



September 22, 2016

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street N.E.  
Washington, DC 20426

via eFiling

Re: NorthWestern Corporation, Docket No. ER16-\_\_\_\_-000 [ER16-2652-000](#)  
Non-Conforming Large Generator Interconnection Agreements

Dear Secretary Bose:

Pursuant to section 205 of the Federal Power Act ("FPA")<sup>1</sup> and Part 35 of the Federal Energy Regulatory Commission's Regulations,<sup>2</sup> NorthWestern Corporation ("NorthWestern") submits seven Standard Large Generator Interconnection Agreements executed between April 30, 2004, and January 27, 2014 (the "Existing LGIAs") that do not precisely match the language in the applicable *pro forma* Standard Large Generator Interconnection Agreement ("*Pro Forma Agreement*") under NorthWestern's Open Access Transmission Tariff. The Existing LGIAs are designated as Service Agreement Nos. 321, 322, 323, 687, 688, and 709 under NorthWestern's Montana Open Access Transmission Tariff ("Montana OATT") and Service Agreement No. 30-SD under NorthWestern's South Dakota Open Access Transmission Tariff ("South Dakota OATT") in compliance with Order No. 714.<sup>3</sup>

In addition, NorthWestern requests approval to terminate several Standard Large Generator Interconnection Agreements executed between November 1, 2007, and May 10, 2013 (the "Terminated LGIAs") that do not precisely match the language in the applicable *Pro Forma Agreement*. These agreements have already terminated under their own terms and are no longer in effect. NorthWestern is submitting for informational purposes redlined versions of the Terminated LGIAs to show the differences between the executed agreement and the applicable *Pro Forma Agreement*.

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<sup>1</sup> 16 U.S.C. § 824d.

<sup>2</sup> 18 C.F.R. Part 35.

<sup>3</sup> *Electronic Tariff Filings*, Order No. 714, 124 FERC ¶ 61,270 (2008), *clarified*, Order No. 714-A, 147 FERC ¶ 61,115 (2014).



The Existing LGIAs were initially treated as conforming agreements and reported in NorthWestern's Electronic Quarterly Report ("EQR") after service commenced, but not filed separately with the Commission.<sup>4</sup> These agreements differ from NorthWestern's applicable *Pro Forma* Agreement in certain respects, mostly involving additional information included in the Appendices that does not alter the rates, terms, and conditions contained in the *Pro Forma* Agreement. After discussions with Commission audit staff, NorthWestern is now filing these agreements because they do not "precisely match"<sup>5</sup> the Commission-approved *Pro Forma* Agreement that was in effect when the agreements were executed. To assist the Commission, NorthWestern is also submitting for informational purposes redlined pages of the Existing LGIAs showing the differences from the applicable *Pro Forma* Agreement.

The Terminated LGIAs also were treated as conforming agreements and not filed separately with the Commission.<sup>6</sup> As with the Existing LGIAs, the Terminated LGIAs differed from the applicable *Pro Forma* Agreement in certain respects, mostly relating to additional information in the Appendices. Because these agreements have terminated and are no longer in effect, NorthWestern is not filing them with the Commission; however, NorthWestern is attaching, for informational purposes, redlined versions of those agreements to show the Commission the differences between these agreements and the applicable *Pro Forma* Agreement. To the extent necessary, NorthWestern also asks the Commission for approval to terminate those agreements under Section 35.15 of the Commission's regulations.<sup>7</sup>

NorthWestern requests the Commission to accept the Existing LGIAs with an effective date the same as the execution date for each of the agreements. NorthWestern also asks the Commission to approve termination of the Terminated Agreements with an effective date the same as the actual date of termination of those agreements. NorthWestern submits that extraordinary circumstances exist to justify the retroactive effective dates in this case. In the alternative, NorthWestern asks the Commission to confirm that, under well-established Commission precedent, no time-value refunds are due for the late filing of the Existing LGIAs because

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<sup>4</sup> The following are reported on NorthWestern's EQR: Service Agreement Nos. 321, 322, 323, and 30-SD. The other three (Service Agreement Nos. 687, 688, and 709) have not yet been reported on the EQR as service has not commenced.

<sup>5</sup> See *Revised Public Utility Filing Requirements*, Order No. 2001, FERC STATS. & REGS., Regulations Preambles 2001–2005 ¶ 31,127 at P 196, *reh'g denied*, Order No. 2001-A, 100 FERC ¶ 61,074, *reconsideration & clarification denied*, Order No. 2003-B, 100 FERC ¶ 61,342, *further order*, Order No. 2001-C, 101 FERC ¶ 61,314 (2002), *order directing filing*, Order No. 2001-D, 102 FERC ¶ 61,334 (2003) ("Order No. 2001").

<sup>6</sup> Service Agreement Nos. 472, 562, 592, and 645 were reported on the EQR. The other Terminated LGIAs (Service Agreement Nos. 599, 638, 675, and 685) terminated before EQR filing was triggered.

<sup>7</sup> 18 C.F.R. § 35.15.



NorthWestern charged only its actual costs, with no profit, for its services under those agreements.

## I. Background

NorthWestern is a public utility engaged in the generation, transmission, and distribution of electricity and the supply and transportation of natural gas. Its facilities are located primarily in Montana and South Dakota. NorthWestern's Montana and South Dakota transmission facilities are not physically interconnected and are not in the same electric reliability region. Accordingly, NorthWestern maintains separate open access transmission tariffs for transmission operations in each state.

NorthWestern provides transmission service over its Montana transmission facilities under the Montana OATT and over its South Dakota facilities under the South Dakota OATT.<sup>8</sup> The Montana and South Dakota OATTs contain standardized Large Generator Interconnection Procedures and a *pro forma* Large Generator Interconnection Agreement in compliance with the Commission's requirements in Order No. 2003.<sup>9</sup> The *pro forma* agreement under Order No. 2003 first took effect on January 20, 2004. Since then, NorthWestern's *Pro Forma* Agreement has been revised several times to comply with the Commission's directives.

On March 17, 2015, in Docket No. PA15-1-000, the Commission initiated an audit of NorthWestern's compliance with the requirements contained in the Montana and South Dakota OATTs. The audit covered the time period from January 1, 2013, to the present.

During the course of this audit, NorthWestern disclosed to the auditors several Standard Large Generator Interconnection Agreements that NorthWestern executed that did not precisely match the applicable *Pro Forma* Agreement in NorthWestern's tariffs. In Order No. 2001, the Commission required public utilities to file with the Commission interconnection agreements that do not precisely match the applicable standard form of service agreement.<sup>10</sup> Rather than

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<sup>8</sup> Effective October 1, 2015, NorthWestern transferred functional control of its South Dakota transmission facilities to the Southwest Power Pool, Inc. ("SPP"), and transmission services over those facilities are now provided by SPP under its tariff.

<sup>9</sup> *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, FERC STATS. & REGS. ¶ 31,146 (2003), *order on reh'g*, Order No. 2003-A, FERC STATS. & REGS. ¶ 31,160, *order on reh'g*, Order No. 2003-B, FERC STATS. & REGS. ¶ 31,171 (2004), *order on reh'g*, Order No. 2003-C, FERC STATS. & REGS. ¶ 31,190 (2005), *aff'd sub nom. Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007) ("Order No. 2003").

<sup>10</sup> Order No. 2001 at P 196; *see also* Order No. 2003 at P 914.



filing these agreements separately with the Commission, NorthWestern treated them as conforming agreements.

Based on discussions with audit staff, NorthWestern reviewed Standard Large Generator Interconnection Agreements executed since the effective date of the *pro forma* agreement under Order No. 2003. NorthWestern determined that there were seven active agreements (the Existing LGIAs) and eight terminated agreements (the Terminated LGIAs) that did not precisely match the applicable *Pro Forma* Agreement.<sup>11</sup>

NorthWestern now submits this filing seeking approval of the Existing LGIAs and, to the extent necessary, approval to terminate the Terminated LGIAs.

## II. The Commission should accept the Existing LGIAs for filing under FPA Section 205

NorthWestern is submitting the seven Existing LGIAs, attached as Attachments 1 through 7 to this filing, and respectfully requests the Commission to accept the Existing LGIAs for filing under Section 205 of the FPA.

The following table lists the Existing LGIAs and identifies the effective date of the *Pro Forma* Agreement that was in effect when each agreement was executed:

<b>Attachment Nos.</b>	<b>Execution Date</b>	<b>Agreement</b>	<b>Effective Date of Applicable <i>Pro Forma</i></b>
1 & 8	4/30/04	Rocky Mountain Power, Inc., Service Agreement No. 321	4/23/04
2 & 9	5/7/04	Basin Creek Equity Partners, LLC, Service Agreement No. 322	4/23/04
3 & 10	3/23/05	Judith Gap Energy, LLC, Service Agreement No. 323	1/19/05
4 & 11	6/1/09	Rolling Thunder I Power Partners, LLC, Service Agreement No. 30-SD	1/18/06

<sup>11</sup> Besides these FERC-jurisdictional agreements, NorthWestern executed during this time frame several other Qualifying Facility interconnection agreements that are state jurisdictional and, therefore, not included in this filing.



<b>Attachment Nos.</b>	<b>Execution Date</b>	<b>Agreement</b>	<b>Effective Date of Applicable <i>Pro Forma</i></b>
5 & 12	6/4/13; Revised 12/4/14	Oversight Resources, LLC (Sumatra Projects 63, 65, 66, 67 & 68), Service Agreement No. 687	9/29/10 & 9/27/2014
6 & 13	6/4/13; Revised 12/4/14	Oversight Resources, LLC (Sumatra Projects 69, 104, 105 & 106), Service Agreement No. 688	9/29/10 & 9/27/2014
7 & 14	1/27/14	Big Otter Wind Energy, LLC, Service Agreement No. 709	1/7/14

NorthWestern is also attaching for informational purposes redlined pages from the Existing LGIAs that show the differences between the Existing LGIA and the applicable *Pro Forma* Agreement. The redline pages are attached as Attachments 8–14 to this filing. Service Agreement Nos. 687 (Attachments 5 & 12) and 688 (Attachments 6 & 13) have been revised once. For this reason, there are two redlines for these agreements, comparing the original and revised versions to the applicable *Pro Forma* Agreement.

As shown in the attached redlines (Attachments 8–14), there are certain differences between the Existing LGIAs and the applicable *Pro Forma* Agreement. In Order Nos. 2001 and 2003, the Commission allowed transmission-owning public utilities to report in their EQRs generator interconnection agreements that conform with the *pro forma* agreement under the tariff, but required them to file with the Commission interconnection agreements that do not “precisely match” the *pro forma* agreement.<sup>12</sup> NorthWestern treated each of the Existing Agreements as confirming agreements and did not file them with the Commission before this filing.

Although the Existing LGIAs do not precisely match the applicable *Pro Forma* Agreement, the differences do not alter the rates, terms, and conditions that the Commission pre-approved in the applicable *Pro Forma* Agreement. As shown in the attached redlines, there are a few non-substantive changes in the body of some of the agreements, but most of the differences are contained in the Appendices. These differences in the Appendices include attaching additional documents that provide further information about Western Electricity Coordinating Council (“WECC”) and NorthWestern policies, requirements, and criteria; deleting, rather than leaving in,

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<sup>12</sup> See Order No. 2001 at P 196; Order No. 2003 at P 914.



language in the Appendices that was not applicable; and adding case-specific information regarding the particular interconnection.

Most of the differences in the Appendices involve case-specific detail and additional information for the parties that should not render the agreements non-conforming under Commission precedent. That is, many of the differences involve the addition of information that “merely imbues the Interconnection Agreement with greater detail” but does not deviate from the terms of the *pro forma* agreement.<sup>13</sup> Other differences involve “case specific information pertaining to the interconnection” that do not render the agreement non-conforming.<sup>14</sup>

To the extent that the Existing LGIAs contain differences in language that do not precisely match the *Pro Forma* Agreement and that causes those agreements to be non-conforming, NorthWestern respectfully requests that the Commission accept the Existing LGIAs for filing. Despite any differences with the *Pro Forma* Agreement, the Existing LGIAs are just and reasonable and consistent with Commission precedent and policies. In Order No. 2003, the Commission required Commission-jurisdictional transmission owners to develop and file *pro forma* generation interconnection agreements consistent with or superior to the *pro forma* agreement developed by the Commission in Order No. 2003. Each of the Existing LGIAs is consistent with the rates, terms, and conditions approved by the Commission in the *Pro Forma* Agreement for the applicable time period. Because the Commission has determined that the rates, terms, and conditions in *Pro Forma* Agreement are just and reasonable, the Existing LGIAs—which contain rates, terms, and conditions that are consistent with and substantially the same as those in the *pro forma* agreement—also should be deemed just and reasonable under FPA section 205.

Therefore, because the Existing LGIAs are consistent with the rates, terms, and conditions approved by the Commission in the applicable *Pro Forma* Agreement, and because any differences are not material and not objectionable to the parties who have executed these agreements, NorthWestern requests that the Commission accept the Existing LGIAs as just and reasonable under FPA section 205. Under the particular circumstances presented here, the Commission should accept the Existing LGIAs rather than to require the parties to attempt to retroactively revise those agreements that have been in effect for years.

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<sup>13</sup> See, e.g., *Southwest Power Pool, Inc.*, 132 FERC ¶ 61,160 at P 15 (2010); *Southwest Power Pool, Inc.*, 128 FERC ¶ 61,022 at P 19 (2009); *Southwest Power Pool, Inc.*, 128 FERC ¶ 61,116 at P 20 (2009), *order on reh'g*, 131 FERC ¶ 61,058 (2010).

<sup>14</sup> See, e.g., *Southwest Power Pool, Inc.*, Letter Order, Docket Nos. ER11-2711-000, *et al.*, at PP 7–8 (March 18, 2011).



NorthWestern recognizes that it should not, without Commission approval, execute generator interconnection agreements that do not precisely match the *Pro Forma* Agreement, even if the differences are minor and immaterial; and NorthWestern has established procedures to ensure that it will fully comply with the Commission’s filing requirements regarding generator interconnection agreements in the future.

### III. The Commission should allow termination of the Terminated LGIAs.

In addition to the seven Existing LGIAs, NorthWestern also found eight Standard Large Generator Interconnection Agreements that have been terminated under their own terms that contained language that did not precisely match the applicable *Pro Forma* Agreement—the Terminated LGIAs. These agreements were treated as conforming agreements at the time they were executed, and NorthWestern did not request approval to terminate the agreements under Section 35.15 of the Commission’s regulations.<sup>15</sup>

The following table lists the Terminated LGIAs, including the execution and termination dates for those agreements and the effective date of the *Pro Forma* Agreement that was in effect when each agreement was executed:

Attachment No.	Execution Date	Agreement	Termination Date	Effective Date of Applicable <i>Pro Forma</i>
15	11/1/07	Southern Montana Elec. Generation & Transmission Cooperative, Inc., Service Agreement No. 472	9/6/11	1/18/06
16	3/26/10	Chafin Beaver Creek, Service Agreement No. 562	6/20/11	1/18/06

<sup>15</sup> In addition to these eight agreements, there were two additional non-conforming LGIAs that were originally filed on the EQR instead of with the Commission. These two agreements differ, however, because they have been filed with and terminated by the Commission. See *NorthWestern Corp.*, Docket No. ER06-1363-000 (Sept. 21, 2006) (delegated letter order) (accepting notice of cancellation of Service Agreement No. 325, LGIA with Montana Megawatts, LLC, effective August 11, 2006); *NorthWestern Corp.*, 155 FERC ¶ 61,044 (2016) (accepting notice of termination of LGIA with Southern Montana Electric Generation and Transmission Cooperative, Inc., Service Agreement No. 602, effective March 22, 2016). Since these were previously filed with the Commission and terminated by an order, they are not included in this filing to reduce duplication.



<b>Attachment No.</b>	<b>Execution Date</b>	<b>Agreement</b>	<b>Termination Date</b>	<b>Effective Date of Applicable <i>Pro Forma</i></b>
17	6/20/11	Beaver Creek Wind, LLC, Service Agreement No. 592	1/7/15	9/29/10
18	8/11/11	Oversight Resources, LLC, Service Agreement No. 599	6/4/13	9/29/10
19	5/10/12	Southern Montana Elec. Generation & Transmission Cooperative, Inc., Service Agreement No. 638	9/9/13	9/29/10
20	7/26/12	NaturEner Glacier Wind Energy 1, LLC, Service Agreement No. 645	7/9/15	9/29/10
21	11/6/12	Jawbone Wind Farm, LLC, Service Agreement No. 675	1/6/16	9/29/10
22	5/10/13	Gaelectric, LLC (Lonetree Project 148), Service Agreement No. 685	9/21/16	9/29/10

Because these agreements have now terminated and are no longer in effect, NorthWestern is not filing them with the Commission. However, NorthWestern is attaching to this filing for informational purposes redlined versions of the agreements to show the differences between each of these Terminated LGIAs and the applicable *Pro Forma* Agreement. The redlined agreements are attached to this filing as Attachments 15–22. For some of these projects, no funds were ever collected from the customer. For the others, NorthWestern issued refunds to the customer with interest.

As shown in the redlines in Attachments 15–22, the differences between the Terminated LGIAs and the applicable *Pro Forma* Agreements include a few non-substantive changes to the body of the agreement and additional detail regarding the interconnection and the applicable WECC and NorthWestern criteria and requirements in the Appendices. As with the Existing LGIAs, these differences do not alter the rates, terms, and conditions in the *Pro Forma* Agreements that the Commission has pre-approved as just and reasonable under FPA Section 205. Therefore, while NorthWestern’s failure to file these agreements was regrettable and will not be repeated by



NorthWestern in the future, it did not harm any party and did not materially impact the Commission's authority to establish just and reasonable rates, terms, and conditions for interconnection service.

To the extent that the Commission finds that NorthWestern is required to obtain Commission approval to terminate the Terminated LGIAs, NorthWestern respectfully requests the Commission to approve the termination of these agreements under Section 35.15 of the Commission's regulations. NorthWestern requests waiver of the Commission's regulations to the extent necessary to allow these effective dates. The Commission should allow termination of the agreements because they have all terminated under their own terms, the customers have decided not to pursue those particular projects, and the agreements are no longer in effect.

#### **IV. Effective Dates & Request for Waivers**

NorthWestern respectfully requests effective dates for each of the Existing LGIAs that is the same as the execution dates for those agreements. The following are the requested effective dates for the Existing LGIAs: (1) Rocky Mountain Power, Inc., S.A. No. 321 – April 30, 2004; (2) Basin Creek Equity Partners, LLC, S.A. No. 322 – May 7, 2004; (3) Judith Gap Energy, LLC, S.A. No. 323 – March 23, 2005; (4) Rolling Thunder I Power Partners, LLC, S.A. No. 30-SD – June 1, 2009; (5) Oversight Resources, LLC, S.A. No. 687 – December 4, 2014; (6) Oversight Resources, LLC, S.A. No. 688 – December 4, 2014; and (7) Big Otter Wind Energy, LLC, S.A. No. 709 – January 27, 2014.<sup>16</sup>

In addition, to the extent the Commission requires approval to terminate the Terminated LGIAs, NorthWestern requests effective dates for the termination of the Terminated LGIAs that is the same as the actual termination dates for those agreements. The following are the requested effective dates for the terminations of the Terminated LGIAs: (1) Southern Montana Electric G&T Coop., Inc., S.A. No. 472 – September 6, 2011; (2) Chafin Beaver Creek, LLC, S.A. No. 562 – June 20, 2011; (3) Beaver Creek Wind, LLC, S.A. No. 592 – January 7, 2015; (4) Oversight Resources, LLC, S.A. No. 599 – June 4, 2013; (5) Southern Montana Electric G&T Coop., Inc., S.A. No. 638 – September 9, 2013; (6) NaturEner Glacier Wind Energy 1, LLC, S.A. No. 645 – July 9, 2015; (7) Jawbone Wind Farm, LLC, S.A. No. 675 – January 6, 2016; and (8) Gaelectric, LLC, S.A. No. 685 – September 21, 2016.

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<sup>16</sup> The earliest date allowed by the eTariff system is September 29, 2010. Therefore, NorthWestern is including an effective date of 9/29/2010 in the metadata for Service Agreements Nos. 321, 322, 323, and 30-SD.



