time to time
46 by agreement of the site certificate holder and the department to account for
47 adjustments in the construction schedule. Such amendments may be made
48 without amendment to the site certificate. The Council authorizes the department
49 to agree to amendments of the amount; however, the Council retains the

1 authority to approve, reject, or modify any amendment of the plan agreed to by
2 the department.

3 **Retirement and Financial Assurance Condition 3:** During operation, the site
4 certificate holder shall submit to the State of Oregon, through the Council, a bond
5 or letter of credit naming the State of Oregon, acting by and through the Council,
6 as beneficiary or payee. The timing and amount of the bond or letter of credit,
7 which may be issued by one or more financial institutions, shall be based on
8 certain factors, as described in sub-paragraphs (a) through (c) of this condition.

9 a. On the date that the facility is placed in service (the "In-Service Date"), the site
10 certificate holder's obligation under Financial Assurance Condition 1 to maintain
11 a bond or letter of credit will terminate and need not be renewed until required
12 under sub-paragraphs (b) and (c) of this condition.

13 b. On the fiftieth anniversary of the In-Service Date, the certificate holder shall
14 obtain and begin maintaining a bond or letter of credit in an amount that will
15 increase on an annual basis for the next 50 years. In year 51, the amount of the
16 bond or letter of credit will be set at one-fiftieth (1/50) of the total estimated
17 decommissioning costs. Each year, through the 100th year of service, the bond
18 or letter of credit will be increased by one-fiftieth (1/50) of the estimated
19 decommissioning costs. For instance, in year 75, the bond or letter of credit will
20 be maintained in an amount equal to twenty-five fiftieths (25/50) or 50 percent of
21 the estimated decommissioning costs. Once the bond or letter of credit is in an
22 amount equal to 100 percent of decommissioning costs, it will remain at that level
23 for the life of the facility.

24 c. On the fifth anniversary of the In-Service Date, and on each subsequent
25 quinquennial thereafter, the certificate holder will report to the Council on the
26 following subjects: (i) the physical condition of the facility; (ii) any evolving
27 transmission or electrical technologies that could impact the continued viability of
28 the facility; (iii) the facility's performance in the context of the larger power grid;
29 and (iv) the certificate holder's general financial condition, including the certificate
30 holder's then-current credit rating. Based on the information provided in such
31 reports, or any other information received by the Council, EFSC will consider
32 whether the certificate holder should be required to post a bond or letter of
33 credit—other than the financial assurances set forth in sub-paragraph (b) of this
34 condition—and may make any appropriate order to enforce its determination.
35 This shall include the ability of EFSC to extend the date on which the certificate
36 holder would be required to begin posting the financial assurances set forth in
37 sub-paragraph (b) of this condition.

38 3.3 Site Restoration Costs

39 OAR 345-021-0010(1)(w)(C): An estimate, in current dollars, of the total and unit costs of
40 restoring the site to a useful, non-hazardous condition.

41 IPC estimates that the total costs of restoring the site to a useful, non-hazardous condition is
42 \$140,902,000 in fourth quarter 2016 dollars. A copy of the analysis supporting this calculation is
43 attached as Attachment W-1.

3.4 Restoration Cost Estimate Methods and Assumptions

OAR 345-021-0010(1)(w)(D): A discussion and justification of the methods and assumptions used to estimate site restoration costs.

To develop the site restoration cost estimate, IPC used the Oregon Department of Energy's (ODOE) Facility Retirement Cost Estimating Guide for Transmission Lines. Projected site restoration costs are summarized in Attachment W-1, based on the following assumptions:²

- Mobilization and demobilization costs is estimated to be approximately 5 percent of the overall contractor's costs to remove wire, towers, and foundations and complete project restoration.
- Unit costs were developed by determining a loaded crew rate per hour for the given activity. Loaded crew rates include wages and benefits, per diem, equipment rates, contractor overheads, and profit. Hours or days per removal of a given unit were then established for the removal of wire, structures, and foundations. Crew rates and wages were developed from MS Means standard crews.
- Regarding access roads, the majority of IPC's access roads will be primitive (non-graveled) overland travel roads, and the restoration cost estimate assumes that, over the life of the Project, the access roads will see a regrowth of vegetation adjacent to and within the traveled way. As needed, vegetation management of these roads may include mowing with a brush hog or similar piece of equipment to reduce fire danger. Existing drainages may be altered and new drainages may develop depending on the location and construction of the roads. IPC's analysis assumes that regrading or reshaping of the roads to match previous land contours would create much more impact than leaving them as they have existed throughout the service life of the transmission line. For these reasons, the restoration cost for the access roads includes reseeding of the roads. The estimated cost of \$2,000 per acre for restoration and reseeding on rolling terrain was received from a national right-of-way clearing, road building, and restoration contractor.
- Graveled access roads will be built only where soil and/or moisture conditions warrant construction of a more robust road section, such as access roads to communication stations. The estimated decommissioning cost for gravelled access roads is \$5,700 per acre.
- Roads would be restored pursuant to the EFSC-approved retirement plan so that they become a part of the natural surroundings and are no longer recognizable or usable as a road.
- Costs associated with contractor staff are included in Attachment W-1, under "Project Overhead." This analysis assumes there would be three supervisors and three clerical staff working full time during the retirement/restoration project. The analysis also includes security guard services at three different material yards where scrap materials would be stored until hauled away. Job trailers and utilities are also included.
- Several other miscellaneous costs have been approximated, including permits, engineering, signage, fencing, traffic control, communication station removal, utility disconnects, etc. In the context of the overall estimate, these are incidental costs making up around 5 percent of the total.