NorthWestern recognizes that the Commission generally does not authorize retroactive effective dates for late-filed agreements. However, the Commission will grant waiver of the 60-day notice requirement and allow a retroactive effective date in extraordinary circumstances.<sup>17</sup> Here, waiver of the 60-day notice requirement should be granted under the extraordinary circumstances of this case. Specifically, the Commission found the rates, terms, and conditions of interconnection service contained in the Existing LGIAs to be just and reasonable when it approved the *pro forma* interconnection agreement in Order No. 2003 and when it accepted NorthWestern's *Pro Forma* Agreements under Montana and South Dakota OATTs. It is true that the Existing LGIAs include language and information that does not precisely match the applicable *Pro Forma* Agreements. But the differences between the Existing LGIAs and the *Pro Forma* Agreements do not alter in any material respect the rates, terms, and conditions for interconnection service pre-approved by the Commission. Therefore, because the Existing LGIAs adhere in all material respects to the pre-approved rates, terms, and conditions in applicable *Pro Forma* Agreements, the Commission should accept the Existing LGIAs, with an effective date as of the execution date of each of those agreements.

NorthWestern requests waiver of section 35.13 of the Commission's regulations,<sup>18</sup> to the extent applicable to this filing, and requests waiver of any other applicable requirement of 18 C.F.R. pt. 35 for which waiver is not specifically requested in order for the Commission to accept the Existing LGIAs and the termination of the Terminated LGIAs, with the requested effective dates.

## **V. No time-value refunds are due for late filing of the Existing LGIAs.**

If the Commission does not authorize retroactive effective dates for each of the Existing LGIAs, the Commission should confirm that, under well-established Commission precedent, no time-value refunds are required for NorthWestern's failure to timely file those agreements.

Under Commission policy, when a public utility fails to timely file an agreement that is required to be filed under FPA section 205, the utility generally must refund the time value of the monies collected for the time period during which rates were charged without Commission authorization.<sup>19</sup>

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<sup>17</sup> See *Prior Notice and Filing Requirements under Part II of the Federal Power Act*, 64 FERC ¶ 61,139, at 61,984, clarified, 65 FERC ¶ 61,081 (1993) ("*Prior Notice Order*").

<sup>18</sup> 18 C.F.R. § 35.13.

<sup>19</sup> See *Prior Notice Order* at 61,980–81.



However, the Commission has long held that time value refunds are not due when refunds would cause the utility to suffer a loss.<sup>20</sup> In several recent cases, the Commission has clarified that time-value refunds are not warranted when the charges under the late-filed agreement recover only the utility's cost of service with no profit.<sup>21</sup>

Here, under the Existing LGIAs, NorthWestern charged only the costs of the services it provided under the agreements, with no profit. That is, NorthWestern charged only its actual costs to construct interconnection facilities to allow the safe and reliable interconnection of the customers under the Existing LGIAs, and those costs did not include a return or profit. Therefore, under the well-established Commission precedent cited in the previous paragraph, no time value refunds are warranted for NorthWestern's late filing of the Existing LGIAs.

## VI. Communications

Please place the following individuals on the official service list for this proceeding:

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## VII. Persons Served

NorthWestern has served a copy of this filing on the Montana Public Service Commission, the South Dakota Public Utilities Commission, and all parties to the Existing LGIAs and Terminated LGIAs.

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<sup>20</sup> See, e.g., *Fla. Power & Light Co.*, 98 FERC ¶ 61,276, *reh'g denied*, 99 FERC ¶ 61,320 (2002); *Carolina Power & Light Co.*, 87 FERC ¶ 61,083 at 61,357 (1999).

<sup>21</sup> See *Otter Tail Power Co.*, 155 FERC ¶ 61,022 at P 32 (2016) ("where the utility's costs of providing the service are passed through with no profit component, the utility could operate at a loss, contrary to Commission policy if required to make time value refunds"). See also *Consumers Energy Co.*, Opinion No. 540, 153 FERC ¶ 61,185 at PP 56–57 (2015); *ITC Midwest LLC*, 153 FERC ¶ 61,165 at P 8 (2015); *Michigan Electric Trans. Co., LLC*, 153 FERC ¶ 61,166 at P 22 (2015); *International Trans. Co.*, 152 FERC ¶ 61,043 at PP 29–30 (2015).



## VIII. Contents of Filing

This filing includes this transmittal letter and the following attachments:

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|---------------|--|
| Attachment 1  | Service Agreement No. 321, LGIA between NorthWestern Energy and Rocky Mountain Power, Inc.   |
| Attachment 2  | Service Agreement No. 322, LGIA between NorthWestern Energy and Basin Creek Equity Partners, LLC   |
| Attachment 3  | Service Agreement No. 323, LGIA between NorthWestern Energy and Judith Gap Energy, LLC   |
| Attachment 4  | Service Agreement No. 30-SD, LGIA between NorthWestern Corporation and Rolling Thunder I Power Partners, LLC   |
| Attachment 5  | Service Agreement No. 687, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Oversight Resources, LLC (Sumatra Projects 63, 65, 66, 67 & 68) |
| Attachment 6  | Service Agreement No. 688, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Oversight Resources, LLC (Sumatra Projects 69, 104, 105 & 106)  |
| Attachment 7  | Service Agreement No. 709, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Big Otter Wind Energy, LLC (Project 158)                        |
| Attachment 8  | Redlined pages of Service Agreement No. 321 (Attachment 1)   |
| Attachment 9  | Redlined pages of Service Agreement No. 322 (Attachment 2)   |
| Attachment 10 | Redlined pages of Service Agreement No. 323 (Attachment 3)   |
| Attachment 11 | Redlined pages of Service Agreement No. 30-SD (Attachment 4)   |
| Attachment 12 | Redlined pages of Service Agreement No. 687 (Attachment 5)   |
| Attachment 13 | Redlined pages of Service Agreement No. 688 (Attachment 6)   |



- Attachment 14 Redlined pages of Service Agreement No. 709 (Attachment 7)
- Attachment 15 Redline of Service Agreement No. 472, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Southern Montana Electric Generation & Transmission Cooperative, Inc.
- Attachment 16 Redline of Service Agreement No. 562, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Chafin Beaver Creek
- Attachment 17 Redline of Service Agreement No. 592, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Beaver Creek Wind, LLC
- Attachment 18 Redline of Service Agreement No. 599, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Oversight Resources, LLC
- Attachment 19 Redline of Service Agreement No. 638, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Southern Montana Electric Generation & Transmission Cooperative, Inc. (Project 103)
- Attachment 20 Redline of Service Agreement No. 645, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and NaturEner Glacier Wind Energy 1, LLC
- Attachment 21 Redline of Service Agreement No. 675, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Jawbone Wind Farm, LLC (Project 115)
- Attachment 22 Redline of Service Agreement No. 685, LGIA between NorthWestern Corporation d/b/a NorthWestern Energy and Gaelectric, LLC (Lonetree Project 148)

## IX. Conclusion

For the reasons stated herein, NorthWestern respectfully requests that the Commission accept the Existing LGIAs with an effective date the same as their execution dates and, to the extent required, accept the terminations of the Terminated LGIAs, with an effective date the same as their actual termination dates.



Respectfully submitted,

s/ *M. Andrew McLain*

**M. Andrew McLain**

*Corporate Counsel & FERC Compliance Officer*

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☎ (406) 443-8987

MAM/dq

Attachment

cc: Jigang Jia, Auditor-in-Charge, Division of Audits  
Montana Public Service Commission  
South Dakota Public Utilities Commission  
Customer List — Existing LGIAs  
Customer List — Terminated LGIAs



## Certificate of Service

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I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding, in accordance with Rule 2010 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.2010.

Dated this 22<sup>nd</sup> day of September, 2016.

s/ M. Andrew McLain

M. Andrew McLain  
Corporate Counsel & FERC Compliance Officer  
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Attachment 4

## **Service Agreement No. 30-SD**

Standard Large Generator Interconnection Agreement (LGIA)  
between NorthWestern Corporation  
and Rolling Thunder I Power Partners, LLC

*Clean Tariff Record*

NorthWestern Corporation  
(South Dakota)

FERC Open Access Transmission Tariff  
Volume No. 2

**STANDARD LARGE GENERATOR  
INTERCONNECTION AGREEMENT (LGIA)**

**BETWEEN**

**NORTHWESTERN CORPORATION**

**AND**

**ROLLING THUNDER I POWER PARTNERS, LLC**

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Appendix A - Interconnection Facilities, Network Upgrades and Distribution Upgrades

Appendix B - Milestones

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## STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT

THIS STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT (“Agreement”) is made and entered into this 13<sup>th</sup> day of February, 2009, by and between Rolling Thunder I Power Partners, LLC, a limited liability company organized and existing under the laws of the State/Commonwealth of Delaware (“Interconnection Customer” with a Large Generating Facility), and NorthWestern Corporation, a corporation organized and existing under the laws of the State of Delaware (“Transmission Provider and Transmission Owner”). Interconnection Customer and Transmission Provider each may be referred to as a “Party” or collectively as the “Parties.”

### Recitals

**WHEREAS**, Transmission Provider operates the Transmission System; and

**WHEREAS**, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Large Generating Facility in Appendix C to this Agreement; and,

**WHEREAS**, Interconnection Customer and Transmission Provider have agreed to enter into this Agreement for the purpose of interconnecting the Large Generating Facility with the Transmission System;

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein, it is agreed:

When used in this Standard Large Generator Interconnection Agreement, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used or the Open Access Transmission Tariff (Tariff).

### Article 1. Definitions

**Adverse System Impact** shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

**Affected System** shall mean an electric system other than the Transmission Provider’s Transmission System that may be affected by the proposed interconnection.

**Affected System Operator** shall mean the entity that operates an Affected System.

**Affiliate** shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

**Ancillary Services** shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission Provider's Transmission System in accordance with Good Utility Practice.

**Applicable Laws and Regulations** shall mean all duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

**Applicable Reliability Council** shall mean the reliability council applicable to the Transmission System to which the Generating Facility is directly interconnected.

**Applicable Reliability Standards** shall mean the requirements and guidelines of NERC, the Applicable Reliability Council, and the Control Area of the Transmission System to which the Generating Facility is directly interconnected.

**Base Case** shall mean the base case power flow, short circuit, and stability data bases used for the Interconnection Studies by the Transmission Provider or the Interconnection Customer.

**Breach** shall mean the failure of a Party to perform or observe any material term or condition of the Standard Large Generator Interconnection Agreement.

**Breaching Party** shall mean a Party that is in Breach of the Standard Large Generator Interconnection Agreement.

**Business Day** shall mean Monday through Friday, excluding Federal Holidays.

**Calendar Day** shall mean any day including Saturday, Sunday or a Federal Holiday.

**Clustering** shall mean the process whereby a group of Interconnection Requests is studied together, instead of serially, for the purpose of conducting the Interconnection System Impact Study.

**Commercial Operation** shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.

**Commercial Operation Date** of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to the Standard Large Generator Interconnection Agreement.

**Confidential Information** shall mean any confidential, proprietary or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, which is designated as

confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise.

**Control Area** shall mean an electrical system or systems bounded by interconnection metering and telemetry, capable of controlling generation to maintain its interchange schedule with other Control Areas and contributing to frequency regulation of the interconnection. A Control Area must be certified by the Applicable Reliability Council.

**Default** shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of the Standard Large Generator Interconnection Agreement.

**Dispute Resolution** shall mean the procedure for resolution of a dispute between the Parties in which they will first attempt to resolve the dispute on an informal basis.

**Distribution System** shall mean the Transmission Provider's facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which distribution systems operate differ among areas.

**Distribution Upgrades** shall mean the additions, modifications, and upgrades to the Transmission Provider's Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the transmission service necessary to effect the Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

**Effective Date** shall mean the date on which the Standard Large Generator Interconnection Agreement becomes effective upon execution by the Parties subject to acceptance by FERC, or if filed unexecuted, upon the date specified by FERC.

**Emergency Condition** shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of a the Transmission Provider, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission Provider's Transmission System, the Transmission Provider's Interconnection Facilities or the electric systems of others to which the Transmission Provider's Transmission System is directly connected; or (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or the Interconnection Customer's Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions; provided, that the Interconnection Customer is not obligated by the Standard Large Generator Interconnection Agreement to possess black start capability.

**Energy Resource Interconnection Service** shall mean an Interconnection Service that allows the Interconnection Customer to connect its Generating Facility to the Transmission Provider's Transmission System to be eligible to deliver the Generating Facility's electric output

using the existing firm or nonfirm capacity of the Transmission Provider's Transmission System on an as available basis. Energy Resource Interconnection Service in and of itself does not convey transmission service.

**Engineering & Procurement (E&P) Agreement** shall mean an agreement that authorizes the Transmission Provider to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

**Environmental Law** shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

**Federal Power Act** shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a *et seq.*

**FERC** shall mean the Federal Energy Regulatory Commission (Commission) or its successor.

**Force Majeure** shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include acts of negligence or intentional wrongdoing by the Party claiming Force Majeure.

**Generating Facility** shall mean the Interconnection Customer's device for the production of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities.

**Generating Facility Capacity** shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.

**Good Utility Practice** shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

**Governmental Authority** shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services

they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Interconnection Customer, the Transmission Provider, or any Affiliate thereof.

**Hazardous Substances** shall mean any chemicals, materials or substances defined as or included in the definition of “hazardous substances,” “hazardous wastes,” “hazardous materials,” “hazardous constituents,” “restricted hazardous materials,” “extremely hazardous substances,” “toxic substances,” “radioactive substances,” “contaminants,” “pollutants,” “toxic pollutants” or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

**Initial Synchronization Date** shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.

**In-Service Date** shall mean the date upon which the Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Provider's Interconnection Facilities to obtain back feed power.

**Interconnection Customer** shall mean any entity, including the Transmission Provider, Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission Provider's Transmission System.

**Interconnection Customer's Interconnection Facilities** shall mean all facilities and equipment, as identified in Appendix A of the Standard Large Generator Interconnection Agreement, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission Provider's Transmission System. the Interconnection Customer's Interconnection Facilities are sole use facilities.

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**Interconnection Facilities** shall mean the Transmission Provider's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission Provider's Transmission System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

**Interconnection Facilities Study** shall mean a study conducted by the Transmission Provider or a third party consultant for the Interconnection Customer to determine a list of facilities (including the Transmission Provider's Interconnection Facilities and Network Upgrades as identified in the Interconnection System Impact Study), the cost of those facilities, and the time required to interconnect the Generating Facility with the Transmission Provider's Transmission System. The scope of the study is defined in Section 8 of the Standard Large Generator Interconnection Procedures.

**Interconnection Facilities Study Agreement** shall mean the form of agreement contained in Appendix 4 of the Standard Large Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

**Interconnection Feasibility Study** shall mean a preliminary evaluation of the system impact and cost of interconnecting the Generating Facility to the Transmission Provider's Transmission System, the scope of which is described in Section 6 of the Standard Large Generator Interconnection Procedures.

**Interconnection Feasibility Study Agreement** shall mean the form of agreement contained in Appendix 2 of the Standard Large Generator Interconnection Procedures for conducting the Interconnection Feasibility Study.

**Interconnection Request** shall mean an the Interconnection Customer's request, in the form of Appendix 1 to the Standard Large Generator Interconnection Procedures, in accordance with the Tariff, to interconnect a new Generating Facility, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an existing Generating Facility that is interconnected with the Transmission Provider's Transmission System.

**Interconnection Service** shall mean the service provided by the Transmission Provider associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Standard Large Generator Interconnection Agreement and, if applicable, the Transmission Provider's Tariff.

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**Interconnection Study** shall mean any of the following studies: the Interconnection Feasibility Study, the Interconnection System Impact Study, and the Interconnection Facilities Study described in the Standard Large Generator Interconnection Procedures.

**Interconnection System Impact Study** shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of the Transmission Provider's Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, focusing on the Adverse System Impacts identified in the Interconnection Feasibility Study, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Standard Large Generator Interconnection Procedures.

**Interconnection System Impact Study Agreement** shall mean the form of agreement contained in Appendix 3 of the Standard Large Generator Interconnection Procedures for conducting the Interconnection System Impact Study.

**IRS** shall mean the Internal Revenue Service.

**Joint Operating Committee** shall be a group made up of representatives from the Interconnection Customers and the Transmission Provider to coordinate operating and technical considerations of Interconnection Service.

**Large Generating Facility** shall mean a Generating Facility having a Generating Facility Capacity of more than 20 MW.

**Loss** shall mean any and all losses relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's performance, or non-performance of its obligations under the Standard Large Generator Interconnection Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnifying Party.

**Material Modification** shall mean those modifications that have a material impact on the cost or timing of any Interconnection Request with a later queue priority date.

**Metering Equipment** shall mean all metering equipment installed or to be installed at the Generating Facility pursuant to the Standard Large Generator Interconnection Agreement at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

**NERC** shall mean the North American Electric Reliability Council or its successor organization.

**Network Resource** shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

**Network Resource Interconnection Service** shall mean an Interconnection Service that allows the Interconnection Customer to integrate its Large Generating Facility with the Transmission Provider's Transmission System (1) in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers; or (2) in an RTO or ISO with market based congestion management, in the same manner as Network Resources. Network Resource Interconnection Service in and of itself does not convey transmission service.

**Network Upgrades** shall mean the additions, modifications, and upgrades to the Transmission Provider's Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission Provider's Transmission System to accommodate the interconnection of the Large Generating Facility to the Transmission Provider's Transmission System.

**Notice of Dispute** shall mean a written notice of a dispute or claim that arises out of or in connection with the Standard Large Generator Interconnection Agreement or its performance.

**Optional Interconnection Study** shall mean a sensitivity analysis based on assumptions specified by the Interconnection Customer in the Optional Interconnection Study Agreement.

**Optional Interconnection Study Agreement** shall mean the form of agreement contained in Appendix 5 of the Standard Large Generator Interconnection Procedures for conducting the Optional Interconnection Study.

**Party or Parties** shall mean the Transmission Provider, Transmission Owner, the Interconnection Customer or any combination of the above.

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**Point of Change of Ownership** shall mean the point, as set forth in Appendix A to the Standard Large Generator Interconnection Agreement, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Provider's Interconnection Facilities.

**Point of Interconnection** shall mean the point, as set forth in Appendix A to the Standard Large Generator Interconnection Agreement, where the Interconnection Facilities connect to the Transmission Provider's Transmission System.

**Queue Position** shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, that is established based upon the date and time of receipt of the valid Interconnection Request by the Transmission Provider.

**Reasonable Efforts** shall mean, with respect to an action required to be attempted or taken by a Party under the Standard Large Generator Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

**Scoping Meeting** shall mean the meeting between representatives of the Interconnection Customer and the Transmission Provider conducted for the purpose of discussing alternative interconnection options, to exchange information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

**Site Control** shall mean documentation reasonably demonstrating: (1) ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility; (2) an option to purchase or acquire a leasehold site for such purpose; or (3) an exclusivity or other business relationship between the Interconnection Customer and the entity having the right to sell, lease or grant the Interconnection Customer the right to possess or occupy a site for such purpose.

**Small Generating Facility** shall mean a Generating Facility that has a Generating Facility Capacity of no more than 20 MW.

**Stand Alone Network Upgrades** shall mean Network Upgrades that an the Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Both the Transmission Provider and the Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to the Standard Large Generator Interconnection Agreement.

**Standard Large Generator Interconnection Agreement (LGIA)** shall mean the form of interconnection agreement applicable to an Interconnection Request pertaining to a Large Generating Facility that is included in the Transmission Provider's Tariff.

**Standard Large Generator Interconnection Procedures (LGIP)** shall mean the interconnection procedures applicable to an Interconnection Request pertaining to a Large Generating Facility that are included in the Transmission Provider's Tariff.

**System Protection Facilities** shall mean the equipment, including necessary protection signal communications equipment, required to protect (1) the Transmission Provider's Transmission System from faults or other electrical disturbances occurring at the Generating Facility and (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission Provider's Transmission System or on other delivery systems or other generating systems to which the Transmission Provider's Transmission System is directly connected.

**Tariff** shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, as filed with FERC, and as amended or supplemented from time to time, or any successor tariff.

**Transmission Owner** shall mean an entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System at the Point of Interconnection and may be a Party to the Standard Large Generator Interconnection Agreement to the extent necessary.

**Transmission Provider** shall mean the public utility (or its designated agent) that owns, controls, or operates transmission or distribution facilities used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff. The term the Transmission Provider should be read to include the Transmission Owner when the Transmission Owner is separate from the Transmission Provider.

**Transmission Provider's Interconnection Facilities** shall mean all facilities and equipment owned, controlled or operated by the Transmission Provider from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to the Standard Large Generator Interconnection Agreement, including any modifications, additions or upgrades to such facilities and equipment. the Transmission Provider's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

**Transmission System** shall mean the facilities owned, controlled or operated by the Transmission Provider or Transmission Owner that are used to provide transmission service under the Tariff.

**Trial Operation** shall mean the period during which the Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operation.

## **Article 2. Effective Date, Term and Termination**

**2.1 Effective Date.** This LGIA shall become effective upon execution by the Parties subject to acceptance by FERC (if applicable), or if filed unexecuted, upon the date specified by FERC. Transmission Provider shall promptly file this LGIA with FERC upon execution in accordance with Article 3.1, if required.

**2.2 Term of Agreement.** Subject to the provisions of Article 2.3, this LGIA shall remain in effect for a period of ten (10) years from the Effective Date or such other longer period as Interconnection Customer may request (*Term to be specified in individual agreements*) and shall be automatically renewed for each successive one-year period thereafter.

### **2.3 Termination Procedures.**

**2.3.1 Written Notice.** This LGIA may be terminated by Interconnection Customer after giving Transmission Provider ninety (90) Calendar Days advance written notice, or by Transmission Provider notifying FERC after the Generating Facility permanently ceases Commercial Operation.

**2.3.2 Default.** Either Party may terminate this LGIA in accordance with Article 17.

**2.3.3** Notwithstanding Articles 2.3.1 and 2.3.2, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with FERC of a notice of termination of this LGIA, which notice has been accepted for filing by FERC.

**2.4 Termination Costs.** If a Party elects to terminate this Agreement pursuant to Article 2.3 above, each Party shall pay all costs incurred (including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment) or charges assessed by the other Party, as of the date of the other Party's receipt of such notice of termination, that are the responsibility of the Terminating Party under this LGIA. In the event of termination by a Party, the Parties shall use commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this LGIA, unless otherwise ordered or approved by FERC:

**2.4.1** With respect to any portion of Transmission Provider's Interconnection Facilities that have not yet been constructed or installed, Transmission Provider shall to the extent possible and with Interconnection Customer's authorization cancel any

pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and Transmission Provider shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Provider for any or all such costs of materials or equipment not taken by Interconnection Customer, Transmission Provider shall promptly refund such amounts to Interconnection Customer, less any costs, including penalties incurred by Transmission Provider to cancel any pending orders of or return such materials, equipment, or contracts.

If an Interconnection Customer terminates this LGIA, it shall be responsible for all costs incurred in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any Network Upgrades for which Transmission Provider has incurred expenses and has not been reimbursed by Interconnection Customer.

**2.4.2** Transmission Provider may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept delivery of, in which case Transmission Provider shall be responsible for all costs associated with procuring such materials, equipment, or facilities.

**2.4.3** With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this LGIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation or other disposition or retirement of such materials, equipment, or facilities.

**2.5** **Disconnection.** Upon termination of this LGIA, the Parties will take all appropriate steps to disconnect the Large Generating Facility from the Transmission System. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this LGIA or such non-terminating Party otherwise is responsible for these costs under this LGIA.

**2.6** **Survival.** This LGIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this LGIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this LGIA was in effect; and to permit each Party to have access to the lands of the other Party pursuant to this LGIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

### **Article 3. Regulatory Filings**

- 3.1 Filing.** Transmission Provider shall file this LGIA (and any amendment hereto) with the appropriate Governmental Authority, if required. Interconnection Customer may request that any information so provided be subject to the confidentiality provisions of Article 22. If Interconnection Customer has executed this LGIA, or any amendment thereto, Interconnection Customer shall reasonably cooperate with Transmission Provider with respect to such filing and to provide any information reasonably requested by Transmission Provider needed to comply with applicable regulatory requirements.

**Article 4. Scope of Service**

- 4.1 Interconnection Product Options.** Interconnection Customer has selected the following (checked) type of Interconnection Service:

**4.1.1 Energy Resource Interconnection Service.**

**4.1.1.1 The Product.** Energy Resource Interconnection Service allows Interconnection Customer to connect the Large Generating Facility to the Transmission System and be eligible to deliver the Large Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. To the extent Interconnection Customer wants to receive Energy Resource Interconnection Service, Transmission Provider shall construct facilities identified in Attachment A.

**4.1.1.2 Transmission Delivery Service Implications.** Under Energy Resource Interconnection Service, Interconnection Customer will be eligible to inject power from the Large Generating Facility into and deliver power across the interconnecting Transmission Provider's Transmission System on an "as available" basis up to the amount of MW's identified in the applicable stability and steady state studies to the extent the upgrades initially required to qualify for Energy Resource Interconnection Service have been constructed. Where eligible to do so (e.g., PJM, ISO-NE, NYISO), Interconnection Customer may place a bid to sell into the market up to the maximum identified Large Generating Facility output, subject to any conditions specified in the interconnection service approval, and the Large Generating Facility will be dispatched to the extent Interconnection Customer's bid clears. In all other instances, no transmission delivery service from the Large Generating Facility is assured, but Interconnection Customer may obtain Point-to-Point Transmission Service, Network Integration Transmission Service, or be used for secondary network transmission service, pursuant to Transmission Provider's Tariff, up to the maximum output identified in the stability and steady

state studies. In those instances, in order for Interconnection Customer to obtain the right to deliver or inject energy beyond the Large Generating Facility Point of Interconnection or to improve its ability to do so, transmission delivery service must be obtained pursuant to the provisions of Transmission Provider's Tariff. The Interconnection Customer's ability to inject its Large Generating Facility output beyond the Point of Interconnection, therefore, will depend on the existing capacity of Transmission Provider's Transmission System at such time as a transmission service request is made that would accommodate such delivery. The provision of firm Point-to-Point Transmission Service or Network Integration Transmission Service may require the construction of additional Network Upgrades.

#### 4.1.2 Network Resource Interconnection Service.



**4.1.2.1 The Product.** Transmission Provider must conduct the necessary studies and construct the Network Upgrades needed to integrate the Large Generating Facility (1) in a manner comparable to that in which Transmission Provider integrates its generating facilities to serve native load customers; or (2) in an ISO or RTO with market based congestion management, in the same manner as all Network Resources. To the extent Interconnection Customer wants to receive Network Resource Interconnection Service, Transmission Provider shall construct the facilities identified in Attachment A to this LGIA.

**4.1.2.2 Transmission Delivery Service Implications.** Network Resource Interconnection Service allows Interconnection Customer's Large Generating Facility to be designated by any Network Customer under the Tariff on Transmission Provider's Transmission System as a Network Resource, up to the Large Generating Facility's full output, on the same basis as existing Network Resources interconnected to Transmission Provider's Transmission System, and to be studied as a Network Resource on the assumption that such a designation will occur. Although Network Resource Interconnection Service does not convey a reservation of transmission service, any Network Customer under the Tariff can utilize its network service under the Tariff to obtain delivery of energy from the interconnected Interconnection Customer's Large Generating Facility in the same manner as it accesses Network Resources. A Large Generating Facility receiving Network Resource Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Large Generating Facility's

ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if an Interconnection Customer's Large Generating Facility has not been designated as a Network Resource by any load, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all generating facilities that are similarly situated. The provision of Network Integration Transmission Service or firm Point-to-Point Transmission Service may require additional studies and the construction of additional upgrades. Because such studies and upgrades would be associated with a request for delivery service under the Tariff, cost responsibility for the studies and upgrades would be in accordance with FERC's policy for pricing transmission delivery services.

Network Resource Interconnection Service does not necessarily provide Interconnection Customer with the capability to physically deliver the output of its Large Generating Facility to any particular load on Transmission Provider's Transmission System without incurring congestion costs. In the event of transmission constraints on Transmission Provider's Transmission System, Interconnection Customer's Large Generating Facility shall be subject to the applicable congestion management procedures in Transmission Provider's Transmission System in the same manner as Network Resources.

There is no requirement either at the time of study or interconnection, or at any point in the future, that Interconnection Customer's Large Generating Facility be designated as a Network Resource by a Network Service Customer under the Tariff or that Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Large Generating Facility as a Network Resource, it must do so pursuant to Transmission Provider's Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining Network Resource Interconnection Service, any future transmission service request for delivery from the Large Generating Facility within Transmission Provider's Transmission System of any amount of capacity and/or energy, up to the amount initially studied, will not require that any additional studies be performed or that any further upgrades associated with such Large Generating Facility be undertaken, regardless of whether or not such Large Generating Facility is ever designated by a Network Customer as a Network Resource and regardless of changes in

ownership of the Large Generating Facility. However, the reduction or elimination of congestion or redispatch costs may require additional studies and the construction of additional upgrades.

To the extent Interconnection Customer enters into an arrangement for long term transmission service for deliveries from the Large Generating Facility outside Transmission Provider's Transmission System, such request may require additional studies and upgrades in order for Transmission Provider to grant such request.

- 4.2 Provision of Service.** Transmission Provider shall provide Interconnection Service for the Large Generating Facility at the Point of Interconnection.
- 4.3 Performance Standards.** Each Party shall perform all of its obligations under this LGIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice, and to the extent a Party is required or prevented or limited in taking any action by such regulations and standards, such Party shall not be deemed to be in Breach of this LGIA for its compliance therewith. If such Party is a Transmission Provider or Transmission Owner, then that Party shall amend the LGIA and submit the amendment to FERC for approval.
- 4.4 No Transmission Delivery Service.** The execution of this LGIA does not constitute a request for, nor the provision of, any transmission delivery service under Transmission Provider's Tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.
- 4.5 Interconnection Customer Provided Services.** The services provided by Interconnection Customer under this LGIA are set forth in Article 9.6 and Article 13.5.1. Interconnection Customer shall be paid for such services in accordance with Article 11.6.

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## **Article 5. Interconnection Facilities Engineering, Procurement, and Construction**

- 5.1 Options.** Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select the In-Service Date, Initial Synchronization Date, and Commercial Operation Date; and either Standard Option or Alternate Option set forth below for completion of Transmission Provider's Interconnection Facilities and Network Upgrades as set forth in Appendix A, Interconnection Facilities and Network Upgrades, and such dates and selected option shall be set forth in Appendix B, Milestones.
- 5.1.1 Standard Option.** Transmission Provider shall design, procure, and construct Transmission Provider's Interconnection Facilities and Network Upgrades, using Reasonable Efforts to complete Transmission Provider's Interconnection Facilities and Network Upgrades by the dates set forth in Appendix B, Milestones. Transmission Provider shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment

specifications, its design criteria and construction procedures, its labor agreements, and Applicable Laws and Regulations. In the event Transmission Provider reasonably expects that it will not be able to complete Transmission Provider's Interconnection Facilities and Network Upgrades by the specified dates, Transmission Provider shall promptly provide written notice to Interconnection Customer and shall undertake Reasonable Efforts to meet the earliest dates thereafter.

- 5.1.2 Alternate Option.** If the dates designated by Interconnection Customer are acceptable to Transmission Provider, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days, and shall assume responsibility for the design, procurement and construction of Transmission Provider's Interconnection Facilities by the designated dates.

If Transmission Provider subsequently fails to complete Transmission Provider's Interconnection Facilities by the In-Service Date, to the extent necessary to provide back feed power; or fails to complete Network Upgrades by the Initial Synchronization Date to the extent necessary to allow for Trial Operation at full power output, unless other arrangements are made by the Parties for such Trial Operation; or fails to complete the Network Upgrades by the Commercial Operation Date, as such dates are reflected in Appendix B, Milestones; Transmission Provider shall pay Interconnection Customer liquidated damages in accordance with Article 5.3, Liquidated Damages, provided, however, the dates designated by Interconnection Customer shall be extended day for day for each day that the applicable RTO or ISO refuses to grant clearances to install equipment.

- 5.1.3 Option to Build.** If the dates designated by Interconnection Customer are not acceptable to Transmission Provider, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days, and unless the Parties agree otherwise, Interconnection Customer shall have the option to assume responsibility for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades on the dates specified in Article 5.1.2.. Transmission Provider and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A. Except for Stand Alone Network Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

- 5.1.4 Negotiated Option.** If Interconnection Customer elects not to exercise its option under Article 5.1.3, Option to Build, Interconnection Customer shall so notify Transmission Provider within thirty (30) Calendar Days, and the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives or the procurement and construction of a portion of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades by Interconnection

Customer) pursuant to which Transmission Provider is responsible for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Network Upgrades. If the Parties are unable to reach agreement on such terms and conditions, Transmission Provider shall assume responsibility for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Network Upgrades pursuant to 5.1.1, Standard Option.

**5.2 General Conditions Applicable to Option to Build.** If Interconnection Customer assumes responsibility for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades,

(1) Interconnection Customer shall engineer, procure equipment, and construct Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by Transmission Provider;

(2) Interconnection Customer's engineering, procurement and construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades shall comply with all requirements of law and Applicable Reliability Standards to which Transmission Provider would be subject in the engineering, procurement or construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades;

(3) Transmission Provider shall review and approve the engineering design, equipment acceptance tests, and the construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades;

(4) prior to commencement of construction, Interconnection Customer shall provide to Transmission Provider a schedule for construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades, and shall promptly respond to requests for information from Transmission Provider;

(5) at any time during construction, Transmission Provider shall have the right to gain unrestricted access to Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades and to conduct inspections of the same;

(6) at any time during construction, should any phase of the engineering, equipment procurement, or construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades not meet the standards and specifications provided by Transmission Provider, Interconnection Customer shall be obligated to remedy deficiencies in that portion of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades;

(7) Interconnection Customer shall indemnify Transmission Provider for claims arising from Interconnection Customer's construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades under the terms and procedures applicable to Article 18.1 Indemnity;

(8) Interconnection Customer shall transfer control of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Provider;

(9) Unless Parties otherwise agree, Interconnection Customer shall transfer ownership of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Provider

(10) Transmission Provider shall approve and accept for operation and maintenance Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades to the extent engineered, procured, and constructed in accordance with this Article 5.2.; and

(11) Interconnection Customer shall deliver to Transmission Provider "as-built" drawings, information, and any other documents that are reasonably required by Transmission Provider to assure that the Interconnection Facilities and Stand-Alone Network Upgrades are built to the standards and specifications required by Transmission Provider.

**5.3 Liquidated Damages.** The actual damages to Interconnection Customer, in the event Transmission Provider's Interconnection Facilities or Network Upgrades are not completed by the dates designated by Interconnection Customer and accepted by Transmission Provider pursuant to subparagraphs 5.1.2 or 5.1.4, above, may include Interconnection Customer's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. Because of such uncertainty, any liquidated damages paid by Transmission Provider to Interconnection Customer in the event that Transmission Provider does not complete any portion of Transmission Provider's Interconnection Facilities or Network Upgrades by the applicable dates, shall be an amount equal to ½ of 1 percent per day of the actual cost of Transmission Provider's Interconnection Facilities and Network Upgrades, in the aggregate, for which Transmission Provider has assumed responsibility to design, procure and construct.

However, in no event shall the total liquidated damages exceed 20 percent of the actual cost of Transmission Provider's Interconnection Facilities and Network Upgrades for which Transmission Provider has assumed responsibility to design, procure, and construct. The foregoing payments will be made by Transmission Provider to Interconnection Customer as just compensation for the damages caused to Interconnection Customer, which actual damages are uncertain and impossible to determine at this time, and as reasonable liquidated damages, but not as a penalty or a method to secure performance of this LGIA. Liquidated damages, when the Parties agree

to them, are the exclusive remedy for the Transmission Provider's failure to meet its schedule.

No liquidated damages shall be paid to Interconnection Customer if: (1) Interconnection Customer is not ready to commence use of Transmission Provider's Interconnection Facilities or Network Upgrades to take the delivery of power for the Large Generating Facility's Trial Operation or to export power from the Large Generating Facility on the specified dates, unless Interconnection Customer would have been able to commence use of Transmission Provider's Interconnection Facilities or Network Upgrades to take the delivery of power for Large Generating Facility's Trial Operation or to export power from the Large Generating Facility, but for Transmission Provider's delay; (2) Transmission Provider's failure to meet the specified dates is the result of the action or inaction of Interconnection Customer or any other Interconnection Customer who has entered into an LGIA with Transmission Provider or any cause beyond Transmission Provider's reasonable control or reasonable ability to cure; (3) the Interconnection Customer has assumed responsibility for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades; or (4) the Parties have otherwise agreed.

**5.4 Power System Stabilizers.** The Interconnection Customer shall procure, install, maintain and operate Power System Stabilizers in accordance with the guidelines and procedures established by the Applicable Reliability Council. Transmission Provider reserves the right to reasonably establish minimum acceptable settings for any installed Power System Stabilizers, subject to the design and operating limitations of the Large Generating Facility. If the Large Generating Facility's Power System Stabilizers are removed from service or not capable of automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to wind generators.

**5.5 Equipment Procurement.** If responsibility for construction of Transmission Provider's Interconnection Facilities or Network Upgrades is to be borne by Transmission Provider, then Transmission Provider shall commence design of Transmission Provider's Interconnection Facilities or Network Upgrades and procure necessary equipment as soon as practicable after all of the following conditions are satisfied, unless the Parties otherwise agree in writing:

**5.5.1** Transmission Provider has completed the Facilities Study pursuant to the Facilities Study Agreement;

**5.5.2** Transmission Provider has received written authorization to proceed with design and procurement from Interconnection Customer by the date specified in Appendix B, Milestones; and

**5.5.3** Interconnection Customer has provided security to Transmission Provider in accordance with Article 11.5 by the dates specified in Appendix B, Milestones.

- 5.6 Construction Commencement.** Transmission Provider shall commence construction of Transmission Provider's Interconnection Facilities and Network Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:
- 5.6.1** Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval;
  - 5.6.2** Necessary real property rights and rights-of-way have been obtained, to the extent required for the construction of a discrete aspect of Transmission Provider's Interconnection Facilities and Network Upgrades;
  - 5.6.3** Transmission Provider has received written authorization to proceed with construction from Interconnection Customer by the date specified in Appendix B, Milestones; and
  - 5.6.4** Interconnection Customer has provided security to Transmission Provider in accordance with Article 11.5 by the dates specified in Appendix B, Milestones.
- 5.7 Work Progress.** The Parties will keep each other advised periodically as to the progress of their respective design, procurement and construction efforts. Either Party may, at any time, request a progress report from the other Party. If, at any time, Interconnection Customer determines that the completion of Transmission Provider's Interconnection Facilities will not be required until after the specified In-Service Date, Interconnection Customer will provide written notice to Transmission Provider of such later date upon which the completion of Transmission Provider's Interconnection Facilities will be required.
- 5.8 Information Exchange.** As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Parties' Interconnection Facilities and compatibility of the Interconnection Facilities with Transmission Provider's Transmission System, and shall work diligently and in good faith to make any necessary design changes.
- 5.9 Limited Operation.** If any of Transmission Provider's Interconnection Facilities or Network Upgrades are not reasonably expected to be completed prior to the Commercial Operation Date of the Large Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Large Generating Facility and Interconnection Customer's Interconnection Facilities may operate prior to the completion of Transmission Provider's Interconnection Facilities or Network Upgrades consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and this LGIA. Transmission Provider shall permit Interconnection Customer to operate the Large Generating Facility and Interconnection Customer's Interconnection Facilities in accordance with the results of such studies.

**5.10 Interconnection Customer's Interconnection Facilities ("ICIF").**

Interconnection Customer shall, at its expense, design, procure, construct, own and install the ICIF, as set forth in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

**5.10.1 Interconnection Customer's Interconnection Facility Specifications.**

Interconnection Customer shall submit initial specifications for the ICIF, including System Protection Facilities, to Transmission Provider at least one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date; and final specifications for review and comment at least ninety (90) Calendar Days prior to the Initial Synchronization Date. Transmission Provider shall review such specifications to ensure that the ICIF are compatible with the technical specifications, operational control, and safety requirements of Transmission Provider and comment on such specifications within thirty (30) Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

**5.10.2 Transmission Provider's Review.** Transmission Provider's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing a warranty as to the design, fitness, safety, durability or reliability of the Large Generating Facility, or the ICIF. Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Provider, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the technical specifications, operational control, and safety requirements of Transmission Provider.**5.10.3 ICIF Construction.** The ICIF shall be designed and constructed in accordance with Good Utility Practice. Within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Interconnection Customer shall deliver to Transmission Provider "as-built" drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan showing the Large Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with Interconnection Customer's step-up transformers, the facilities connecting the Large Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Large Generating Facilities. The Interconnection Customer shall provide Transmission Provider specifications for the excitation system, automatic voltage regulator, Large Generating Facility control and protection settings, transformer tap settings, and communications, if applicable.

**5.11 Transmission Provider's Interconnection Facilities Construction.** Transmission Provider's Interconnection Facilities shall be designed and constructed in accordance with Good Utility Practice. Upon request, within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Transmission Provider shall deliver to Interconnection Customer the following “as-built” drawings, information and documents for Transmission Provider’s Interconnection Facilities [include appropriate drawings and relay diagrams].

Transmission Provider will obtain control of Transmission Provider’s Interconnection Facilities and Stand Alone Network Upgrades upon completion of such facilities.