² Where IPC used assumptions that differed from the assumptions contained in ODOE's Cost Estimating Guide for Transmission Lines workbook, IPC noted the assumptions in the "Methods/Assumptions" column.

- 1 • The overhead and profit adders, 10 percent and 15 percent, respectively, have been
2 included in loaded crew rates and are consistent with current contractor overheads and
3 profits.
- 4 • Lastly, the decommissioning estimate does not include the removal or restoration of the
5 Hemingway Station, the 230-kilovolt line segment, or the 138-kilovolt line segment,
6 because each is part of the larger transmission grid still required for normal transmission
7 operations even if the Project were to be removed from service.

8 **3.5 Monitoring Plan for Hazardous Materials Is Unnecessary**

9 OAR 345-021-0010(1)(w)(E): For facilities that might produce site contamination by
10 hazardous materials, a proposed monitoring plan, such as periodic environmental site
11 assessment and reporting, or an explanation why a monitoring plan is unnecessary.

12 For facilities that “might produce site contamination by hazardous materials,” the Council may
13 require periodic monitoring or environmental site assessment to ensure that the contamination
14 issues do not develop. For the reasons described in greater detail in in Exhibit G, the Project is
15 not a facility likely to produce site contamination by hazardous materials. Accordingly, IPC
16 requests that the Council find that, in the unlikely event of retirement of the Project, IPC will be
17 able to restore the site to a useful, non-hazardous condition.

18 The Project is not likely to cause site contamination by hazardous materials because the
19 hazardous materials to be employed during Project construction and operation are limited to oils
20 in transformers at the station, propane tanks at communication sites, and small quantities of
21 lubricants, vehicle fuels, and herbicides used during Project construction and maintenance. A
22 Spill Prevention, Control, and Countermeasures Plan will be developed by the Engineering,
23 Procurement, and Construction contractor and submitted to ODOE prior to commencing
24 construction of the Project. The Spill Prevention, Control, and Countermeasures Plan is
25 developed to prevent and address any leakage or spills of these materials that may occur during
26 construction and operations of the Project. Additionally, IPC will fully comply with Oregon
27 Department of Environmental Quality requirements for storage of hazardous materials and
28 cleanup and disposal of hazardous waste on all lands associated with the Project. Given the
29 limited quantities of hazardous materials that will be used for the Project, site contamination is
30 highly unlikely and therefore a monitoring plan is unnecessary.

31 **4.0 IDAHO POWER’S PROPOSED SITE CERTIFICATE CONDITIONS**

32 IPC proposes the following site certificate conditions to ensure compliance with the relevant
33 EFSC standards.

34 **Throughout the Life of the Project**

35 ***Retirement and Financial Assurances Condition 1:*** *Throughout the life of the*
36 *Project, the site certificate holder shall prevent the development of any conditions*
37 *on the site that would preclude restoration of the site to a useful, non-hazardous*
38 *condition to the extent that prevention of such site conditions is within the control*
39 *of the certificate holder.*

40 **During Construction**

41 ***Retirement and Financial Assurance Condition 2:*** *During construction, the*
42 *site certificate holder shall submit to the State of Oregon, through the Council, a*
43 *bond or letter of credit naming the State of Oregon, acting by and through the*

1 Council, as beneficiary or payee. The bond or letter of credit, which may be
2 issued by one or more financial institutions, shall remain in effect during the
3 Construction Phase.

4 a. For purposes of this condition, the “Construction Phase” is defined as the
5 period commencing at the time work is performed on the site the cost of which
6 exceeds \$250,000—excluding surveying, exploration, or other activities to define
7 or characterize the site—and ending when the facility is placed in service.

8 b. The amount of the bond or letter of credit will be increased on a quarterly basis
9 to correspond with the progress of the construction of the facility at the beginning
10 of each quarter. The amount of the bond or letter of credit at the beginning of any
11 such quarterly period will be equal to the product of (i) the site certificate holder’s
12 estimate of the total decommissioning costs for the facility, which is
13 \$140,902,000; and (ii) a fraction, the numerator of which is the number of
14 quarters that have passed since commencement of construction, and the
15 denominator of which will be the number of quarters the site certificate holder
16 estimates to complete the Construction Phase; provided that in all cases the
17 number resulting from the calculation shall not exceed 1.0.

18 c. To begin with, the site certificate holder and the department shall assume a 3-
19 year Construction Phase period comprising twelve quarterly periods. Therefore,
20 for the first quarter of the Construction Phase, the bond or letter of credit will be
21 maintained in an amount equal to one-twelfth (1/12) of the total estimated
22 decommissioning costs. At the end of the first year of construction—i.e., four
23 quarters—the amount of the bond or letter of credit will be equal to four-twelfths
24 (4/12) or 33 percent of the total estimated decommissioning costs.

25 d. The amount of the bond or letter of credit may be amended from time to time
26 by agreement of the site certificate holder and the department to account for
27 adjustments in the construction schedule. Such amendments may be made
28 without amendment to the site certificate. The Council authorizes the department
29 to agree to amendments of the amount; however, the Council retains the
30 authority to approve, reject, or modify any amendment of the plan agreed to by
31 the department.

32 **During Operation**

33 **Retirement and Financial Assurance Condition 3:** During operation, the site
34 certificate holder shall submit to the State of Oregon, through the Council, a bond
35 or letter of credit naming the State of Oregon, acting by and through the Council,
36 as beneficiary or payee. The timing and amount of the bond or letter of credit,
37 which may be issued by one or more financial institutions, shall be based on
38 certain factors, as described in sub-paragraphs (a) through (c) of this condition.

39 a. On the date that the facility is placed in service (the “In-Service Date”), the site
40 certificate holder’s obligation under Financial Assurance Condition 1 to maintain
41 a bond or letter of credit will terminate and need not be renewed until required
42 under sub-paragraphs (b) and (c) of this condition.

43 b. On the fiftieth anniversary of the In-Service Date, the certificate holder shall
44 obtain and begin maintaining a bond or letter of credit in an amount that will
45 increase on an annual basis for the next 50 years. In year 51, the amount of the
46 bond or letter of credit will be set at one-fiftieth (1/50) of the total estimated
47 decommissioning costs. Each year, through the 100th year of service, the bond
48 or letter of credit will be increased by one-fiftieth (1/50) of the estimated
49 decommissioning costs. For instance, in year 75, the bond or letter of credit will
50 be maintained in an amount equal to twenty-five fiftieths (25/50) or 50 percent of
51 the estimated decommissioning costs. Once the bond or letter of credit is in an

1 amount equal to 100 percent of decommissioning costs, it will remain at that level
2 for the life of the facility.

3 c. On the fifth anniversary of the In-Service Date, and on each subsequent
4 quinquennial thereafter, the certificate holder will report to the Council on the
5 following subjects: (i) the physical condition of the facility; (ii) any evolving
6 transmission or electrical technologies that could impact the continued viability of
7 the facility; (iii) the facility's performance in the context of the larger power grid;
8 and (iv) the certificate holder's general financial condition, including the certificate
9 holder's then-current credit rating. Based on the information provided in such
10 reports, or any other information received by the Council, EFSC will consider
11 whether the certificate holder should be required to post a bond or letter of
12 credit—other than the financial assurances set forth in sub-paragraph (b) of this
13 condition—and may make any appropriate order to enforce its determination.
14 This shall include the ability of EFSC to extend the date on which the certificate
15 holder would be required to begin posting the financial assurances set forth in
16 sub-paragraph (b) of this condition.

17 **During Retirement**

18 **Retirement and Financial Assurances Condition 4:** During retirement, the site
19 certificate holder must retire the facility in accordance with a retirement plan
20 approved by the Council if the site certificate holder permanently ceases
21 construction or operation of the facility. The retirement plan must describe the
22 activities necessary to restore the site to a useful, non-hazardous condition, as
23 described in OAR 345-027-0110(5). After Council approval of the plan, the
24 certificate holder must obtain the necessary authorization from the appropriate
25 regulatory agencies to proceed with restoration of the site.

26 **Retirement and Financial Assurance Condition 5:** During retirement, the site
27 certificate holder is obligated to retire the facility upon permanent cessation of
28 construction or operation. If the Council finds that the site certificate holder has
29 permanently ceased construction or operation of the facility without retiring the
30 facility according to a final retirement plan approved by the Council, as described
31 in OAR 345-027-0110, the Council must notify the site certificate holder and
32 request that the site certificate holder submit a proposed final retirement plan to
33 the department within a reasonable time not to exceed 90 days. If the site
34 certificate holder does not submit a proposed final retirement plan by the
35 specified date, the Council may direct the department to prepare a proposed final
36 retirement plan for the Council's approval.

37 Upon the Council's approval of the final retirement plan, the Council may draw on
38 the bond or letter of credit described in OAR 345-027-0020(8) to restore the site
39 to a useful, non-hazardous condition according to the final retirement plan, in
40 addition to any penalties the Council may impose under OAR Chapter 345,
41 Division 29. If the amount of the bond or letter of credit is insufficient to pay the
42 actual cost of retirement, the site certificate holder must pay any additional cost
43 necessary to restore the site to a useful, non-hazardous condition. After
44 completion of site restoration, the Council must issue an order to terminate the
45 site certificate if the Council finds that the facility has been retired according to
46 the approved final retirement plan.