**5.12 Access Rights.** Upon reasonable notice and supervision by a Party, and subject to any required or necessary regulatory approvals, a Party (“Granting Party”) shall furnish *at no cost* to the other Party (“Access Party”) any rights of use, licenses, rights of way and easements with respect to lands owned or controlled by the Granting Party, its agents (if allowed under the applicable agency agreement), or any Affiliate, that are necessary to enable the Access Party to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to: (i) interconnect the Large Generating Facility with the Transmission System; (ii) operate and maintain the Large Generating Facility, the Interconnection Facilities and the Transmission System; and (iii) disconnect or remove the Access Party’s facilities and equipment upon termination of this LGIA. In exercising such licenses, rights of way and easements, the Access Party shall not unreasonably disrupt or interfere with normal operation of the Granting Party’s business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Granting Party and provided to the Access Party.

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**5.13 Lands of Other Property Owners.** If any part of Transmission Provider or Transmission Owner's Interconnection Facilities and/or Network Upgrades is to be installed on property owned by persons other than Interconnection Customer or Transmission Provider or Transmission Owner, Transmission Provider or Transmission Owner shall at Interconnection Customer's expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf, or on behalf of its Affiliates, including use of its eminent domain authority, and to the extent consistent with state law, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove Transmission Provider or Transmission Owner's Interconnection Facilities and/or Network Upgrades upon such property.

**5.14 Permits.** Transmission Provider or Transmission Owner and Interconnection Customer shall cooperate with each other in good faith in obtaining all permits, licenses, and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations. With respect to this paragraph, Transmission Provider or Transmission Owner shall provide permitting assistance to Interconnection Customer comparable to that provided to Transmission Provider's own, or an Affiliate's generation.

- 5.15 Early Construction of Base Case Facilities.** Interconnection Customer may request Transmission Provider to construct, and Transmission Provider shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades required for Interconnection Customer to be interconnected to the Transmission System which are included in the Base Case of the Facilities Study for Interconnection Customer, and which also are required to be constructed for another Interconnection Customer, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date.
- 5.16 Suspension.** Interconnection Customer reserves the right, upon written notice to Transmission Provider, to suspend at any time all work by Transmission Provider associated with the construction and installation of Transmission Provider's Interconnection Facilities and/or Network Upgrades required under this LGIA with the condition that Transmission System shall be left in a safe and reliable condition in accordance with Good Utility Practice and Transmission Provider's safety and reliability criteria. In such event, Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Provider (i) has incurred pursuant to this LGIA prior to the suspension and (ii) incurs in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission System during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Provider cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Provider shall obtain Interconnection Customer's authorization to do so.

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Transmission Provider shall invoice Interconnection Customer for such costs pursuant to Article 12 and shall use due diligence to minimize its costs. In the event Interconnection Customer suspends work by Transmission Provider required under this LGIA pursuant to this Article 5.16, and has not requested Transmission Provider to recommence the work required under this LGIA on or before the expiration of three (3) years following commencement of such suspension, this LGIA shall be deemed terminated. The three year period shall begin on the date the suspension is requested, or the date of the written notice to Transmission Provider, if no effective date is specified.

**5.17 Taxes.**

**5.17.1 Interconnection Customer Payments Not Taxable.** The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Provider for the installation of Transmission Provider's Interconnection Facilities and the Network Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under the Internal Revenue Code and any applicable state income tax laws.

**5.17.2 Representations and Covenants.** In accordance with IRS Notice 2001-82 and IRS Notice 88-129, Interconnection Customer represents and covenants that (i) ownership of the electricity generated at the Large Generating Facility will pass to another party prior to the transmission of the electricity on the Transmission System, (ii) for income tax purposes, the amount of any payments and the cost of any property transferred to Transmission Provider for Transmission Provider's Interconnection Facilities will be capitalized by Interconnection Customer as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of Transmission Provider's Interconnection Facilities that is a "dual-use intertie," within the meaning of IRS Notice 88-129, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Large Generating Facility. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 88-129. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At Transmission Provider's request, Interconnection Customer shall provide Transmission Provider with a report from an independent engineer confirming its representation in clause (iii), above. Transmission Provider represents and covenants that the cost of Transmission Provider's Interconnection Facilities paid for by Interconnection Customer will have no net effect on the base upon which rates are determined.

**5.17.3 Indemnification for the Cost Consequences of Current Tax Liability Imposed Upon the Transmission Provider.**

Notwithstanding Article 5.17.1, Interconnection Customer shall protect, indemnify and hold harmless Transmission Provider from the cost consequences of any current tax liability imposed against Transmission Provider as the result of payments or property transfers made by Interconnection Customer to Transmission Provider under this LGIA for Interconnection Facilities, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by Transmission Provider.

Transmission Provider shall not include a gross-up for the cost consequences of any current tax liability in the amounts it charges Interconnection Customer under this LGIA unless (i) Transmission Provider has determined, in good faith, that the payments or property transfers made by Interconnection Customer to Transmission Provider should be reported as income subject to taxation or (ii) any Governmental Authority directs Transmission Provider to report payments or property as income subject to taxation; provided, however, that Transmission Provider may require Interconnection Customer to provide security for Interconnection Facilities, in a form reasonably acceptable to Transmission Provider (such as a parental guarantee or a letter of credit), in an amount equal to the cost consequences of any current tax liability under this Article 5.17. Interconnection Customer shall reimburse Transmission Provider for such costs on a fully grossed-up basis, in accordance with Article 5.17.4, within thirty (30) Calendar Days of receiving written notification from Transmission Provider of the amount due, including detail about how the amount was calculated.

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The indemnification obligation shall terminate at the earlier of (1) the expiration of the ten year testing period and the applicable statute of limitation, as it may be extended by Transmission Provider upon request of the IRS, to keep these years open for audit or adjustment, or (2) the occurrence of a subsequent taxable event and the payment of any related indemnification obligations as contemplated by this Article 5.17.

**5.17.4 Tax Gross-Up Amount.** Interconnection Customer's liability for the cost consequences of any current tax liability under this Article 5.17 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the parties, this means that Interconnection Customer will pay Transmission Provider, in addition to the amount paid for the Interconnection Facilities and Network Upgrades, an amount equal to (1) the current taxes imposed on Transmission Provider ("Current Taxes") on the excess of (a) the gross income realized by Transmission Provider as a result of payments or property transfers made by Interconnection Customer to Transmission Provider under this LGIA (without regard to

any payments under this Article 5.17) (the “Gross Income Amount”) over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the “Present Value Depreciation Amount”), plus (2) an additional amount sufficient to permit Transmission Provider to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on Transmission Provider’s composite federal and state tax rates at the time the payments or property transfers are received and Transmission Provider will be treated as being subject to tax at the highest marginal rates in effect at that time (the “Current Tax Rate”), and (ii) the Present Value Depreciation Amount shall be computed by discounting Transmission Provider’s anticipated tax depreciation deductions as a result of such payments or property transfers by Transmission Provider’s current weighted average cost of capital. Thus, the formula for calculating Interconnection Customer's liability to Transmission Owner pursuant to this Article 5.17.4 can be expressed as follows:  $(\text{Current Tax Rate} \times (\text{Gross Income Amount} - \text{Present Value of Tax Depreciation})) / (1 - \text{Current Tax Rate})$ . Interconnection Customer's estimated tax liability in the event taxes are imposed shall be stated in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

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**5.17.5 Private Letter Ruling or Change or Clarification of Law.** At Interconnection Customer's request and expense, Transmission Provider shall file with the IRS a request for a private letter ruling as to whether any property transferred or sums paid, or to be paid, by Interconnection Customer to Transmission Provider under this LGIA are subject to federal income taxation. Interconnection Customer will prepare the initial draft of the request for a private letter ruling, and will certify under penalties of perjury that all facts represented in such request are true and accurate to the best of Interconnection Customer's knowledge. Transmission Provider and Interconnection Customer shall cooperate in good faith with respect to the submission of such request.

Transmission Provider shall keep Interconnection Customer fully informed of the status of such request for a private letter ruling and shall execute either a privacy act waiver or a limited power of attorney, in a form acceptable to the IRS, that authorizes Interconnection Customer to participate in all discussions with the IRS regarding such request for a private letter ruling. Transmission Provider shall allow Interconnection Customer to attend all meetings with IRS officials about the request and shall permit Interconnection Customer to prepare the initial drafts of any follow-up letters in connection with the request.

**5.17.6 Subsequent Taxable Events.** If, within 10 years from the date on which the relevant Transmission Provider's Interconnection Facilities are placed in service, (i) Interconnection Customer Breaches the covenants contained in Article 5.17.2, (ii) a "disqualification event" occurs within the meaning of IRS Notice 88-129, or (iii) this LGIA terminates and Transmission Provider retains ownership of the Interconnection Facilities and Network Upgrades, Interconnection Customer shall pay a tax gross-up for the cost consequences of any current tax liability imposed on Transmission Provider, calculated using the methodology described in Article 5.17.4 and in accordance with IRS Notice 90-60.

**5.17.7 Contests.** In the event any Governmental Authority determines that Transmission Provider's receipt of payments or property constitutes income that is subject to taxation, Transmission Provider shall notify Interconnection Customer, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by Interconnection Customer and at Interconnection Customer's sole expense, Transmission Provider may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon Interconnection Customer's written request and sole expense, Transmission Provider may file a claim for refund with respect to any taxes paid under this Article 5.17, whether or not it has received such a determination. Transmission Provider reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but Transmission Provider shall keep Interconnection Customer informed, shall consider in good faith suggestions from Interconnection Customer about the conduct of the contest, and shall reasonably permit Interconnection Customer or an Interconnection Customer representative to attend contest proceedings.

Interconnection Customer shall pay to Transmission Provider on a periodic basis, as invoiced by Transmission Provider, Transmission Provider's documented reasonable costs of prosecuting such appeal, protest, abatement or other contest. At any time during the contest, Transmission Provider may agree to a settlement either with Interconnection Customer's consent or after obtaining written advice from nationally-recognized tax counsel, selected by Transmission Provider, but reasonably acceptable to Interconnection Customer, that the proposed settlement represents a reasonable settlement given the hazards of litigation. Interconnection Customer's obligation shall be based on the amount of the settlement agreed to by Interconnection Customer, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding sentence. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the

current tax liability. Any settlement without Interconnection Customer's consent or such written advice will relieve Interconnection Customer from any obligation to indemnify Transmission Provider for the tax at issue in the contest.

#### 5.17.8

**Refund.** In the event that (a) a private letter ruling is issued to Transmission Provider which holds that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Provider under the terms of this LGIA is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to Transmission Provider in good faith that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Provider under the terms of this LGIA is not taxable to Transmission Provider, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by Interconnection Customer to Transmission Provider are not subject to federal income tax, or (d) if Transmission Provider receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by Interconnection Customer to Transmission Provider pursuant to this LGIA, Transmission Provider shall promptly refund to Interconnection Customer the following:

(i) any payment made by Interconnection Customer under this Article 5.17 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,

(ii) interest on any amounts paid by Interconnection Customer to Transmission Provider for such taxes which Transmission Provider did not submit to the taxing authority, calculated in accordance with the methodology set forth in FERC's regulations at 18 CFR §35.19a(a)(2)(iii) from the date payment was made by Interconnection Customer to the date Transmission Provider refunds such payment to Interconnection Customer, and

(iii) with respect to any such taxes paid by Transmission Provider, any refund or credit Transmission Provider receives or to which it may be entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to Transmission Provider for such overpayment of taxes (including any reduction in interest otherwise payable by Transmission Provider to any Governmental Authority resulting from an offset or credit); provided, however, that Transmission Provider will remit such amount promptly to Interconnection Customer only after and to the extent that Transmission Provider has received a tax refund, credit or offset from any Governmental

Authority for any applicable overpayment of income tax related to Transmission Provider's Interconnection Facilities.

The intent of this provision is to leave the Parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities and Network Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

**5.17.9 Taxes Other Than Income Taxes.** Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, Transmission Provider may appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against Transmission Provider for which Interconnection Customer may be required to reimburse Transmission Provider under the terms of this LGIA. Interconnection Customer shall pay to Transmission Provider on a periodic basis, as invoiced by Transmission Provider, Transmission Provider's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and Transmission Provider shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to Transmission Provider for such taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by Transmission Provider.

**5.17.10 Transmission Owners Who Are Not Transmission Providers.** If Transmission Provider is not the same entity as the Transmission Owner, then (i) all references in this Article 5.17 to Transmission Provider shall be deemed also to refer to and to include the Transmission Owner, as appropriate, and (ii) this LGIA shall not become effective until such Transmission Owner shall have agreed in writing to assume all of the duties and obligations of Transmission Provider under this Article 5.17 of this LGIA.

**5.18 Tax Status.** Each Party shall cooperate with the other to maintain the other Party's tax status. Nothing in this LGIA is intended to adversely affect any Transmission Provider's tax exempt status with respect to the issuance of bonds including, but not limited to, Local Furnishing Bonds.

## 5.19 Modification

**5.19.1 General.** Either Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect the other Party's facilities, that Party shall provide to the other Party sufficient information regarding such modification so that the other Party may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be confidential hereunder and shall include information concerning the timing of such modifications and whether such modifications are expected to interrupt the flow of electricity from the Large Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Party at least ninety (90) Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Large Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Provider shall provide, within thirty (30) Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission System, Transmission Provider's Interconnection Facilities or Network Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof.

**5.19.2 Standards.** Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this LGIA, Applicable Reliability Standards and Good Utility Practice.

**5.19.3 Modification Costs.** Interconnection Customer shall not be directly assigned for the costs of any additions, modifications, or replacements that Transmission Provider makes to Transmission Provider's Interconnection Facilities or the Transmission System to facilitate the interconnection of a third party to Transmission Provider's Interconnection Facilities or the Transmission System, or to provide transmission service to a third party under Transmission Provider's Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to Interconnection Customer's Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer's Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

## Article 6. Testing and Inspection

- 6.1 Pre-Commercial Operation Date Testing and Modifications.** Prior to the Commercial Operation Date, Transmission Provider shall test Transmission Provider's Interconnection Facilities and Network Upgrades and Interconnection Customer shall test the Large Generating Facility and Interconnection Customer's Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Each Party shall make any modifications to its facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Large Generating Facility only if it has arranged for the delivery of such test energy.
- 6.2 Post-Commercial Operation Date Testing and Modifications.** Each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Large Generating Facility with the Transmission System in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the other Party's facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.
- 6.3 Right to Observe Testing.** Each Party shall notify the other Party in advance of its performance of tests of its Interconnection Facilities. The other Party has the right, at its own expense, to observe such testing.
- 6.4 Right to Inspect.** Each Party shall have the right, but shall have no obligation to: (i) observe the other Party's tests and/or inspection of any of its System Protection Facilities and other protective equipment, including Power System Stabilizers; (ii) review the settings of the other Party's System Protection Facilities and other protective equipment; and (iii) review the other Party's maintenance records relative to the Interconnection Facilities, the System Protection Facilities and other protective equipment. A Party may exercise these rights from time to time, as it deems necessary upon reasonable notice to the other Party. The exercise or non-exercise by a Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that a Party obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be Confidential Information and treated pursuant to Article 22 of this LGIA.

## **Article 7. Metering**

- 7.1 General.** Each Party shall comply with the Applicable Reliability Council requirements. Unless otherwise agreed by the Parties, Transmission Provider shall install Metering Equipment at the Point of Interconnection prior to any operation of the Large Generating Facility and shall own, operate, test and maintain such Metering Equipment. Power flows to and from the Large Generating Facility shall be measured at or, at Transmission Provider's option, compensated to, the Point of Interconnection. Transmission Provider shall provide metering quantities, in analog and/or digital form, to Interconnection

Customer upon request. Interconnection Customer shall bear all reasonable documented costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment.

- 7.2 Check Meters.** Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Interconnection, one or more check meters to check Transmission Provider's meters. Such check meters shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this LGIA, except as provided in Article 7.4 below. The check meters shall be subject at all reasonable times to inspection and examination by Transmission Provider or its designee. The installation, operation and maintenance thereof shall be performed entirely by Interconnection Customer in accordance with Good Utility Practice.
- 7.3 Standards.** Transmission Provider shall install, calibrate, and test revenue quality Metering Equipment in accordance with applicable ANSI standards.
- 7.4 Testing of Metering Equipment.** Transmission Provider shall inspect and test all Transmission Provider-owned Metering Equipment upon installation and at least once every two (2) years thereafter. If requested to do so by Interconnection Customer, Transmission Provider shall, at Interconnection Customer's expense, inspect or test Metering Equipment more frequently than every two (2) years. Transmission Provider shall give reasonable notice of the time when any inspection or test shall take place, and Interconnection Customer may have representatives present at the test or inspection. If at any time Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced at Interconnection Customer's expense, in order to provide accurate metering, unless the inaccuracy or defect is due to Transmission Provider's failure to maintain, then Transmission Provider shall pay. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than two percent from the measurement made by the standard meter used in the test, Transmission Provider shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using Interconnection Customer's check meters, if installed. If no such check meters are installed or if the period cannot be reasonably ascertained, the adjustment shall be for the period immediately preceding the test of the Metering Equipment equal to one-half the time from the date of the last previous test of the Metering Equipment.
- 7.5 Metering Data.** At Interconnection Customer's expense, the metered data shall be telemetered to one or more locations designated by Transmission Provider and one or more locations designated by Interconnection Customer. Such telemetered data shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from the Large Generating Facility to the Point of Interconnection.

## Article 8. Communications

**8.1 Interconnection Customer Obligations.** Interconnection Customer shall maintain satisfactory operating communications with Transmission Provider's Transmission System dispatcher or representative designated by Transmission Provider. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Large Generating Facility control room or central dispatch facility through use of either the public telephone system, or a voice communications system that does not rely on the public telephone system. Interconnection Customer shall also provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to Transmission Provider as set forth in Appendix D, Security Arrangements Details. The data circuit(s) shall extend from the Large Generating Facility to the location(s) specified by Transmission Provider. Any required maintenance of such communications equipment shall be performed by Interconnection Customer. Operational communications shall be activated and maintained under, but not be limited to, the following events: system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, and hourly and daily load data.

**8.2 Remote Terminal Unit.** Prior to the Initial Synchronization Date of the Large Generating Facility, a Remote Terminal Unit, or equivalent data collection and transfer equipment acceptable to the Parties, shall be installed by Interconnection Customer, or by Transmission Provider at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Provider through use of a dedicated point-to-point data circuit(s) as indicated in Article 8.1. The communication protocol for the data circuit(s) shall be specified by Transmission Provider. Instantaneous bi-directional analog real power and reactive power flow information must be telemetered directly to the location(s) specified by Transmission Provider.

Each Party will promptly advise the other Party if it detects or otherwise learns of any metering, telemetry or communications equipment errors or malfunctions that require the attention and/or correction by the other Party. The Party owning such equipment shall correct such error or malfunction as soon as reasonably feasible.

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**8.3 No Annexation.** Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

## Article 9. Operations

**9.1 General.** Each Party shall comply with the Applicable Reliability Council requirements. Each Party shall provide to the other Party all information that may reasonably be required by the other Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

- 9.2 Control Area Notification.** At least three months before Initial Synchronization Date, Interconnection Customer shall notify Transmission Provider in writing of the Control Area in which the Large Generating Facility will be located. If Interconnection Customer elects to locate the Large Generating Facility in a Control Area other than the Control Area in which the Large Generating Facility is physically located, and if permitted to do so by the relevant transmission tariffs, all necessary arrangements, including but not limited to those set forth in Article 7 and Article 8 of this LGIA, and remote Control Area generator interchange agreements, if applicable, and the appropriate measures under such agreements, shall be executed and implemented prior to the placement of the Large Generating Facility in the other Control Area.
- 9.3 Transmission Provider Obligations.** Transmission Provider shall cause the Transmission System and Transmission Provider's Interconnection Facilities to be operated, maintained and controlled in a safe and reliable manner and in accordance with this LGIA. Transmission Provider may provide operating instructions to Interconnection Customer consistent with this LGIA and Transmission Provider's operating protocols and procedures as they may change from time to time. Transmission Provider will consider changes to its operating protocols and procedures proposed by Interconnection Customer.
- 9.4 Interconnection Customer Obligations.** Interconnection Customer shall at its own expense operate, maintain and control the Large Generating Facility and Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this LGIA. Interconnection Customer's shall operate the Large Generating Facility and Interconnection Customer Interconnection Facilities in accordance with all applicable requirements of the Control Area of which it is part, as such requirements are set forth in Appendix C, Interconnection Details, of this LGIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Either Party may request that the other Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this LGIA.
- 9.5 Start-Up and Synchronization.** Consistent with the Parties' mutually acceptable procedures, Interconnection Customer is responsible for the proper synchronization of the Large Generating Facility to Transmission Provider's Transmission System.
- 9.6 Reactive Power.**
- 9.6.1 Power Factor Design Criteria.** Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at a power factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all generators in the Control Area on a comparable basis. The requirements of this paragraph shall not apply to wind generators.
- 9.6.2 Voltage Schedules.** Once Interconnection Customer has synchronized the Large Generating Facility with the Transmission System, Transmission Provider shall

require Interconnection Customer to operate the Large Generating Facility to produce or absorb reactive power within the design limitations of the Large Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). Transmission Provider's voltage schedules shall treat all sources of reactive power in the Control Area in an equitable and not unduly discriminatory manner. Transmission Provider shall exercise Reasonable Efforts to provide Interconnection Customer with such schedules at least one (1) day in advance, and may make changes to such schedules as necessary to maintain the reliability of the Transmission System. Interconnection Customer shall operate the Large Generating Facility to maintain the specified output voltage or power factor at the Point of Interconnection within the design limitations of the Large Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). If Interconnection Customer is unable to maintain the specified voltage or power factor, it shall promptly notify the System Operator.