1 5.0 CONCLUSION

2 Exhibit W includes the site restoration information required by OAR 345-021-0010(1)(w) and
 3 establishes that the site, taking into account mitigation, can be restored adequately to a useful,
 4 non-hazardous condition following permanent cessation of construction or operations of the
 5 facility.

6 6.0 COMPLIANCE CROSS-REFERENCES

7 Table W-1 identifies the location within this application for site certificate of the information
 8 responsive to the application submittal requirements in OAR 345-021-0010(1)(w), the
 9 Retirement Standard at OAR 345-022-0050(1), and the relevant Amended Project Order
 10 provisions.

11 **Table W-1. Compliance Requirements and Relevant Cross-References**

Requirement	Location
OAR 345-021-0010(1)(w)	
(w) Exhibit W. Information about site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1). The applicant shall include:	
(A) The estimated useful life of the proposed facility.	Exhibit W, Section 3.1
(B) Specific actions and tasks to restore the site to a useful, non-hazardous condition.	Exhibit W, Section 3.2
(C) An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition.	Exhibit W, Section 3.3 and Attachment W-1
(D) A discussion and justification of the methods and assumptions used to estimate site restoration costs.	Exhibit W, Section 3.4 and Attachment W-1
(E) For facilities that might produce site contamination by hazardous materials, a proposed monitoring plan, such as periodic environmental site assessment and reporting, or an explanation why a monitoring plan is unnecessary.	Exhibit W, Section 3.5
OAR 345-022-0050	
(1) The site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the facility.	Exhibits B, M, and W
Amended Project Order	
The application shall provide an estimate of retirement costs, including a detailed explanation and justification of the methodology it uses to estimate retirement costs. The estimated retirement costs should include, but not be limited to information related to all facility components. The underlying details regarding the estimated retirement costs for the facility components can be included in Exhibit B or in Exhibit W of the application, but Exhibit W must clearly articulate the methodology and results. The department will engage expert review of the proposed methodology and the calculations resulting from that methodology.	Exhibit W, Section 3.3, Section 3.4, and Attachment W-1

Requirement	Location
The Council's Retirement Standard also requires evidence that the site can be restored, following facility retirement, to a useful and non-hazardous condition consistent with site's zoning. For example, where the proposed transmission line is sited on Exclusive Farm Use land, the application must include evidence that the site can be restored to a condition suitable for the agricultural use prevalent in the surrounding vicinity.	Exhibit W, Section 3.2; Exhibit K