**9.6.2.1 Governors and Regulators.** Whenever the Large Generating Facility is operated in parallel with the Transmission System and the speed governors (if installed on the generating unit pursuant to Good Utility Practice) and voltage regulators are capable of operation, Interconnection Customer shall operate the Large Generating Facility with its speed governors and voltage regulators in automatic operation. If the Large Generating Facility's speed governors and voltage regulators are not capable of such automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative, and ensure that such Large Generating Facility's reactive power production or absorption (measured in MVARs) are within the design capability of the Large Generating Facility's generating unit(s) and steady state stability limits. Interconnection Customer shall not cause its Large Generating Facility to disconnect automatically or instantaneously from the Transmission System or trip any generating unit comprising the Large Generating Facility for an under or over frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the Control Area on a comparable basis.

**9.6.3 Payment for Reactive Power.** Transmission Provider is required to pay Interconnection Customer for reactive power that Interconnection Customer provides or absorbs from the Large Generating Facility when Transmission Provider requests Interconnection Customer to operate its Large Generating Facility outside the range specified in Article 9.6.1, provided that if Transmission Provider pays its own or affiliated generators for reactive power service within the specified range, it must also pay Interconnection Customer. Payments shall be

pursuant to Article 11.6 or such other agreement to which the Parties have otherwise agreed.

## 9.7 Outages and Interruptions.

### 9.7.1 Outages.

**9.7.1.1 Outage Authority and Coordination.** Each Party may in accordance with Good Utility Practice in coordination with the other Party remove from service any of its respective Interconnection Facilities or Network Upgrades that may impact the other Party's facilities as necessary to perform maintenance or testing or to install or replace equipment. Absent an Emergency Condition, the Party scheduling a removal of such facility(ies) from service will use Reasonable Efforts to schedule such removal on a date and time mutually acceptable to the Parties. In all circumstances any Party planning to remove such facility(ies) from service shall use Reasonable Efforts to minimize the effect on the other Party of such removal.

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**9.7.1.2 Outage Schedules.** Transmission Provider shall post scheduled outages of its transmission facilities on the OASIS. Interconnection Customer shall submit its planned maintenance schedules for the Large Generating Facility to Transmission Provider for a minimum of a rolling twenty-four month period. Interconnection Customer shall update its planned maintenance schedules as necessary. Transmission Provider may request Interconnection Customer to reschedule its maintenance as necessary to maintain the reliability of the Transmission System; provided, however, adequacy of generation supply shall not be a criterion in determining Transmission System reliability. Transmission Provider shall compensate Interconnection Customer for any additional direct costs that Interconnection Customer incurs as a result of having to reschedule maintenance, including any additional overtime, breaking of maintenance contracts or other costs above and beyond the cost Interconnection Customer would have incurred absent Transmission Provider's request to reschedule maintenance. Interconnection Customer will not be eligible to receive compensation, if during the twelve (12) months prior to the date of the scheduled maintenance, Interconnection Customer had modified its schedule of maintenance activities.

**9.7.1.3 Outage Restoration.** If an outage on a Party's Interconnection Facilities or Network Upgrades adversely affects the other Party's operations or facilities, the Party that owns or controls the facility that is out of service shall use Reasonable Efforts to promptly

restore such facility(ies) to a normal operating condition consistent with the nature of the outage. The Party that owns or controls the facility that is out of service shall provide the other Party, to the extent such information is known, information on the nature of the Emergency Condition, an estimated time of restoration, and any corrective actions required. Initial verbal notice shall be followed up as soon as practicable with written notice explaining the nature of the outage.

**9.7.2 Interruption of Service.** If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Article 9.7.2:

- 9.7.2.1** The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;
- 9.7.2.2** Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission System;
- 9.7.2.3** When the interruption or reduction must be made under circumstances which do not allow for advance notice, Transmission Provider shall notify Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;
- 9.7.2.4** Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, Transmission Provider shall notify Interconnection Customer in advance regarding the timing of such scheduling and further notify Interconnection Customer of the expected duration. Transmission Provider shall coordinate with Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to Interconnection Customer and Transmission Provider;
- 9.7.2.5** The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Large Generating Facility, Interconnection Facilities, and the Transmission System to their

normal operating state, consistent with system conditions and Good Utility Practice.

**9.7.3 Under-Frequency and Over Frequency Conditions.** The Transmission System is designed to automatically activate a load-shed program as required by the Applicable Reliability Council in the event of an under-frequency system disturbance. Interconnection Customer shall implement under-frequency and over-frequency relay set points for the Large Generating Facility as required by the Applicable Reliability Council to ensure “ride through” capability of the Transmission System. Large Generating Facility response to frequency deviations of predetermined magnitudes, both under-frequency and over-frequency deviations, shall be studied and coordinated with Transmission Provider in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency and over frequency conditions, in accordance with Good Utility Practice.

**9.7.4 System Protection and Other Control Requirements.**

**9.7.4.1 System Protection Facilities.** Interconnection Customer shall, at its expense, install, operate and maintain System Protection Facilities as a part of the Large Generating Facility or Interconnection Customer's Interconnection Facilities. Transmission Provider shall install at Interconnection Customer's expense any System Protection Facilities that may be required on Transmission Provider's Interconnection Facilities or the Transmission System as a result of the interconnection of the Large Generating Facility and Interconnection Customer Interconnection Facilities.

**9.7.4.2** Each Party's protection facilities shall be designed and coordinated with other systems in accordance with Good Utility Practice.

**9.7.4.3** Each Party shall be responsible for protection of its facilities consistent with Good Utility Practice.

**9.7.4.4** Each Party's protective relay design shall incorporate the necessary test switches to perform the tests required in Article 6. The required test switches will be placed such that they allow operation of lockout relays while preventing breaker failure schemes from operating and causing unnecessary breaker operations and/or the tripping of Interconnection Customer's units.

**9.7.4.5** Each Party will test, operate and maintain System Protection Facilities in accordance with Good Utility Practice.

**9.7.4.6** Prior to the In-Service Date, and again prior to the Commercial Operation Date, each Party or its agent shall perform a complete calibration test and functional trip test of the System Protection Facilities. At intervals suggested by Good Utility Practice and following any apparent malfunction of the System Protection Facilities, each Party shall perform both calibration and functional trip tests of its System Protection Facilities. These tests do not require the tripping of any in-service generation unit. These tests do, however, require that all protective relays and lockout contacts be activated.

**9.7.5 Requirements for Protection.** In compliance with Good Utility Practice, Interconnection Customer shall provide, install, own, and maintain relays, circuit breakers and all other devices necessary to remove any fault contribution of the Large Generating Facility to any short circuit occurring on the Transmission System not otherwise isolated by Transmission Provider's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission System. Such protective equipment shall include, without limitation, a disconnecting device or switch with load-interrupting capability located between the Large Generating Facility and the Transmission System at a site selected upon mutual agreement (not to be unreasonably withheld, conditioned or delayed) of the Parties. Interconnection Customer shall be responsible for protection of the Large Generating Facility and Interconnection Customer's other equipment from such conditions as negative sequence currents, over- or under frequency, sudden load rejection, over- or under-voltage, and generator loss-of-field. Interconnection Customer shall be solely responsible to disconnect the Large Generating Facility and Interconnection Customer's other equipment if conditions on the Transmission System could adversely affect the Large Generating Facility.

**9.7.6 Power Quality.** Neither Party's facilities shall cause excessive voltage flicker nor introduce excessive distortion to the sinusoidal voltage or current waves as defined by ANSI Standard C84.1-1989, in accordance with IEEE Standard 519, or any applicable superseding electric industry standard. In the event of a conflict between ANSI Standard C84.1-1989, or any applicable superseding electric industry standard, ANSI Standard C84.1-1989, or the applicable superseding electric industry standard, shall control.

**9.8 Switching and Tagging Rules.** Each Party shall provide the other Party a copy of its switching and tagging rules that are applicable to the other Party's activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

**9.9 Use of Interconnection Facilities by Third Parties.**

**9.9.1 Purpose of Interconnection Facilities.** Except as may be required by Applicable Laws and Regulations, or as otherwise agreed to among the Parties, the Interconnection Facilities shall be constructed for the sole purpose of interconnecting the Large Generating Facility to the Transmission System and shall be used for no other purpose.

**9.9.2 Third Party Users.** If required by Applicable Laws and Regulations or if the Parties mutually agree, such agreement not to be unreasonably withheld, to allow one or more third parties to use Transmission Provider's Interconnection Facilities, or any part thereof, Interconnection Customer will be entitled to compensation for the capital expenses it incurred in connection with the Interconnection Facilities based upon the pro rata use of the Interconnection Facilities by Transmission Provider, all third party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually-agreed upon methodology. In addition, cost responsibility for ongoing costs, including operation and maintenance costs associated with the Interconnection Facilities, will be allocated between Interconnection Customer and any third party users based upon the pro rata use of the Interconnection Facilities by Transmission Provider, all third party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually agreed upon methodology. If the issue of such compensation or allocation cannot be resolved through such negotiations, it shall be submitted to FERC for resolution.

**9.10 Disturbance Analysis Data Exchange.** The Parties will cooperate with one another in the analysis of disturbances to either the Large Generating Facility or Transmission Provider's Transmission System by gathering and providing access to any information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations and sequence of events records, and any disturbance information required by Good Utility Practice.

## **Article 10. Maintenance**

**10.1 Transmission Provider Obligations.** Transmission Provider shall maintain the Transmission System and Transmission Provider's Interconnection Facilities in a safe and reliable manner and in accordance with this LGIA.

**10.2 Interconnection Customer Obligations.** Interconnection Customer shall maintain the Large Generating Facility and Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this LGIA.

**10.3 Coordination.** The Parties shall confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Large Generating Facility and the Interconnection Facilities.

- 10.4 Secondary Systems.** Each Party shall cooperate with the other in the inspection, maintenance, and testing of control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers that directly affect the operation of a Party's facilities and equipment which may reasonably be expected to impact the other Party. Each Party shall provide advance notice to the other Party before undertaking any work on such circuits, especially on electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.
- 10.5 Operating and Maintenance Expenses.** Subject to the provisions herein addressing the use of facilities by others, and except for operations and maintenance expenses associated with modifications made for providing interconnection or transmission service to a third party and such third party pays for such expenses, Interconnection Customer shall be responsible for all reasonable expenses including overheads, associated with: (1) owning, operating, maintaining, repairing, and replacing Interconnection Customer's Interconnection Facilities; and (2) operation, maintenance, repair and replacement of Transmission Provider's Interconnection Facilities.

## **Article 11. Performance Obligation**

- 11.1 Interconnection Customer Interconnection Facilities.** Interconnection Customer shall design, procure, construct, install, own and/or control Interconnection Customer Interconnection Facilities described in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades, at its sole expense.
- 11.2 Transmission Provider's Interconnection Facilities.** Transmission Provider or Transmission Owner shall design, procure, construct, install, own and/or control the Transmission Provider's Interconnection Facilities described in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades, at the sole expense of the Interconnection Customer.
- 11.3 Network Upgrades and Distribution Upgrades.** Transmission Provider or Transmission Owner shall design, procure, construct, install, and own the Network Upgrades and Distribution Upgrades described in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades. The Interconnection Customer shall be responsible for all costs related to Distribution Upgrades. Unless Transmission Provider or Transmission Owner elects to fund the capital for the Network Upgrades, they shall be solely funded by Interconnection Customer.
- 11.4 Transmission Credits.**
- 11.4.1 Repayment of Amounts Advanced for Network Upgrades.** Interconnection Customer shall be entitled to a cash repayment, equal to the total amount paid to Transmission Provider and Affected System Operator, if any, for the Network Upgrades, including any tax gross-up or

other tax-related payments associated with Network Upgrades, and not refunded to Interconnection Customer pursuant to Article 5.17.8 or otherwise, to be paid to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, as payments are made under Transmission Provider's Tariff and Affected System's Tariff for transmission services with respect to the Large Generating Facility. Any repayment shall include interest calculated in accordance with the methodology set forth in FERC's regulations at 18 C.F.R. §35.19a(a)(2)(iii) from the date of any payment for Network Upgrades through the date on which the Interconnection Customer receives a repayment of such payment pursuant to this subparagraph. Interconnection Customer may assign such repayment rights to any person.

Notwithstanding the foregoing, Interconnection Customer, Transmission Provider, and Affected System Operator may adopt any alternative payment schedule that is mutually agreeable so long as Transmission Provider and Affected System Operator take one of the following actions no later than five years from the Commercial Operation Date: (1) return to Interconnection Customer any amounts advanced for Network Upgrades not previously repaid, or (2) declare in writing that Transmission Provider or Affected System Operator will continue to provide payments to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, or develop an alternative schedule that is mutually agreeable and provides for the return of all amounts advanced for Network Upgrades not previously repaid; however, full reimbursement shall not extend beyond twenty (20) years from the Commercial Operation Date.

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If the Large Generating Facility fails to achieve commercial operation, but it or another Generating Facility is later constructed and makes use of the Network Upgrades, Transmission Provider and Affected System Operator shall at that time reimburse Interconnection Customer for the amounts advanced for the Network Upgrades. Before any such reimbursement can occur, the Interconnection Customer, or the entity that ultimately constructs the Generating Facility, if different, is responsible for identifying the entity to which reimbursement must be made.

**11.4.2 Special Provisions for Affected Systems.** Unless Transmission Provider provides, under the LGIA, for the repayment of amounts advanced to Affected System Operator for Network Upgrades, Interconnection Customer and Affected System Operator shall enter into an agreement that provides for such repayment. The agreement shall specify the terms governing payments to be made by Interconnection Customer to the

Affected System Operator as well as the repayment by the Affected System Operator.

**11.4.3** Notwithstanding any other provision of this LGIA, nothing herein shall be construed as relinquishing or foreclosing any rights, including but not limited to firm transmission rights, capacity rights, transmission congestion rights, or transmission credits, that Interconnection Customer, shall be entitled to, now or in the future under any other agreement or tariff as a result of, or otherwise associated with, the transmission capacity, if any, created by the Network Upgrades, including the right to obtain cash reimbursements or transmission credits for transmission service that is not associated with the Large Generating Facility.

**11.5 Provision of Security.** At least thirty (30) Calendar Days prior to the commencement of the procurement, installation, or construction of a discrete portion of a Transmission Provider's Interconnection Facilities, Network Upgrades, or Distribution Upgrades, Interconnection Customer shall provide Transmission Provider, at Interconnection Customer's option, a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to Transmission Provider and is consistent with the Uniform Commercial Code of the jurisdiction identified in Article 14.2.1. Such security for payment shall be in an amount sufficient to cover the costs for constructing, procuring and installing the applicable portion of Transmission Provider's Interconnection Facilities, Network Upgrades, or Distribution Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to Transmission Provider for these purposes.

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In addition:

**11.5.1** The guarantee must be made by an entity that meets the creditworthiness requirements of Transmission Provider, and contain terms and conditions that guarantee payment of any amount that may be due from Interconnection Customer, up to an agreed-to maximum amount.

**11.5.2** The letter of credit must be issued by a financial institution reasonably acceptable to Transmission Provider and must specify a reasonable expiration date.

**11.5.3** The surety bond must be issued by an insurer reasonably acceptable to Transmission Provider and must specify a reasonable expiration date.

**11.6 Interconnection Customer Compensation.** If Transmission Provider requests or directs Interconnection Customer to provide a service pursuant to Articles 9.6.3 (Payment for Reactive Power), or 13.5.1 of this LGIA, Transmission Provider shall compensate Interconnection Customer in accordance with Interconnection Customer's applicable rate schedule then in effect unless the provision of such service(s) is subject to an RTO or ISO FERC-approved rate schedule. Interconnection Customer shall serve Transmission Provider or RTO or ISO with any filing of a proposed rate schedule at the time of such

filing with FERC. To the extent that no rate schedule is in effect at the time the Interconnection Customer is required to provide or absorb any Reactive Power under this LGIA, Transmission Provider agrees to compensate Interconnection Customer in such amount as would have been due Interconnection Customer had the rate schedule been in effect at the time service commenced; provided, however, that such rate schedule must be filed at FERC or other appropriate Governmental Authority within sixty (60) Calendar Days of the commencement of service.

**11.6.1 Interconnection Customer Compensation for Actions During Emergency Condition.** Transmission Provider or RTO or ISO shall compensate Interconnection Customer for its provision of real and reactive power and other Emergency Condition services that Interconnection Customer provides to support the Transmission System during an Emergency Condition in accordance with Article 11.6.

## Article 12. Invoice

- 12.1 General.** Each Party shall submit to the other Party, on a monthly basis, invoices of amounts due for the preceding month. Each invoice shall state the month to which the invoice applies and fully describe the services and equipment provided. The Parties may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under this LGIA, including interest payments or credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.
- 12.2 Final Invoice.** Within six months after completion of the construction of Transmission Provider's Interconnection Facilities and the Network Upgrades, Transmission Provider shall provide an invoice of the final cost of the construction of Transmission Provider's Interconnection Facilities and the Network Upgrades and shall set forth such costs in sufficient detail to enable Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission Provider shall refund to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice.
- 12.3 Payment.** Invoices shall be rendered to the paying Party at the address specified in Appendix F. The Party receiving the invoice shall pay the invoice within thirty (30) Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by either Party will not constitute a waiver of any rights or claims either Party may have under this LGIA.
- 12.4 Disputes.** In the event of a billing dispute between Transmission Provider and Interconnection Customer, Transmission Provider shall continue to provide Interconnection Service under this LGIA as long as Interconnection Customer:

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(i) continues to make all payments not in dispute; and (ii) pays to Transmission Provider or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may provide notice to Interconnection Customer of a Default pursuant to Article 17. Within thirty (30) Calendar Days after the resolution of the dispute, the Party that owes money to the other Party shall pay the amount due with interest calculated in accord with the methodology set forth in FERC's regulations at 18 CFR § 35.19a(a)(2)(iii).

### **Article 13. Emergencies**

- 13.1 Definition.** “Emergency Condition” shall mean a condition or situation: (i) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (ii) that, in the case of Transmission Provider, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System, Transmission Provider's Interconnection Facilities or the Transmission Systems of others to which the Transmission System is directly connected; or (iii) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Large Generating Facility or Interconnection Customer Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions; provided, that Interconnection Customer is not obligated by this LGIA to possess black start capability.
- 13.2 Obligations.** Each Party shall comply with the Emergency Condition procedures of the applicable ISO/RTO, NERC, the Applicable Reliability Council, Applicable Laws and Regulations, and any emergency procedures agreed to by the Joint Operating Committee.
- 13.3 Notice.** Transmission Provider shall notify Interconnection Customer promptly when it becomes aware of an Emergency Condition that affects Transmission Provider's Interconnection Facilities or the Transmission System that may reasonably be expected to affect Interconnection Customer's operation of the Large Generating Facility or Interconnection Customer's Interconnection Facilities. Interconnection Customer shall notify Transmission Provider promptly when it becomes aware of an Emergency Condition that affects the Large Generating Facility or Interconnection Customer's Interconnection Facilities that may reasonably be expected to affect the Transmission System or Transmission Provider's Interconnection Facilities. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of Interconnection Customer's or Transmission Provider's facilities and operations, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.
- 13.4 Immediate Action.** Unless, in Interconnection Customer's reasonable judgment, immediate action is required, Interconnection Customer shall obtain the consent of Transmission Provider, such consent to not be unreasonably withheld, prior to

performing any manual switching operations at the Large Generating Facility or Interconnection Customer's Interconnection Facilities in response to an Emergency Condition either declared by Transmission Provider or otherwise regarding the Transmission System.

### 13.5 Transmission Provider Authority.

**13.5.1 General.** Transmission Provider may take whatever actions or inactions with regard to the Transmission System or Transmission Provider's Interconnection Facilities it deems necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Transmission System or Transmission Provider's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service.