**ATTACHMENT W-1
FACILITIES REMOVAL AND SITE RESTORATION COST ESTIMATE**

Grid-Enhancing Electric Transmission Lines

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
1. GENERAL COSTS						
A. PERMITS						
1. DEMOLITION	EA	0	\$0.00	\$0	All permits included in line item cost below	
2. STREET USE	EA	0	\$0.00	\$0	All permits included in line item cost below	
3. UTILITIES	EA	1	\$25,000.00	\$25,000	Pipe line, Rail, crossing and disturbance during decommissioning.	Allocation estimate - \$25K
4. EPA ASBESTOS NOTICE	EA	0	\$0.00	\$0	N/A	
5. PERMITS (Temporary de-construct)	LS	1	\$24,183.12	\$24,183	Miscellaneous permits	Estimated cost to obtain necessary permits.
Task Subtotal				\$49,183		
B. MOBILIZATION & DEMOBILIZATION						
1. LABOR	LS	1	\$2,613,111.57	\$2,613,112	A project of this size is expected to have multiple mobilization costs - approximately 5% of the overall Project Cost. Mobilization split 50% Labor and 50% equipment	Assumes ~2.5% of total construction cost before contingency; Taxes
2. EQUIPMENT	LS	1	\$2,613,111.57	\$2,613,112	See above	Assumes ~2.5% of total construction cost before contingency; taxes
Task Subtotal				\$5,226,223		
C. ENGINEERING						
1. ENGINEERING	HR	1300	\$145.23	\$188,799	Engineering subcontracted by Owner to develop SOW, removal specifications and support Owner during decommissioning.	Assumes 1300 hours of engineering time at average rate of \$145.23/hr.
2. LAYOUT / TESTING	LS	0	\$0.00	\$0	N/A	
3. CUSTOM TOOLS & EQUIP	LS	0	\$0.00	\$0	N/A	
Task Subtotal				\$188,799		
D. PROJECT OVERHEAD						
1. SUPERVISION	WK	78	\$2,475.00	\$193,050	Owner's on-site supervision and inspection during decommissioning.	Assumes weekly burdened rate of \$2475
2. FOREMAN	WK	78	\$2,200.00	\$171,600	Site Engineering	Assumes weekly burdened rate of \$2200
3. GUARD SERVICE (site security)	WK	234	\$4,624.00	\$1,082,016	Third party guard service for equipment and materials at project salvage yards.	Assumes 3 guarded sites for 78 weeks. Night and weekend service at \$4624/wk.
4. CLERICAL	WK	78	\$2,130.00	\$166,140	Office staff assistant. One per Owner supervisor.	Assumes 3 clerical (\$710/wk).for 78 week duration
5. JOBSITE OFFICE	WK	78	\$1,054.00	\$82,212	Jobsite office to house temporary demolition services personnel.	Assumes rental cost of \$1054/Week.3 trailers for 78 mo duration with hook ups.
6. TEMP. UTILITIES	WK	234	\$192.00	\$44,928	Jobsite temporary utilities during decommissioning.	Jobsite temporary utilities during decommissioning. Assumes cost of \$192/wk for each of 3 project areas for 78 week duration.
7. SPECIAL INSURANCE	LS	0	\$0.00	\$0	Included in Contractor Overheads	
8. SUBSISTENCE	WK	0	\$0.00	\$0	Included in burdened labor costs	
Task Subtotal				\$1,739,946		
E. HAZARDOUS MATERIALS / SPILL MITIGATION						
1. ASBESTOS ABATEMENT	EA	0	\$0.00	\$0	No hazardous materials expected	
2. Spill Mitigation	EA	4	\$15,000.00	\$60,000	Minor spills with petroleum products	Not expected but anticipate \$15,000 / per incident
Task Subtotal				\$60,000		
F. PROTECTION						
1. SIGNS	LS	1	\$25,000.00	\$25,000	Nominal Amount for Signage	
2. FENCES	LS	3	\$30,720.00	\$92,160	Chain link fencing around material storage/salvage yards.	Assumes \$30.72 K in fencing per storage yard for 3 yards based on Crew and materials
3. PEDESTRIAN WALKWAY	LF	0	\$0.00	\$0	N/A	
4. SCAFFOLDING	SF	0	\$0.00	\$0	N/A	
5. SHORING	SF	0	\$0.00	\$0	N/A	
6. FLAGGING	LS	1	\$56,160.00	\$56,160	Nominal Amount for Traffic Control	Assumes crew of 2x1 day per week \$720/day. Guard structures included in conductor removal.
7. TOOLS AND CONSUMABLES	LS	0	\$0.00	\$0	Included in burdened labor costs	
Task Subtotal				\$173,320		
2. SITE CONSTRUCTION						
A. UTILITY DISCONNECTS						
1. POWER	EA	12	\$5,391.00	\$64,692	Disconnect costs from local utility.	Assumes \$5391 disconnect cost from local distribution utility for each of 9 communication stations and 3 storage / staging areas.
Task Subtotal				\$64,692		
B. PRELIMINARY WORK						
1. Communication Station Fence & Gate removal	EA	9	\$5,925.00	\$53,325	Removal of existing facility fencing and gates.	Assumes removal of fencing around 9 communication stations. Approximately \$5,925 Each
2. Storage yard Fence & Gate removal	EA	3	\$5,925.00	\$17,775	Removal of storage yard fence on completion of material removal	Assumes removal of fencing around 3 storage yards. Approximately \$5,925 Each
3. SAW CUTTING, ETC.	LF	0	\$0.00	\$0	N/A	
Task Subtotal				\$71,100		

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
C. SITE GRADING						
1A. ACCESS ROAD RESTORATION - PRIMITIVE ROADS AND TOWER PADS	AC	374	\$2,000.00	\$748,000	Restoration includes scarifying road bed, minimal re-grading, re-seeding.	Assumes 106 miles of overland travel roads restored @ 15' width; 65 miles of bladed roads on <10% sideslopes restored @ 23' width
1B. ACCESS ROAD RESTORATION - BUILT UP ALL-WEATHER ROADS.	AC	207	\$5,700.00	\$1,181,455	Restoration includes full restoration of built-up all-weather road. Removal of gravel, re-grading as necessary for restoration of natural contours, re-seeding.	Assumes all communication station roads are included, 57 miles of new bladed roads on 10-30% side slopes @ 30' wide.
1C. ROADWAY REMOVAL (GRAVEL)	AC	0	\$0.00	\$0	Included in 0A.	
2. TOWER PADS AND COMMUNICATION STATIONS	AC	586	\$5,700.00	\$3,340,200	Restoration includes full restoration of site. Removal of gravel, re-grading as necessary for restoration of natural contours, re-seeding.	1166 structures at 150'x150' (0.5 acres) each and 9 communication stations at .3 acres ea
2. SITE PREPARATION (TOPSOIL)	AC	583	\$4,747.00	\$2,767,501	Topsoil restoration (grading&prep) for tower area after de-construct	Anticipate acreage similar to area disturbed by construction. -.05 A per site (1166 sites)
3. SEEDING	AC	0	\$0.00	\$0	Included in 1A, 1B and 2.	
4. MASS EXCAVATION ONSITE	CY	0	\$0.00	\$0	N/A	
4A. MASS EXCAVATION OFFSITE	CY	0	\$0.00	\$0	N/A	
5. MASS BACKFILL ONSITE	CY	0	\$0.00	\$0	N/A	
5A. MASS BACKFILL IMPORT	CY	332662	\$8.00	\$2,661,296	Backfill required to restore tower benched areas to natural contours.	Assumes 50% of bench cut had been disposed of at local landfills or elsewhere and must be imported. 50% remained on site and will be recycled.
Task Subtotal				\$10,698,452		
D. UNDERGROUND UTILITY REMOVAL						
1. ELECTRICAL DUCT BANK	EA	9	\$4,579.14	\$41,212	Remove and backfill underground ducts at communication sites.	Assumes 50' of ug duct at 9 comm stations. 4 person crew will complete 1 day on site
2. MH/CB/VAULT REMOVAL	EA	0	\$0.00	\$0	N/A	
Task Subtotal				\$41,212		
3. CONCRETE WRECKING [Imported from Tab 3]						
Enter data on tab "03 Concrete Wrecking."						
A. REINFORCED CONCRETE						
1. SLAB ON GRADE	EA	9	\$8,100.00	\$72,900	Each communication station will have 2 slabs (building & Propane) for removal. Includes removal, haul and disposal.	Assumes 6 person crew. Loaded crew rate is \$540/hour includes equipment. Estimate 1 1/2 day per site (15 hrs)
2. MINOR FOOTINGS	CY	0	\$0.00	\$0	N/A	
3. MASS FOUNDATIONS	CY	0	\$0.00	\$0	N/A	
4. TRANSMISSION STRUCTURE FOUNDATIONS	CY	12380	\$300.36	\$3,718,402	Foundation removal 10 cy per 500 kV structure (4' diameter, 5' of removed length per leg, 4 legs - 2' above ground, 3' below ground), includes haul and disposal.	Assumes 6 person crew can remove foundations at 1.5 structures per day (~18 cy/day). Loaded crew rate is \$540.64/hour.
Task Subtotal				\$3,791,302		
B. NON-REINFORCED CONCRETE/OTHER						
1. DEAD MEN	CY	0	\$0.00	\$0	N/A	
2. SECURITY RAILS	LF	0	\$0.00	\$0	N/A	
3. CONCRETE RECYCLE	CY	0	\$0.00	\$0	N/A	
4. PILING	EA	0	\$0.00	\$0	N/A	
Task Subtotal				\$0		
4. BUILDING WRECKING (Assumes container construction for ease of construction (factory built) and removal)						
1. Communication Control Building	EA	9	\$10,593.00	\$95,337	Removal of control building at communication stations. Includes removal of equipment inside building, hauling and disposal.	Assumes 4-person crew will remove salvageable equipment from building in three days. Building remove, load and haul - 3 days. Loaded crew daily rate is \$3531 including equipment.
2. ELECTRICAL/MCC	SF	0	\$0.00	\$0	Included above	
Task Subtotal				\$95,337		
5. STEEL WRECKING (All steel wrecking assumes material is knocked down and put into stockpile for sorting.) [Imported from Tab 5]						
Enter data on tab "05 Steel Wrecking."						
1. 500-kV LATTICE TOWERS	EA	1,076	\$53,650.00	\$57,727,400	Removal of hardware and disassembly of 500 kV lattice towers.	Assumes 9 man crew to remove 1 tower in 5 days. Loaded crew rate is \$1073/hour including equipment.
2. 500-kV H-FRAME STRUCTURES	EA	90	\$21,460.00	\$1,931,400	Removal of hardware and disassembly of 500 Kv H-Frames	Assumes 9 man crew to remove 1 h-frame in 2 days. Loaded crew rate is \$1073/hour including equipment.
3. SORT/CLEAN/HAUL	EA	0	\$0.00	\$0	Included in Section 17	
4. LABOR	EA	0	\$0.00	\$0	Included above	
5. EQUIPMENT	EA	0	\$0.00	\$0	Included above	
Task Subtotal				\$59,658,800		