Transmission Provider shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Large Generating Facility or Interconnection Customer's Interconnection Facilities. Transmission Provider may, on the basis of technical considerations, require the Large Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Large Generating Facility; implementing a reduction or disconnection pursuant to Article 13.5.2; directing Interconnection Customer to assist with blackstart (if available) or restoration efforts; or altering the outage schedules of the Large Generating Facility and Interconnection Customer's Interconnection Facilities. Interconnection Customer shall comply with all of Transmission Provider's operating instructions concerning Large Generating Facility real power and reactive power output within the manufacturer's design limitations of the Large Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

**13.5.2 Reduction and Disconnection.** Transmission Provider may reduce Interconnection Service or disconnect the Large Generating Facility or Interconnection Customer's Interconnection Facilities, when such, reduction or disconnection is necessary under Good Utility Practice due to Emergency Conditions. These rights are separate and distinct from any right of curtailment of Transmission Provider pursuant to Transmission Provider's Tariff. When Transmission Provider can schedule the reduction or disconnection in advance, Transmission Provider shall notify Interconnection Customer of the reasons, timing and expected duration of the reduction or disconnection. Transmission Provider shall coordinate with Interconnection Customer using Good Utility Practice to schedule the

reduction or disconnection during periods of least impact to Interconnection Customer and Transmission Provider. Any reduction or disconnection shall continue only for so long as reasonably necessary under Good Utility Practice. The Parties shall cooperate with each other to restore the Large Generating Facility, the Interconnection Facilities, and the Transmission System to their normal operating state as soon as practicable consistent with Good Utility Practice.

**13.6 Interconnection Customer Authority.** Consistent with Good Utility Practice and the LGIA and the LGIP, Interconnection Customer may take actions or inactions with regard to the Large Generating Facility or Interconnection Customer's Interconnection Facilities during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Large Generating Facility or Interconnection Customer's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service. Interconnection Customer shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Transmission System and Transmission Provider's Interconnection Facilities. Transmission Provider shall use Reasonable Efforts to assist Interconnection Customer in such actions.

**13.7 Limited Liability.** Except as otherwise provided in Article 11.6.1 of this LGIA, neither Party shall be liable to the other for any action it takes in responding to an Emergency Condition so long as such action is made in good faith and is consistent with Good Utility Practice.

#### **Article 14. Regulatory Requirements and Governing Law**

**14.1 Regulatory Requirements.** Each Party's obligations under this LGIA shall be subject to its receipt of any required approval or certificate from one or more Governmental Authorities in the form and substance satisfactory to the applying Party, or the Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Party shall in good faith seek and use its Reasonable Efforts to obtain such other approvals. Nothing in this LGIA shall require Interconnection Customer to take any action that could result in its inability to obtain, or its loss of, status or exemption under the Federal Power Act, the Public Utility Holding Company Act of 1935, as amended, or the Public Utility Regulatory Policies Act of 1978.

#### **14.2 Governing Law.**

**14.2.1** The validity, interpretation and performance of this LGIA and each of its provisions shall be governed by the laws of the state where the Point of Interconnection is located, without regard to its conflicts of law principles.

**14.2.2** This LGIA is subject to all Applicable Laws and Regulations.

- 14.2.3** Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

**Article 15. Notices**

- 15.1 General.** Unless otherwise provided in this LGIA, any notice, demand or request required or permitted to be given by either Party to the other and any instrument required or permitted to be tendered or delivered by either Party in writing to the other shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party, at the address set out in Appendix F, Addresses for Delivery of Notices and Billings.

Either Party may change the notice information in this LGIA by giving five (5) Business Days written notice prior to the effective date of the change.

- 15.2 Billings and Payments.** Billings and payments shall be sent to the addresses set out in Appendix F.
- 15.3 Alternative Forms of Notice.** Any notice or request required or permitted to be given by a Party to the other and not required by this Agreement to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out in Appendix F.
- 15.4 Operations and Maintenance Notice.** Each Party shall notify the other Party in writing of the identity of the person(s) that it designates as the point(s) of contact with respect to the implementation of Articles 9 and 10.

**Article 16. Force Majeure**

**16.1 Force Majeure**

- 16.1.1** Economic hardship is not considered a Force Majeure event.

- 16.1.2** Neither Party shall be considered to be in Default with respect to any obligation hereunder, (including obligations under Article 4), other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Party in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone notices given pursuant to this article shall be confirmed in writing as soon as reasonably possible and shall specifically state full

particulars of the Force Majeure, the time and date when the Force Majeure occurred and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise due diligence to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

## **Article 17. Default**

### **17.1 Default**

**17.1.1 General.** No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this LGIA or the result of an act of omission of the other Party. Upon a Breach, the non-breaching Party shall give written notice of such Breach to the breaching Party. Except as provided in Article 17.1.2, the breaching Party shall have thirty (30) Calendar Days from receipt of the Default notice within which to cure such Breach; provided however, if such Breach is not capable of cure within thirty (30) Calendar Days, the breaching Party shall commence such cure within thirty (30) Calendar Days after notice and continuously and diligently complete such cure within ninety (90) Calendar Days from receipt of the Default notice; and, if cured within such time, the Breach specified in such notice shall cease to exist.

**17.1.2 Right to Terminate.** If a Breach is not cured as provided in this article, or if a Breach is not capable of being cured within the period provided for herein, the non-breaching Party shall have the right to declare a Default and terminate this LGIA by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this LGIA, to recover from the breaching Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this article will survive termination of this LGIA.

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## **Article 18. Indemnity, Consequential Damages and Insurance**

**18.1 Indemnity.** The Parties shall at all times indemnify, defend, and hold the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inactions of its obligations under this LGIA on behalf of the Indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

**18.1.1 Indemnified Person.** If an Indemnified Person is entitled to indemnification under this Article 18 as a result of a claim by a third party, and the Indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 18.1, to assume the defense of such claim, such Indemnified Person may at the expense of the Indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

**18.1.2 Indemnifying Party.** If an Indemnifying Party is obligated to indemnify and hold any Indemnified Person harmless under this Article 18, the amount owing to the Indemnified Person shall be the amount of such Indemnified Person's actual Loss, net of any insurance or other recovery.

**18.1.3 Indemnity Procedures.** Promptly after receipt by an Indemnified Person of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 18.1 may apply, the Indemnified Person shall notify the Indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the Indemnifying Party.

The Indemnifying Party shall have the right to assume the defense thereof with counsel designated by such Indemnifying Party and reasonably satisfactory to the Indemnified Person. If the defendants in any such action include one or more Indemnified Persons and the Indemnifying Party and if the Indemnified Person reasonably concludes that there may be legal defenses available to it and/or other Indemnified Persons which are different from or additional to those available to the Indemnifying Party, the Indemnified Person shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the Indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Person or Indemnified Persons having such differing or additional legal defenses.

The Indemnified Person shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the Indemnifying Party. Notwithstanding the foregoing, the Indemnifying Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Person and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the Indemnified Person, or there exists a conflict or adversity of interest between the Indemnified Person and the Indemnifying Party, in such event the Indemnifying Party shall pay the reasonable expenses of the

Indemnified Person, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Person, which shall not be reasonably withheld, conditioned or delayed.

- 18.2 Consequential Damages.** Other than the Liquidated Damages heretofore described, in no event shall either Party be liable under any provision of this LGIA for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

**18.3 Insurance.** Each party shall, at its own expense, maintain in force throughout the period of this LGIA, and until released by the other Party, the following minimum insurance coverages, with insurers authorized to do business in the state where the Point of Interconnection is located:

- 18.3.1** Employers' Liability and Workers' Compensation Insurance providing statutory benefits in accordance with the laws and regulations of the state in which the Point of Interconnection is located.
- 18.3.2** Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of One Million Dollars (\$1,000,000) per occurrence/One Million Dollars (\$1,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.
- 18.3.3** Comprehensive Automobile Liability Insurance for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers designed for travel on public roads, with a minimum, combined single limit of One Million Dollars (\$1,000,000) per occurrence for bodily injury, including death, and property damage.
- 18.3.4** Excess Public Liability Insurance over and above the Employers' Liability Commercial General Liability and Comprehensive Automobile Liability Insurance coverage, with a minimum combined single limit of Twenty Million Dollars (\$20,000,000) per occurrence/Twenty Million Dollars (\$20,000,000) aggregate.
- 18.3.5** The Commercial General Liability Insurance, Comprehensive Automobile Insurance and Excess Public Liability Insurance policies shall name the other Party, its parent, associated and Affiliate companies and their respective directors, officers, agents, servants and employees ("Other Party Group") as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this LGIA against the Other Party Group and provide thirty (30) Calendar Days advance written notice to the Other Party Group prior to anniversary date of cancellation or any material change in coverage or condition.
- 18.3.6** The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies shall

contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.

- 18.3.7** The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies, if written on a Claims First Made Basis, shall be maintained in full force and effect for two (2) years after termination of this LGIA, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by the Parties.
- 18.3.8** The requirements contained herein as to the types and limits of all insurance to be maintained by the Parties are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by the Parties under this LGIA.
- 18.3.9** Within ten (10) days following execution of this LGIA, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within ninety (90) days thereafter, each Party shall provide certification of all insurance required in this LGIA, executed by each insurer or by an authorized representative of each insurer.
- 18.3.10** Notwithstanding the foregoing, each Party may self-insure to meet the minimum insurance requirements of Articles 18.3.2 through 18.3.8 to the extent it maintains a self-insurance program; provided that, such Party's senior secured debt is rated at investment grade or better by Standard & Poor's and that its self-insurance program meets the minimum insurance requirements of Articles 18.3.2 through 18.3.8. For any period of time that a Party's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under Articles 18.3.2 through 18.3.9. In the event that a Party is permitted to self-insure pursuant to this article, it shall notify the other Party that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Article 18.3.9.
- 18.3.11** The Parties agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this LGIA.

**Article 19. Assignment**

**19.1 Assignment** This LGIA may be assigned by either Party only with the written consent of the other; provided that either Party may assign this LGIA without the consent of the other Party to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this LGIA; and provided further that Interconnection Customer shall have the right to assign this LGIA, without the consent of Transmission Provider, for collateral security purposes to aid in providing financing for the Large Generating Facility, provided that Interconnection Customer will promptly notify Transmission Provider of any such assignment. Any financing arrangement entered into by Interconnection Customer pursuant to this article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify Transmission Provider of the date and particulars of any such exercise of assignment right(s), including providing the Transmission Provider with proof that it meets the requirements of Articles 11.5 and 18.3. Any attempted assignment that violates this article is void and ineffective. Any assignment under this LGIA shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

**Article 20. Severability**

**20.1 Severability** If any provision in this LGIA is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this LGIA; provided that if Interconnection Customer (or any third party, but only if such third party is not acting at the direction of Transmission Provider) seeks and obtains such a final determination with respect to any provision of the Alternate Option (Article 5.1.2), or the Negotiated Option (Article 5.1.4), then none of these provisions shall thereafter have any force or effect and the Parties' rights and obligations shall be governed solely by the Standard Option (Article 5.1.1).

**Article 21. Comparability**

**21.1 Comparability.** The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations, as amended from time to time.

**Article 22. Confidentiality**

**22.1 Confidentiality.** Confidential Information shall include, without limitation, all information relating to a Party's technology, research and development, business affairs, and pricing, and any information supplied by either of the Parties to the other prior to the execution of this LGIA.

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Party providing the information orally informs the Party receiving the information that the information is confidential.

If requested by either Party, the other Party shall provide in writing, the basis for asserting that the information referred to in this Article 22 warrants confidential treatment, and the requesting Party may disclose such writing to the appropriate Governmental Authority. Each Party shall be responsible for the costs associated with affording confidential treatment to its information.

The release of Confidential Information shall be subject to Applicable Laws and Regulations and Applicable Reliability Standards.

**22.1.1 Term.** During the term of this LGIA, and for a period of three (3) years after the expiration or termination of this LGIA, except as otherwise provided in this Article 22, each Party shall hold in confidence and shall not disclose to any person Confidential Information.

**22.1.2 Scope.** Confidential Information shall not include information that the receiving Party can demonstrate: (1) is generally available to the public other than as a result of a disclosure by the receiving Party; (2) was in the lawful possession of the receiving Party on a non-confidential basis before receiving it from the disclosing Party; (3) was supplied to the receiving Party without restriction by a third party, who, to the knowledge of the receiving Party after due inquiry, was under no obligation to the disclosing Party to keep such information confidential; (4) was independently developed by the receiving Party without reference to Confidential Information of the disclosing Party; (5) is, or becomes, publicly known, through no wrongful act or omission of the receiving Party or Breach of this LGIA; or (6) is required, in accordance with Article 22.1.7 of the LGIA, Order of Disclosure, to be disclosed by any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this LGIA. Information designated as Confidential Information will no longer be deemed confidential if the Party that designated the information as confidential notifies the other Party that it no longer is confidential.

**22.1.3 Release of Confidential Information.** Neither Party shall release or disclose Confidential Information to any other person, except to its Affiliates (limited by the Standards of Conduct requirements), subcontractors, employees, consultants, or to parties who may be or considering providing financing to or equity participation with Interconnection Customer, or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with

this LGIA, unless such person has first been advised of the confidentiality provisions of this Article 22 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Party providing Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Article 22.

- 22.1.4 Rights.** Each Party retains all rights, title, and interest in the Confidential Information that each Party discloses to the other Party. The disclosure by each Party to the other Party of Confidential Information shall not be deemed a waiver by either Party or any other person or entity of the right to protect the Confidential Information from public disclosure.
- 22.1.5 No Warranties.** By providing Confidential Information, neither Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, neither Party obligates itself to provide any particular information or Confidential Information to the other Party nor to enter into any further agreements or proceed with any other relationship or joint venture.
- 22.1.6 Standard of Care.** Each Party shall use at least the same standard of care to protect Confidential Information it receives as it uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Party may use Confidential Information solely to fulfill its obligations to the other Party under this LGIA or its regulatory requirements.
- 22.1.7 Order of Disclosure.** If a court or a Government Authority or entity with the right, power, and apparent authority to do so requests or requires either Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the other Party with prompt notice of such request(s) or requirement(s) so that the other Party may seek an appropriate protective order or waive compliance with the terms of this LGIA. Notwithstanding the absence of a protective order or waiver, the Party may disclose such Confidential Information which, in the opinion of its counsel, the Party is legally compelled to disclose. Each Party will use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.
- 22.1.8 Termination of Agreement.** Upon termination of this LGIA for any reason, each Party shall, within ten (10) Calendar Days of receipt of a written request from the other Party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure, and deletion certified in writing to the other Party) or return to the other Party, without retaining

copies thereof, any and all written or electronic Confidential Information received from the other Party.

- 22.1.9 Remedies.** The Parties agree that monetary damages would be inadequate to compensate a Party for the other Party's Breach of its obligations under this Article 22. Each Party accordingly agrees that the other Party shall be entitled to equitable relief, by way of injunction or otherwise, if the first Party Breaches or threatens to Breach its obligations under this Article 22, which equitable relief shall be granted without bond or proof of damages, and the receiving Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed an exclusive remedy for the Breach of this Article 22, but shall be in addition to all other remedies available at law or in equity. The Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Party, however, shall be liable for indirect, incidental, or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Article 22.
- 22.1.10 Disclosure to FERC, its Staff, or a State.** Notwithstanding anything in this Article 22 to the contrary, and pursuant to 18 CFR section 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from one of the Parties that is otherwise required to be maintained in confidence pursuant to this LGIA, the Party shall provide the requested information to FERC or its staff, within the time provided for in the request for information. In providing the information to FERC or its staff, the Party must, consistent with 18 CFR section 388.112, request that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Party to this LGIA prior to the release of the Confidential Information to FERC or its staff. The Party shall notify the other Party to the LGIA when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time either of the Parties may respond before such information would be made public, pursuant to 18 CFR section 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.
- 22.1.11** Subject to the exception in Article 22.1.10, any information that a Party claims is competitively sensitive, commercial or financial information under this LGIA ("Confidential Information") shall not be disclosed by the other Party to any person not employed or retained by the other Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the disclosing Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of

litigation or dispute; (iii) otherwise permitted by consent of the other Party, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this LGIA or as a transmission service provider or a Control Area operator including disclosing the Confidential Information to an RTO or ISO or to a regional or national reliability organization. The Party asserting confidentiality shall notify the other Party in writing of the information it claims is confidential. Prior to any disclosures of the other Party's Confidential Information under this subparagraph, or if any third party or Governmental Authority makes any request or demand for any of the information described in this subparagraph, the disclosing Party agrees to promptly notify the other Party in writing and agrees to assert confidentiality and cooperate with the other Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

### **Article 23. Environmental Releases**

**23.1** Each Party shall notify the other Party, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Large Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall: (i) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four hours after such Party becomes aware of the occurrence; and (ii) promptly furnish to the other Party copies of any publicly available reports filed with any Governmental Authorities addressing such events.

### **Article 24. Information Requirements**

**24.1 Information Acquisition.** Transmission Provider and Interconnection Customer shall submit specific information regarding the electrical characteristics of their respective facilities to each other as described below and in accordance with Applicable Reliability Standards.

**24.2 Information Submission by Transmission Provider.** The initial information submission by Transmission Provider shall occur no later than one hundred eighty (180) Calendar Days prior to Trial Operation and shall include Transmission System information necessary to allow Interconnection Customer to select equipment and meet any system protection and stability requirements, unless otherwise agreed to by the Parties. On a monthly basis Transmission Provider shall provide Interconnection Customer a status report on the construction and installation of Transmission Provider's Interconnection Facilities and Network Upgrades, including, but not limited to, the following information: (1) progress to date; (2) a description of the activities since the last report; (3) a description of the action items for the next period; and (4) the delivery status of equipment ordered.

**24.3 Updated Information Submission by Interconnection Customer.** The updated information submission by Interconnection Customer, including manufacturer information, shall occur no later than one hundred eighty (180) Calendar Days prior to the Trial Operation. Interconnection Customer shall submit a completed copy of the Large Generating Facility data requirements contained in Appendix 1 to the LGIP. It shall also include any additional information provided to Transmission Provider for the Feasibility and Facilities Study. Information in this submission shall be the most current Large Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, Interconnection Customer will work with a consultant mutually agreed to by the Parties to develop and supply a standard model and associated information.

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If Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study Agreement between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on Transmission Provider Transmission System based on the actual data submitted pursuant to this Article 24.3. The Interconnection Customer shall not begin Trial Operation until such studies are completed.

**24.4 Information Supplementation.** Prior to the Operation Date, the Parties shall supplement their information submissions described above in this Article 24 with any and all “as-built” Large Generating Facility information or “as-tested” performance information that differs from the initial submissions or, alternatively, written confirmation that no such differences exist. The Interconnection Customer shall conduct tests on the Large Generating Facility as required by Good Utility Practice such as an open circuit “step voltage” test on the Large Generating Facility to verify proper operation of the Large Generating Facility's automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include: (1) Large Generating Facility at synchronous speed; (2) automatic voltage regulator on and in voltage control mode; and (3) a five percent change in Large Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage. Interconnection Customer shall provide validated test recordings showing the responses of Large Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Large Generating Facility's terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Large Generating Facility terminal or field voltages is provided. Large Generating Facility testing shall be conducted and results provided to Transmission Provider for each individual generating unit in a station.

Subsequent to the Operation Date, Interconnection Customer shall provide Transmission Provider any information changes due to equipment replacement, repair, or adjustment. Transmission Provider shall provide Interconnection Customer any information changes

due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Provider-owned substation that may affect Interconnection Customer's Interconnection Facilities equipment ratings, protection or operating requirements. The Parties shall provide such information no later than thirty (30) Calendar Days after the date of the equipment replacement, repair or adjustment.

**Article 25. Information Access and Audit Rights**

- 25.1 Information Access.** Each Party (the “disclosing Party”) shall make available to the other Party information that is in the possession of the disclosing Party and is necessary in order for the other Party to: (i) verify the costs incurred by the disclosing Party for which the other Party is responsible under this LGIA; and (ii) carry out its obligations and responsibilities under this LGIA. The Parties shall not use such information for purposes other than those set forth in this Article 25.1 and to enforce their rights under this LGIA.
- 25.2 Reporting of Non-Force Majeure Events.** Each Party (the “notifying Party”) shall notify the other Party when the notifying Party becomes aware of its inability to comply with the provisions of this LGIA for a reason other than a Force Majeure event. The Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this article shall not entitle the Party receiving such notification to allege a cause for anticipatory breach of this LGIA.
- 25.3 Audit Rights.** Subject to the requirements of confidentiality under Article 22 of this LGIA, each Party shall have the right, during normal business hours, and upon prior reasonable notice to the other Party, to audit at its own expense the other Party's accounts and records pertaining to either Party's performance or either Party's satisfaction of obligations under this LGIA. Such audit rights shall include audits of the other Party's costs, calculation of invoiced amounts, Transmission Provider's efforts to allocate responsibility for the provision of reactive support to the Transmission System, Transmission Provider's efforts to allocate responsibility for interruption or reduction of generation on the Transmission System, and each Party's actions in an Emergency Condition. Any audit authorized by this article shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to each Party's performance and satisfaction of obligations under this LGIA. Each Party shall keep such accounts and records for a period equivalent to the audit rights periods described in Article 25.4.

## 25.4 Audit Rights Periods

**25.4.1 Audit Rights Period for Construction-Related Accounts and Records.** Accounts and records related to the design, engineering, procurement, and construction of Transmission Provider's Interconnection Facilities and Network Upgrades shall be subject to audit for a period of twenty-four months following Transmission Provider's issuance of a final invoice in accordance with Article 12.2.

**25.4.2 Audit Rights Period for All Other Accounts and Records.** Accounts and records related to either Party's performance or satisfaction of all obligations under this LGIA other than those described in Article 25.4.1 shall be subject to audit as follows: (i) for an audit relating to cost obligations, the applicable audit rights period shall be twenty-four months after the auditing Party's receipt of an invoice giving rise to such cost obligations; and (ii) for an audit relating to all other obligations, the applicable audit rights period shall be twenty-four months after the event for which the audit is sought.

**25.5 Audit Results.** If an audit by a Party determines that an overpayment or an underpayment has occurred, a notice of such overpayment or underpayment shall be given to the other Party together with those records from the audit which support such determination.

## Article 26. Subcontractors

**26.1 General.** Nothing in this LGIA shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this LGIA; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this LGIA in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

**26.2 Responsibility of Principal.** The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this LGIA. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall Transmission Provider be liable for the actions or inactions of Interconnection Customer or its subcontractors with respect to obligations of Interconnection Customer under Article 5 of this LGIA. Any applicable obligation imposed by this LGIA upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

**26.3 No Limitation by Insurance.** The obligations under this Article 26 will not be limited in any way by any limitation of subcontractor's insurance.

**Article 27. Disputes**

- 27.1 Submission.** In the event either Party has a dispute, or asserts a claim, that arises out of or in connection with this LGIA or its performance, such Party (the “disputing Party”) shall provide the other Party with written notice of the dispute or claim (“Notice of Dispute”). Such dispute or claim shall be referred to a designated senior representative of each Party for resolution on an informal basis as promptly as practicable after receipt of the Notice of Dispute by the other Party. In the event the designated representatives are unable to resolve the claim or dispute through unassisted or assisted negotiations within thirty (30) Calendar Days of the other Party’s receipt of the Notice of Dispute, such claim or dispute may, upon mutual agreement of the Parties, be submitted to arbitration and resolved in accordance with the arbitration procedures set forth below. In the event the Parties do not agree to submit such claim or dispute to arbitration, each Party may exercise whatever rights and remedies it may have in equity or at law consistent with the terms of this LGIA.
- 27.2 External Arbitration Procedures.** Any arbitration initiated under this LGIA shall be conducted before a single neutral arbitrator appointed by the Parties. If the Parties fail to agree upon a single arbitrator within ten (10) Calendar Days of the submission of the dispute to arbitration, each Party shall choose one arbitrator who shall sit on a three-member arbitration panel. The two arbitrators so chosen shall within twenty (20) Calendar Days select a third arbitrator to chair the arbitration panel. In either case, the arbitrators shall be knowledgeable in electric utility matters, including electric transmission and bulk power issues, and shall not have any current or past substantial business or financial relationships with any party to the arbitration (except prior arbitration). The arbitrator(s) shall provide each of the Parties an opportunity to be heard and, except as otherwise provided herein, shall conduct the arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association (“Arbitration Rules”) and any applicable FERC regulations or RTO rules; provided, however, in the event of a conflict between the Arbitration Rules and the terms of this Article 27, the terms of this Article 27 shall prevail.
- 27.3 Arbitration Decisions.** Unless otherwise agreed by the Parties, the arbitrator(s) shall render a decision within ninety (90) Calendar Days of appointment and shall notify the Parties in writing of such decision and the reasons therefore. The arbitrator(s) shall be authorized only to interpret and apply the provisions of this LGIA and shall have no power to modify or change any provision of this Agreement in any manner. The decision of the arbitrator(s) shall be final and binding upon the Parties, and judgment on the award may be entered in any court having jurisdiction. The decision of the arbitrator(s) may be appealed solely on the grounds that the conduct of the arbitrator(s), or the decision itself, violated the standards set forth in the Federal Arbitration Act or the Administrative Dispute Resolution Act. The final decision of the arbitrator must also be filed with FERC if it affects jurisdictional rates, terms and conditions of service, Interconnection Facilities, or Network Upgrades.
- 27.4 Costs.** Each Party shall be responsible for its own costs incurred during the arbitration

process and for the following costs, if applicable: (1) the cost of the arbitrator chosen by the Party to sit on the three member panel and one half of the cost of the third arbitrator chosen; or (2) one half the cost of the single arbitrator jointly chosen by the Parties.

## **Article 28. Representations, Warranties and Covenants**

**28.1 General.** Each Party makes the following representations, warranties and covenants:

**28.1.1 Good Standing.** Such Party is duly organized, validly existing and in good standing under the laws of the state in which it is organized, formed, or incorporated, as applicable; that it is qualified to do business in the state or states in which the Large Generating Facility, Interconnection Facilities and Network Upgrades owned by such Party, as applicable, are located; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this LGIA and carry out the transactions contemplated hereby and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this LGIA.

**28.1.2 Authority.** Such Party has the right, power and authority to enter into this LGIA, to become a Party hereto and to perform its obligations hereunder. This LGIA is a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

**28.1.3 No Conflict.** The execution, delivery and performance of this LGIA does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets

**28.1.4 Consent and Approval.** Such Party has sought or obtained, or, in accordance with this LGIA will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of this LGIA, and it will provide to any Governmental Authority notice of any actions under this LGIA that are required by Applicable Laws and Regulations.

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## **Article 29. Joint Operating Committee**

**29.1 Joint Operating Committee.** Except in the case of ISOs and RTOs, Transmission Provider shall constitute a Joint Operating Committee to coordinate operating and technical considerations of Interconnection Service. At least six (6) months prior to the

expected Initial Synchronization Date, Interconnection Customer and Transmission Provider shall each appoint one representative and one alternate to the Joint Operating Committee. Each Interconnection Customer shall notify Transmission Provider of its appointment in writing. Such appointments may be changed at any time by similar notice. The Joint Operating Committee shall meet as necessary, but not less than once each calendar year, to carry out the duties set forth herein. The Joint Operating Committee shall hold a meeting at the request of either Party, at a time and place agreed upon by the representatives. The Joint Operating Committee shall perform all of its duties consistent with the provisions of this LGIA. Each Party shall cooperate in providing to the Joint Operating Committee all information required in the performance of the Joint Operating Committee's duties. All decisions and agreements, if any, made by the Joint Operating Committee, shall be evidenced in writing. The duties of the Joint Operating Committee shall include the following:

- 29.1.1** Establish data requirements and operating record requirements.
- 29.1.2** Review the requirements, standards, and procedures for data acquisition equipment, protective equipment, and any other equipment or software.
- 29.1.3** Annually review the one (1) year forecast of maintenance and planned outage schedules of Transmission Provider's and Interconnection Customer's facilities at the Point of Interconnection.
- 29.1.4** Coordinate the scheduling of maintenance and planned outages on the Interconnection Facilities, the Large Generating Facility and other facilities that impact the normal operation of the interconnection of the Large Generating Facility to the Transmission System.
- 29.1.5** Ensure that information is being provided by each Party regarding equipment availability.
- 29.1.6** Perform such other duties as may be conferred upon it by mutual agreement of the Parties.

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## **Article 30. Miscellaneous**

- 30.1 Binding Effect.** This LGIA and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.
- 30.2 Conflicts.** In the event of a conflict between the body of this LGIA and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this LGIA shall prevail and be deemed the final intent of the Parties.
- 30.3 Rules of Interpretation.** This LGIA, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns

but, in the case of a Party, only if such successors and assigns are permitted by this LGIA, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this LGIA), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article of this LGIA or such Appendix to this LGIA, or such Section to the LGIP or such Appendix to the LGIP, as the case may be; (6) “hereunder”, “hereof”, “herein”, “hereto” and words of similar import shall be deemed references to this LGIA as a whole and not to any particular Article or other provision hereof or thereof; (7) “including” (and with correlative meaning “include”) means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, “from” means “from and including”, “to” means “to but excluding” and “through” means “through and including”.

**30.4 Entire Agreement.** This LGIA, including all Appendices and Schedules attached hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this LGIA. There are no other agreements, representations, warranties, or covenants, which constitute any part of the consideration for, or any condition to, either Party’s compliance with its obligations under this LGIA.

**30.5 No Third Party Beneficiaries.** This LGIA is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

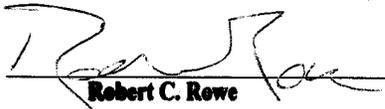
**30.6 Waiver.** The failure of a Party to this LGIA to insist, on any occasion, upon strict performance of any provision of this LGIA will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by either Party of its rights with respect to this LGIA shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this LGIA. Termination or Default of this LGIA for any reason by Interconnection Customer shall not constitute a waiver of Interconnection Customer's legal rights to obtain an interconnection from Transmission Provider. Any waiver of this LGIA shall, if requested, be provided in writing.

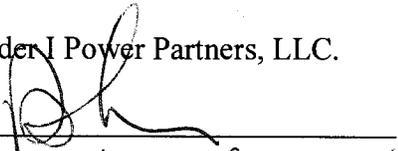
- 30.7 Headings.** The descriptive headings of the various Articles of this LGIA have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this LGIA.
- 30.8 Multiple Counterparts.** This LGIA may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.
- 30.9 Amendment.** The Parties may by mutual agreement amend this LGIA by a written instrument duly executed by the Parties.
- 30.10 Modification by the Parties.** The Parties may by mutual agreement amend the Appendices to this LGIA by a written instrument duly executed by the Parties. Such amendment shall become effective and a part of this LGIA upon satisfaction of all Applicable Laws and Regulations.
- 30.11 Reservation of Rights.** Transmission Provider shall have the right to make a unilateral filing with FERC to modify this LGIA with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this LGIA pursuant to section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this LGIA shall limit the rights of the Parties or of FERC under sections 205 or 206 of the Federal Power Act and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.
- 30.12 No Partnership.** This LGIA shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

**IN WITNESS WHEREOF**, the Parties have executed this LGIA in duplicate originals, each of which shall constitute and be an original effective Agreement between the Parties.

NorthWestern Corporation

By:   
**Robert C. Rowe**  
Title: **President & Chief Executive Officer**  
Date: June 1, 2009

Rolling Thunder I Power Partners, LLC.

By:   
Title: Vice President  
Date: 5/11/09

**Appendix A to LGIA**

**Interconnection Facilities, Network Upgrades and Distribution Upgrades**

Substation Facilities

- Interconnection Customer Interconnection Facilities
- Transmission Provider Interconnection Facilities
- Network Upgrades
- Distribution Upgrades

Metering Facilities

- Interconnection Customer Interconnection Facilities
- Transmission Provider Interconnection Facilities
- Network Upgrades
- Distribution Upgrades

Relaying Facilities

- Interconnection Customer Interconnection Facilities
- Transmission Provider Interconnection Facilities
- Network Upgrades
- Distribution Upgrades

Communications Facilities

- Interconnection Customer Interconnection Facilities
- Transmission Provider Interconnection Facilities
- Network Upgrades
- Distribution Upgrades

Cost Summary

- Interconnection Facilities
- Transmission Provider Interconnection Facilities
- Network Upgrades

Total Cost

## *Substation Facilities*

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The following is a detailed summary of the Substation Facilities needed to interconnect the Interconnection Customer project with the NWE system. This summary includes, but is not limited to MVA, voltage, current, BIL level, MCOV and interrupt ratings of equipment as applicable and associated grounding requirements.

### *Interconnection Customer Interconnection Facilities*

- ❖ Substation Interconnection Customer Interconnection Facilities will include, but are not limited to, the following items:
  - Interconnection Customer is to design, build, own and operate the Step-Up substation. The Step-up Substation is to provide a high side voltage of 69 kilovolts (kV) in order to interconnect with the NWE 69kV transmission system available at the Substation. The Step-Up substation must contain but is not limited to the following items:
    - A **50** MVA minimum capacity Step-up transformer with a low side voltage of **34.5** kV and with a high side voltage of 69kV nominal voltage. The high side winding must be connected Delta to phase with the existing transmission system.
    - Relay controlled power circuit breaker on the 69 kV side of the step-up transformer
    - Design of the Step-up Substation must be reviewed and approved by a professional engineer licensed in the State of South Dakota
    - Interconnection Customer must provide VAR compensation sufficient to allow the generation to operate between .95 leading and .95 lagging power factor.
    - Installation of the all foundations, buswork, conduit, fencing, structures, ground mat, control house, electrical equipment and other items as required by the design of the Step-Up Substation
    - Telephone communications to the meter owned by NWE is to be provided by the Interconnection Customer

- Data Communication for the telemetering between the Interconnection Customer Tap Substation and the NWE Huron Operating Control Center (HOCC) is to be provided by the Interconnection Customer

## ***Transmission Provider Interconnection Facilities***

- ❖ Survey - The surveying associated with NWE's network 69KV Rolling Thunder Switchyard facility will be contracted.
  - Transmission Towers & Fixtures
    - 69 kV electric transmission towers and fixtures may need to be moved and raised in order to accommodate the new substation. NWE will design, install, and own the any required changes to the transmission towers and fixtures.
      - One structure with Gang Operated AB switch will be added.
- ❖ Substation Foundations
  - The total concrete volumes associated with the Transmission Provider facilities on this project are estimated at **46.50** cubic yards. The breakdown is as follows:
    - 72.5 kV SF6 Power Circuit Breaker. NWE will design, install, and own the foundations.
    - 2- 69-OD-30 Tower Backhoe Foundation. NWE will design, install, and own the foundations.
    - 4- 72.5 kV Insulator Support Tower Spread Footing 5' x 5' Pad (Depth D = 6'-0"). NWE will design, install, and own the foundations.
    - 6- 72.5 kV Inst. Trans. Spread Footing 5' x 5' Pad (Depth D = 6'-0"). NWE will design, install, and own the foundations.
- ❖ Substation Structures
  - The total steel required for the Transmission Provider facility is **16,686** lbs. The structure details are as follows:
    - 1 - 69-OD-30 Dead End Tower (3000 # Phase Tension). NWE will own, design, and install the tower.

- 4 - Structural Support Tower - Variable Length L = 6' to 20' (Length L = 16.5'). NWE will own, design, and install the tower.
- 2 - Three Insulator Support Arm (10.0' Phase Spacing) (Use w/Leg Drawing 40063-B1). NWE will own, design, and install the support mounting plates. NWE will own, design, and install the arms.
- 6 - 72.5 kV Instrument Transformer Support Tower Leg - Variable Length L = 6' to 20' (Length L = 10.5'). NWE will own, design, and install the tower leg.
- 6 - 72.5 kV Single Phase Instrument Transformer Mounting Plate (30" x 36") (Use w/Leg Drawing 40063-B1). NWE will own, design, and install the mounting plate.

❖ Substation Electrical Equipment

- 72.5 kV SF6 Power Circuit Breaker – 1 owned by NWE
  - There will be 1 – 72.5 kV Power Circuit Breakers installed.
  - The breakers will be rated to interrupt a 40,000 amp fault.
  - NWE will procure, install, and own the breakers.
- 72.5 kV Air Break Switch w/Insulators – 1 owned by NWE.
  - The switch will be gear operated.
  - The switch will be rated for 1200 amps.
  - The switch will be rated for 350 kV BIL.
  - All switches will be – Center Side Break.
  - All switch will have TR216 insulators.
  - NWE will procure, install, and own the 72.5 kV air break switch.
    - 72.5 kV Single Phase Metering Unit (3CT's - 3PT's) owned by NWE
    - 72.5 kV Hook Operated Disconnects – 6 owned by NWE
    - 90 kV Lightning Arrester w/70 kV MCOV for use on 69 kV system – 3 owned by NWE.

- The bus will be capable of carrying 1200 amps on all network upgrades.
  - The bus will be 3" SPS 6063 – T6 aluminum pipe.
  - The station post insulators will be standard strength TR 216 insulators. The rigid pipe bus will be attached to the insulators using 3" pipe bus supports.
  - The composite dead-end insulators will have a tension load of 15,000 lbs.
  - All bus internal to the substation will be designed, built, and owned by NWE.
- ❖ Conduit
- Conduit and Trenwa will be installed from the control house to the electrical equipment. The conduit will be 3" schedule 40 PVC. The Trenwa will be designed and custom made.
  - NWE will procure, install, and own the conduit and Trenwa.
- ❖ Engineering and Supervision
- The engineering associated with all additions inside of NWE's property will be done internally, or by a NWE Consultant
- ❖ Operation and Maintenance.
- NWE will be responsible for operating and maintaining all equipment located inside the new substation.

## *Network Upgrades*

- ❖ Land
- Approximately 1 acres of land will be needed for the Network substation facilities. **It is assumed that land is available from the local landowners for purchase and that NWE will own the land.**
- ❖ Right of Way
- The work to secure Right of Way for this network substation facility will be done internally or by an NWE approved contractor.

❖ Survey

- The surveying associated with NWE's network substation facility will be done by contractor.

❖ Transmission Towers & Fixtures

- 69 kV electric transmission towers and fixtures may need to be moved and raised in order to accommodate the new substation. NWE will design, install, and own the any required changes to the transmission towers and fixtures.
  - Four in line Poles will be replaced and two added
  - Two 69KV Gang Operated AB switches will be added.

❖ Substation Fence

- There will be 600 ft of 7ft high chain link fence with three strands of barbed wire to connect to the existing fence. The fence will need to be grounded in accordance to NWE Substation Standards.

❖ Substation Site Work

- It will be necessary to grade and haul off excess materials and to gravel the yard.
- The soil and subsoil characteristics will be obtained through a geotechnical evaluation. The information obtained will be used for the design of the electrical facilities.
- Oil containment is not being considered at this location.
- There will be **six** flood type lights to be installed around the perimeter of the new fence.

❖ Substation Foundations

- The total concrete volumes associated with the Network Upgrades on this project are estimated at **60.90** cubic yards. The breakdown is as follows:
  - 1 - 72.5 kV SF6 Power Circuit Breaker Foundation (Depth D = 6'-0"). NWE will design, install, and own the foundations.
  - 4 - 69-OD-30 Tower Backhoe Foundation (2 req/tower). NWE will design, install, and own the foundations.

❖ Substation Structures

- The total steel required for the network upgrades on this project is **22,404.60** pounds. The structure details are as follows:
  - 2 - 69-OD-30 Dead End Tower (3000 # Phase Tension). NWE will design, install, and own the towers.
  - 4 - 72.5 kV Inst. Trans. Support Tower Leg - Variable Length L = 6' to 20' (Length L = 10.0'). NWE will design, install, and own the towers.
  - 4 - 72.5 kV Single Phase Inst. Trans. Mounting Plate (30" x 36") (Use w/Leg Dwg. 40063-B1). NWE will design, install, and own the mounting plates.

❖ Substation Electrical Equipment

- Power Circuit Breakers – 1 owned by NWE
  - There will be 1 – 72.5 kV Power Circuit Breakers installed.
    - The breaker will be rated to interrupt a 40,000 amp fault.
  - NWE will procure, install, and own the breaker.
    - 72.5 kV Hook Operated Disconnects – 6 owned by NWE
    - 69 KV Power PT - 25KVA – 1 owned by NWE
    - 72.5 kV Voltage Transformers - Single Phase – 3 owned by NWE
    - 90 kV Lightning Arrester w/70 kV MCOV for use on 69 kV system – 3 owned by NWE

❖ Substation Bus Work

- The bus will be capable of carrying 1200 amps on all network upgrades.
  - The bus will be 336 MCM ACSR 26/7.
  - The composite dead-end insulators will have a tension load of 15,000 lbs.
  - All bus internal to the substation will be designed, built, and owned by NWE.