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
6. TIMBER WRECKING (All timber wrecking assumes material is knocked down and put into stockpile for sorting).						[Imported from Tab 6]
Enter data on tab "06 Timber Wrecking."						
1. 230-kV TIMBER TOWER	EA	0	\$4,604.13	\$0		
2. 138-kV TIMBER TOWER	EA	0	\$4,604.13	\$0		
Task Subtotal				\$0		
16. ELECTRICAL WRECKING						[Imported from Tab 16]
Enter data on tab "16 Electrical Wrecking."						
1. TRANSFORMERS	EA	0	\$0.00	\$0	N/A	
2. MOTOR CONTROL CENTER	EA	0	\$0.00	\$0	N/A	
3. WIRING	LF	0	\$0.00	\$0	N/A	
4. SWITCH YARD	SF	0	\$0.00	\$0	N/A	
5. SWITCH YARD TOWERS	EA	0	\$0.00	\$0	N/A	
6. Grounding	LF	111,200	\$0.03	\$3,336	Removal , handling & loading	Estimates 2 x laborers and vehicle approximately 2 hours per tower to retrieve and load. Worked in conjunction with foundation removal.
7. Transmission Conductor - 500 kV	MI	286	\$76,743.60	\$21,917,972	Removal, loading and hauling of 3-1519 ACSR Conductor, Dampers, OHGW and OPGW. Includes guard structures. Unit is circuit-mile.	Estimates 16 person crew to remove one mile in 6 days. Loaded crew rate is \$1279/hour.
8. Transmission Line (s) 230/138	MI	4	\$9,699.00	\$40,833	Includes Shield wire	Retrieve and load
9. Insulator Strings	EA	3,498	\$10.50	\$36,729	Removal Included in tower removal costs	Retrieve and load-anticipate landfill disposal at ~\$60/ton
10. Communication Stations	Ea	9	\$ 7,050.00	\$63,450	Removal of Propane and restoration (fill and grade) of the sites	Control building remove under section 4.
Task Subtotal				\$22,062,320		
17. LOAD & HAUL						
1. LOAD & HAUL - STRUCTURAL STEEL	LD	1,166	\$5,000.00	\$5,830,000	Loading and hauling of tower steel and H-Frames to laydown/salvage yard.	Assumes 5 man crew to load/haul one structure per day. Loaded crew rate is \$500/hour.
2. DISPOSAL - DEBRIS	LD	0	\$0.00	\$0	N/A	Assume steel will be salvaged w/o disposal fee.
3. LOAD & HAUL CONC.	LD	0	\$0.00	\$0	Included in Concrete Wrecking	
4. DISPOSAL - CONCRETE	LD	0	\$0.00	\$0	Included in Concrete Wrecking	
5. SCRAP STEEL	LD	0	\$0.00	\$0	N/A	
Task Subtotal				\$5,830,000		
SUBTOTAL				\$109,750,686	Sum of all task subtotals.	
OVERHEAD @	0.0%			\$0	Contractor overhead built into loaded labor costs	
COSTS + OVERHEAD				\$109,750,686		
PROFIT @	0.0%			\$0	Contractor profit built into loaded labor costs	
COSTS + OVERHEAD + PROFIT				\$109,750,686		
INSURANCE @	0.0%			\$0	Contractor insurance built into overhead costs	
COSTS + OVERHEAD + PROFIT + INSURANCE				\$109,750,686		
18. SCRAP CREDIT (Currently not allowed by EFSC.)				\$18,026,428	[Imported from Tab 18]	
SUBTOTAL (if scrap credit given)				\$109,750,686	Scrap credit is excluded	
19. SEPARATE SPECIALTY CONTRACTS				\$485,400	[Imported from Tab 19]	
SUBTOTAL (including specialty contracts)				\$110,236,086		
GROSS COST				\$110,236,086		
ADDERS						
PERFORMANCE BOND	@ 1%			\$1,102,361		
GROSS COST (ADJUSTED)				\$111,338,447		
ADMINISTRATION AND PROJECT MANAGEMENT	@ 4%			\$4,453,538		
CONTINGENCY -	@ 20%			\$22,267,689		
HAZARDOUS MATERIALS MANAGEMENT CONTINGENCY	LS			\$0	Included in spill mitigation Line E.2.	
TOTAL SITE RESTORATION COST (not adjusted)				\$138,059,674		

Grid-Enhancing Electric Transmission Lines
COST ESTIMATE FOR FACILITY SITE RESTORATION
(3rd Quarter 2016 Dollars)

Adjustment Factor: 1.02

GDP Index 2nd Quarter 2016: 111.7

Est. GDP Index 2017: 113.9

<http://www.oregon.gov/DAS/OEA/economic>

Historical Quarterly Tables, Other indicators, Quarterly Data

General Costs			
A. PERMITS			\$49,183
B. MOBILIZATION			\$5,226,223
C. ENGINEERING			\$188,799
D. PROJECT OVERHEAD			\$1,739,946
E. HAZARDOUS MATERIALS INSPECTIONS			\$60,000
F. PROTECTION			\$173,320
General Costs Subtotal			\$7,437,471
Site Construction			
A. UTILITY DISCONNECTS			\$64,692
B. PRELIMINARY WORK			\$71,100
C. SITE GRADING			\$10,698,452
D. UNDERGROUND UTILITY REMOVAL			\$41,212
Site Construction Subtotal			\$10,875,456
Concrete Wrecking			
A. REINFORCED CONCRETE			\$3,791,302
B. NON-REINFORCED CONCRETE			\$0
Concrete Wrecking Subtotal			\$3,791,302
Building Wrecking			\$95,337
Steel Wrecking			\$59,658,800
Timber Wrecking			\$0
Electrical Wrecking			\$22,062,320
Load & Haul			\$5,830,000
Costs Subtotal			\$109,750,686
Overhead @	0%		\$0
Profit @	0%		\$0
Insurance @	0%		\$0
Specialty Contracts (subcontracted work)			\$485,400
Subtotal			\$110,236,086
Subtotal Adjusted to Current Dollars			\$112,407,253
Performance Bond @	1%		\$1,124,073
Gross Cost (Adjusted)			\$113,531,326
Administration and Project Management @	4%		\$4,541,253
Contingency @	20%		\$22,706,265
Hazardous Materials Management Contingency			\$0
Total Site Restoration Cost (current dollars)			\$140,778,844
Total Site Restoration Cost (rounded to nearest \$1,000)			\$140,779,000

Grid-Enhancing Electric Transmission Lines

Tab 03 - Concrete Wrecking

A. Reinforced Concrete

1 Slab on Grade (CY)		
	Work Item	Quantity
1	Communication Station Pads	250
2		
3		
4		
5		
Total		250

2 Minor Footings (CY)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

3 Mass Footings (CY)		
	Work Item	Quantity
1	See below	
2		
3		
4		
5		
Total		0

4 Transmission Foundations (CY)		
	Work Item	Quantity
1	Remove 500 kV Tower Fdns	12,380
2	230 kV Rebuild	N/A
3	138/69kV Rebuild	N/A
4		
5	Total	12380

Tab 03 - Concrete Wrecking

B. Non-Reinforced Concrete

Dead Men (CY)		
1	Work Item	Quantity
	N/A	
1		
2		
3		
4		
5	Total	0

Security Rails (LF)		
2	Work Item	Quantity
	N/A	
1		
2		
3		
4		
5	Total	0

Concrete Recycle (CY)		
3	Work Item	Quantity
	N/A	
1		
2		
3		
4		
5	Total	0

Piling (EA)		
4	Work Item	Quantity
	N/A	
1		
2		
3		
4		
5	Total	0

Grid-Enhancing Electric Transmission Lines

Tab 05 - Steel Wrecking

1 500-kV Towers (EA)		
	Work Item	Quantity
1	500 kV Steel Lattice Towers	1076
2	500 kV Steel H-Frame Structures	90
3		
4		
5		
Total		1166

2 138/69-kV Monopole Structures (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

3		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

4 Sort/Clean (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

5 Labor (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

6 Equipment (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

Grid-Enhancing Electric Transmission Lines
Tab 06 - Timber Wrecking

1 230-kV Towers (EA)		
	Work Item	Quantity
1		
2		
3		
4		
5		
	Total	0

2 138-kV Towers (EA)		
	Work Item	Quantity
	Work Item	Quantity
1		
2		
3		
4		
5		
	Total	0

Grid-Enhancing Electric Transmission Lines
Tab 16 - Electrical Wrecking

1 Transformers (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

2 Motor Control Center (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

3 Wiring (LF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

4 Switch Yard (SF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

Grid-Enhancing Electric Transmission Lines
Tab 16 - Electrical Wrecking

5 Switch Yard \Towers (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

6 Grounding (LF)		
	Work Item	Quantity
1	Copper ground wire (incl. all str's)	111,200
2		
3		
4		
5		
Total		111,200

7 Transmission Line Wiring (MI)		
	Work Item	Quantity
1	3-1519 ACSR "Deschutes" (500 kV)	285.6
2	1/2" Steel Overhead Shield Wire	285.6
3	48-strand Optical Ground Wire	285.6
4	795 kcm ACSR "Drake" (230 kV)	0.95
5	397 kcm 26/7 ACSR "Ibis" (138 kV)	1.16
6	4/0 6/1 ACSR "Penguin" (69 kV)	N/A
7	20 ACSR "Quail" (12.5 kV)	N/A
8	3/8" Overhead Shield Wire (138 and 230 kV)	2.1
Total		859

8 Breaker/Insulator/Misc (EA)		
	Work Item	Quantity
1	Transmission Insulator Strings (500 kV)	3,498
2		
3		
4		
5		
Total		3,498

9 Transmission Line Wiring Equipment (MI)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

Grid-Enhancing Electric Transmission Lines

Tab 18 - Scrap Value (NOT USED)

Scrap Item	Quantity	Unit	Unit Rate	Value
Structure Steel	31,366	TN	171	5,374,373
Conductor Steel	1,281	TN	171	219,492
Shield Wire Steel	370	TN	171	63,397
OPGW Steel	0	TN	171	0
Hardware Steel	2,040	TN	175	358,007
Conductor Aluminum	8,066	TN	1,440	11,614,320
OPGW Aluminum	324	TN	1,160	375,840
Grounding Copper	7	TN	3,000	21,000
Equip Scrap Value				0
Total				\$ 18,026,428

Grid-Enhancing Electric Transmission Lines

Tab 19 - Separate Specialty Contracts

Subcontractor	Quantity	Unit	Unit Rate	Value
Lot Rentals	1	LS	60,000	60,000
Port-a-John Rentals	1	LS	91,200	91,200
Dumpster Rentals	1	LS	34,200	34,200
LIDAR Survey	300	MI	1,000	300,000
				0
Total				485,400