❖ Substation Conduit and Trenwa

- Conduit and Trenwa will be installed from the control house to the electrical equipment. The conduit will be 3" schedule 40 PVC. The Trenwa will be designed and custom made.
- NWE will procure, install, and own the conduit and Trenwa.
- ❖ Substation Ground Mat Material
  - The ground mat will be installed to provide proper grounding for all electrical equipment, steel structures, and fence. A grounding analysis will have to be completed onsite to determine the final ground mat design.
    - The ground mat is comprised of 4/0 copper interior to the substation, and 1/0 copper as a perimeter ground around the outside of the fence.
    - All equipment is tied to the internal ground mat with 4/0 copper.
    - All steel structures are tied to the internal ground mat with a loop of 1/0 copper.
    - The fence including the barbwire is tied at every fourth post to the external ground mat with 1/0 copper.
    - Ground rods will be installed as needed to bring the ground mat resistance to 1 ohm or less.
- ❖ Engineering and Supervision
  - The engineering associated with all additions inside of NWE's property will be done internally, or by a NWE Consultant.
- ❖ Construction
  - The construction of all facilities inside of NWE's property will be done internally or by a NWE Contractor. NWE will provide all supervision of engineering and construction.
- ❖ Operation and Maintenance
- ❖ NWE will be responsible for operating and maintaining all equipment located inside the new substation.

## *Distribution Upgrades*

- ❖ There are no upgrades required for NWE on this project. Dakota Energy will need to relocate a single phase distribution line in front of the proposed substation site.

## ***Metering Facilities***

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The following is a detailed summary of the Metering Facilities needed to interconnect your project with the NWE system. This summary includes, but is not limited to MVA, voltage, current, BIL level, MCOV and interrupt ratings of equipment as applicable and associated grounding requirements.

## ***Interconnection Customer Interconnection Facilities***

- ❖ Rolling Thunder is responsible for supplying revenue communications to the revenue meters (can be phone line).

## ***Transmission Provider Interconnection Facilities***

### ❖ **NWE's Rolling Thunder 69KV Switchyard**

#### ➤ **Meter Form, Voltage, & Class**

- This part of the project will require one Form 5S, 120 Volt, billing revenue class watt-hour meter.

#### ➤ **Meter Type/Manufacturer**

- Scientific Columbus-Gemstar JS-0556020-B3-DNP

#### ➤ **Meter Communication Requirements**

- Telemetered Data:
  - Data from the meter to the control house will be transmitted through a fiber optic cable. The interface between the meter and the fiber, and between the fiber and the RTU will be fiber optic "Line Powered" transceivers. These transceivers convert RS2 232 signals and/or optical signals to RS 232 signals.
    - NorthWestern Energy will install the fiber optic cables.

- The contracted construction crew will install two 2-inch Schedule 40 PVC conduits from the control house to the metering enclosure with a pulling tape installed inside the conduits.
  - Two optical transceivers will be required.
    - Optical transceivers will be supplied by New.
    - Optical transceivers must be "Line Powered"
  - Data transmission from the optical transceivers (located inside the meter enclosure) to all downstream points will be determined by the metering/relay departments of NEW
  - The RS232 port on the meter is strictly for internal NWE use.
  - MODBUS protocol will be used for data transmission on the RS232 port of the revenue meter.
  - Metered metrics extracted from the revenue meter are limited to:
    - Delivered & Received MWH, Instantaneous +/- MW, Instantaneous +/- MVAR, Instantaneous Phase "A" Volts & Amps, Instantaneous Phase "B" Volts & Amps and Instantaneous Phase "C" Volts & Amps.
      - ◆ Depending upon timing issues the instantaneous amps might not be included in the telemetered data.
- PHONE MODEM DATA:
- The revenue meter will be equipped with an internal dial-up phone modem.
    - Appropriate phone communication conductors will be required to the meter. Arrangements are the responsibility of Rolling Thunder. Rolling Thunder may contract with NorthWestern to provide.
  - A dial-up modem and a MSU (modem sharing unit) may be required at the control house.

❖ **SPECIAL PROGRAMMING REQUIREMENTS:**

- Bi-directional metering will be required at the billing metering point.
- Transformer loss compensation will not be required.

❖ **AUXILIARY POWER REQUIREMENTS (METER ONLY):**

- DC auxiliary power will be required on the revenue meter.

❖ **METER LOCATION – PHYSICAL:**

- DISTANCE FROM THE CT'S:
  - As short as possible. In the event that the total secondary circuit length exceeds fifty feet per phase, greater than # 10 AWG copper will have to be used. Actual size will be dependant upon the circuit length.
- DISTANCE FROM THE PT'S:
  - Same requirements as for the CT's.
- ENCLOSURE REQUIREMENTS:
  - The standard meter enclosure built by NWE will be used at the meter site.
- MOUNTING STRUCTURE:
  - The contracted construction crew will provide a structure that meets the above requirements on which the meter enclosure will be mounted.

❖ **METER LOCATION – ELECTRICAL:**

- THE METERING POINT WILL BE ON THE GENERATION SIDE OF THE 69KV BREAKER AT THE NORTHWESTERN ROLLING THUNDER SWITCHING STATION.

❖ **Meter Connectivity:**

- Cabling requirements for instrument transformers:
    - CURRENT TRANSFORMERS:
      - Four # 10 AWG or larger, copper conductors.
        - Actual size dependant upon overall circuit length.
    - VOLTAGE TRANSFORMERS (PT'S):
      - Four # 10 AWG or larger, copper conductors.
        - Actual size dependant upon overall circuit length.
  
  - ❖ AUXILIARY DC POWER: (Auxiliary power for the revenue meter).
    - Two # 12 AWG or larger copper conductors.
  
  - ❖ HEATER AND AC POWER TO THE METER ENCLOSURE:
    - One three-wire 240-volt circuit of at least # 10 AWG or greater, copper conductors.
  
  - ❖ CABLING REQUIREMENTS FOR TELEMETERED DATA, MODEM, KYZ, EOI & OTHER.
    - PHONE MODEM:
      - Two #24 AWG or larger, twisted pairs - one pair to be designated as "spare".
        - Standard Cat 5 cabling works well.
  
  - ❖ OPTICAL TRANSCEIVER REQUIREMENTS:
    - Two fiber cables - One to be designated as a "spare".
- Optional pulse output cabling for KYZ, EOI or other: IF REQUIRED

- Sixteen #18 AWG or greater stranded copper conductors - eight to be designated as "spares". Conductors must have a minimum insulation rating of at least 120 Vac.

❖ **CONDUIT REQUIREMENTS TO METER ENCLOSURE:**

- Two "2 inch" conduits from the control house to the "bottom" side of the meter enclosure.
  - Conduits shall never enter the "top" of the meter enclosure.
- One "1 inch" conduit from the metering CT's to the "bottom" side of the meter enclosure.
  - Conduit shall never enter the "top" of the meter enclosure.
- One "1 inch" conduit from the metering PT's to the "bottom" side of the meter enclosure.
  - Conduit shall never enter the "top" of the meter enclosure.
- All conduit connectors and fittings must maintain the NEMA-3R rating of the enclosure.

❖ **METER TESTING:**

- The revenue meter will be fully tested prior to installation and will be re-certified for accuracy on an annual basis. The "Generation Owners" will be responsible for all costs associated with the annual re-certification. CT's will be verified at this time.

❖ **INSTRUMENT TRANSFORMER REQUIREMENTS:**

- **VOLTAGE TRANSFORMERS (PTS/VTS)**
  - Manufacturer & Type:
    - 2-GE Model JVT-350 Cat. No. 739x030001

The metering VTs/PTs should be of sufficient ratio to supply 120 VAC to the potential metering circuits inside the watt-hour meter.

- A secondary winding dedicated to revenue metering only.
  - Accuracy class to be  $\pm 0.15\%$  at all typical PT "Standard Burdens" with the exception of "ZZ". A "ZZ" rating is desirable but not mandatory.
  - If  $\pm 0.15\%$  potential transformers are available they must be used; if not available then  $\pm 0.3\%$  may be used but NWE must be notified prior to purchase.
    - A "Thermal" rating of at least 2 kVA.
  - The 350KV BIL.
- ❖ Current Transformers (CTs)
- Manufacturer & type:
  - Ritz-Model ERCT Ratio 500:5
- ❖ Current ratio:
- To be of sufficient ratio to supply at least 5 amps of secondary current to the metering elements when generation is operating at its normal capacity.
  - Accuracy class to be  $\pm 0.15\%$  through a burden rating of  $1.8 \Omega$  or higher.
  - The CTs must remain within  $\pm 0.15\%$  from 5% (or less) rated current to their RF limits.
  - Units that remain within  $\pm 0.15\%$  from 1% (or less) rated current to their RF limits are preferred.
  - During periods of reverse flow, when the plant is receiving power from the grid, the current passing through the current transformers will be minimal. It is therefore imperative that the most accurate instrument transformers are installed. If  $\pm 0.15\%$  "Extended Range" Current Transformers are available they must be used.
  - The 350KV BIL
- ❖ INSTRUMENT TRANSFORMER TESTING:
- All instrument transformers will be fully tested at the NorthWestern Energy meter-shop prior to installation.

- All instrument transformers will be tested "On Site annually. The "Generation Owners" will be responsible for all costs associated with these tests.
  - Depending upon the amount of disconnection and reconnection, a typical re-certification instrument transformer test, at 2004 levels, would cost approximately \$3,600.00 to \$5,200.00.

❖ **METERING COSTS: Estimate of the cost to install metering:**

- Metering installation from the secondary taps on the instrument transformers, to the output of the optical transceiver located inside the control house; the estimated metering cost is \$12,500.00. This would include the meter, enclosure, transceivers, cable/wire/fiber and labor to install.
  - This estimate does not include the cost of the instrument transformers or their installation.
  - This estimate does not include installation of underground conduits and other related hardware for the control, secondary, heating, and auxiliary circuits.

❖ **METERING INSTALLATION TIME TABLE:**

- ORDER AND RECEIPT OF THE REVENUE METER:
  - Allow sixteen weeks from the time NWE places the meter order with the factory to its arrival at NWE's meter-shop.
    - Allow two weeks from the arrival of the revenue meter at NWE's meter shop to the completion of all-necessary meter testing.
- METERING ENCLOSURE:
  - Allow seventeen weeks for the construction of the metering enclosure. This time is necessary to order and receive all the necessary components of the enclosure. Actual construction can be done in two working days.
- Transceivers, MSU and miscellaneous metering communication equipment:

Allow eight weeks from order date to their receipt.

❖ **SITE PREPARATION:**

- The installation of the instrument transformers, and all conduits for control cables and secondary circuits must be installed prior to the installation of the meter enclosure and meter.
- All control cables, fiber (optional), heating circuits, auxiliary circuits, and secondary circuits must be properly installed prior to the installation of the meter enclosure and meter.

❖ **ACTUAL METER INSTALLATION:**

- After the site preparation has been completed allow four working days for meter installation.
  - Installation includes mounting and wiring the metering enclosure.
  - Connecting and testing all control, communication, heating, auxiliary and secondary circuits.
  - Programming and commissioning the revenue meter, instrument transformers and associated secondary wiring.

❖ **OWNERSHIP & RESPONSIBILITIES:**

- NorthWestern Energy will be responsible for the purchase and delivery of the instrument transformers to the meter-shop for testing and then for their transportation to the metering site.
  - The "Generation Owners" will pay for the cost of the instrument transformers and their installation.
    - Nothing other than the billing meter will be connected to the secondary windings dedicated to the revenue metering.
- NorthWestern Energy will retain ownership of all instrument transformers.
  - NWE will provide maintenance and testing of all instrument transformers.
    - All maintenance and testing to be paid for by the "Generation Owners" .
  - NorthWestern Energy will own, operate, and maintain all metering hardware from the Primary terminals of the instrument transformers.

- The cost of the metering hardware and its installation, including but not limited to the meters, instrument transformers, enclosures, communication devices, and wiring will be the responsibility of the "Generation Owners".

## ***Network Upgrades***

- ❖ NONE REQUIRED.

## ***Distribution Upgrades***

- ❖ NONE REQUIRED.

## ***Relaying Facilities***

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The following is a detailed summary of the Relaying Facilities needed to interconnect the Interconnection Customer project with the NWE system.

### ***Interconnection Customer Interconnection Facilities***

- ❖ Relaying Interconnection Customer Interconnection Facilities will include, but are not limited to, the following items:
  - Interconnection Customer is to design, install and own all relaying at Interconnection Customer Step-up Substation.
  - Breaker Indication
    - Interconnection customer is to supply breaker status from the Line Breaker at the Interconnection Customers Step-Up Substation to the RTU to be located at the NWE Interconnection Switchyard.
  - Interconnection Customer is to coordinate relay settings with NWE.
  - Synchronizing
    - Synchronizing Breaker is to be installed at Interconnection Customer's Step-Up Substation
- ❖ Interconnection Customer is to install a fiber optic line on the Interconnection Customer 69 kV line between Interconnection Customer Step-up Substation and NWE Tap Switchyard.
  - Interconnection Customers 69 kV breaker will be transfer tripped with NWE breaker at NWE Switchyard

### ***Transmission Provider Interconnection Facilities***

- ❖ NorthWestern Energy's 69 KV Rolling Thunder Switchyard

- NWE will install a SEL 311C Line relay for the Interconnection Customer 69 kV line
  - Automatic reclosing of the breaker will not be allowed.
  - Breaker will be closed with Supervisory Control
    - The breaker will be closed on dead line only.
- ❖ A Tie point RTU will be located in NWE's Interconnection Switchyard.
  - NWE will install and own the Tie Point RTU.
  - NWE will connect the Tie Point RTU to the NWE meter set.

## ***Network Upgrades***

- ❖ NorthWestern Energy's 69 KV Rolling Thunder Switchyard
  - Install a SEL 311C Line relay on the line to Highmore
- ❖ NorthWestern Energy's West Park Substation
  - Replace existing relaying on OCB 3625 with SEL 311C
    - A transfer trip scheme with OCB at Rolling Thunder Switchyard for the Interconnection Customer 69 kV line will be installed
    - Automatic reclosing will be allowed at West Park Substation
- ❖ NorthWestern Energy will coordinate relay settings with the Interconnection Customer
- ❖ NWE shall install and own a SCADA RTU in the NWE Switchyard.
  - The (2) 69kV circuit breakers at the NWE Switchyard may be tripped, test closed or normal closed.
  - Breaker status of the (2) 69kV circuit breakers at the NWE Switchyard will be brought into the RTU.

- The breaker status inputs will be form "c" contacts.
  - A,B, and C phase currents, megawatts, and megavars for all lines entering the NWE Switchyard as well as the 69kV bus voltage are to be sent to the RTU.
    - All SEL relays in the control house will be connected to a SEL 2030 communication processor which will extract the analog values.
    - The analog values will be sent from the SEL 2030 to the RTU via modbus.
      - Alarms from all circuit breakers in the NWE Switchyard shall be brought into the RTU and annunciated locally on a 32 point alarm chassis.
  - Watchdog alarms from all microprocessor relays shall be brought into the RTU and annunciated locally on a 32 point alarm chassis.
  - Communications alarms on line differential relay circuits shall be brought into the RTU and annunciated locally on a 32 point alarm chassis.
  - All protective relay trips shall be brought into the RTU as non-annunciated alarms.
- ❖ NWE will construct and own a control house at the NWE Interconnection Switchyard.

## ***Distribution Upgrades***

- ❖ None Required.

## ***Communications Facilities***

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The following is a detailed summary of the Communications Facilities needed to interconnect your project with the NWE system. This summary includes, but is not limited to voltage, current, BIL level and interrupt ratings of equipment as applicable and associated grounding requirements.

Telecommunications infrastructure will be purchased and installed by NWE to provide the ability to monitor and operate the electrical system related to the Rolling Thunder interconnection. A connection will be made to the nearest feasible node of the existing NWE telecommunications backbone system. A combination of microwave and fiber will be used to complete the circuits necessary for monitoring, operation, protection, and metering of the associated electrical system.

## ***Interconnection Customer Interconnection Facilities***

- ❖ The Interconnection Customer is responsible for providing a telecommunications circuit from the point of interconnection to the NWE Revenue Meter Department.

At the customer's request the circuit can be provided by NWE (see Appendix D for sample Service Contract) for no One Time Charge and a Monthly Reoccurring Charge of \$60.00/month.

The Interconnection Customer can also provide the circuit through a telecommunications provider. In this case the Interconnection Customer is responsible for the High Voltage Protection equipment required for isolating the switchyard from the provider's circuit.

## ***Transmission Provider Interconnection Facilities***

- ❖ Communication Transmission Provider Interconnection Facilities will include, but are not limited to, the following items:

NWE telecommunications will purchase and install equipment for a microwave path from the 69 KV Switchyard related to Rolling Thunder to the existing NWE Ree Heights Telecommunications Site. Digital multiplex equipment will be

- installed at the substation to facilitate connection to the Protective Relaying equipment, telemeter equipment, and telephones.

## ***Network Upgrades***

- ❖ NWE Telecommunications will purchase and install equipment for connection between the Ree Heights Telecommunications Site and the Huron Operations Center.
  - Microwave equipment for a path from the existing NWE Ree Heights Telecommunications Site to the existing NWE Wessington Springs Telecommunications Site will be necessary. The installation of equipment for this path will require tower upgrades at both sites and a building upgrade at Ree Heights.
  - An existing microwave path between the NWE Wessington Springs Telecommunications Site and the NWE Huron Telecommunications Site will be utilized.
  - Upgrade of the fiber system in Huron to carry the circuits from the NWE Huron Telecommunications Site to the Huron Operations Center will include fiber terminations and multiplex equipment at each end.

## ***Distribution Upgrades***

- ❖ NA.

## *Cost Summary*

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### *Interconnection Facilities*

#### *Transmission Provider Interconnection Facilities*

Substation	\$254,313
Metering	\$12,500
Relaying	\$57,500
EMS	\$
Communications	\$188,852
<b>SUBTOTAL</b>	<b>\$513,165</b>

### *Network Upgrades*

Substation	\$603,747
Relaying	\$97,500
Reroute REA Distribution-Estimated	\$18,721
Communications	\$620,970
<b>SUBTOTAL</b>	<b>\$1,340,938</b>

## *Total Cost*

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Transmission Provider Interconnection	\$513,165
Network Upgrades	\$1,340,938
<b>TOTAL</b>	<b>\$1,854,103</b>

A 10% contingency has been added to the total estimate for the Substation costs. Costs are in 2009 dollar values and are subject to change due to inflation costs. The Interconnection Project will pay all actual charges required for the interconnection of the Project.

### Milestones.

Within 15 business days from receipt of final LGIA Interconnection Customer shall provide one of the following:

- (A) reasonable evidence that continued Site Control or
- (B) posting of \$250,000 non -refundable additional security, which shall be applied toward future construction costs. Interconnection Customer also shall provide reasonable evidence that one or more of the following milestones in the development of the Large Generating Facility, at Interconnection Customer election, has been achieved:
  - (i) the execution of a contract for the supply or transportation of fuel to the Large Generating Facility;
  - (ii) the execution of a contract for the supply of cooling water to the Large Generating Facility;
  - (iii) execution of a contract for the engineering for, procurement of major equipment for, or construction of, the Large Generating Facility;
  - (iv) execution of a contract for the sale of electric energy or capacity from the Large Generation Facility; or
  - (v) application for an air, water, or land use permit.

The Interconnection Customer and the Transmission Provider must mutually agree to the following dates that will be included in the final LGIA.

Date by which the Interconnection Customer will provide security to the Transmission Provider in accordance with Article 11.5: March 20, 2009 (At least 30 Calendar days prior to commencement of the procurement, installation, or construction.)

Date by which Transmission Provider will receive written authorization from the Interconnection Customer to proceed with design and procurement: March 20, 2009

Date by which Transmission Provider will receive written authorization from the Interconnection Customer to proceed with construction: April 30, 2009

Transmission Provider's Interconnection Facilities In-Service Date: -November 16, 2009

Transmission Provider's Network Upgrades In-Service Date: November 16, 2009

Interconnection Customer's Interconnection Facilities In-Service Date: September 1, 2009

Initial Synchronization Date: November 17, 2009

Commercial Operation Date: December 31, 2009

Construction Option Selected by Interconnection Customer:

- Standard Option
- Alternate Option

## Appendix C to LGIA

### Interconnection Details

The proposed generator and interconnection information includes:

- Project Name – Rolling Thunder Wind
- Size (Rating) – 50MW
- Generator Type – Wind
- Interconnection Type – Network Resource
- Location – 69kV Line #35 located near Ree Heights, SD
- Facilities – 20, C-93 Clipper Turbines, 2.5MW each.
- Power Factor – 0.95 leading to 0.95 lagging at the Point of Interconnection.
- Point of Change of Ownership– The Point of Change of Ownership between Northwestern Energy’s transmission system and the Interconnection Customer Interconnection Facilities is the point where the Interconnection Customer’s 69 kV line dead-end insulators and static conductor meet the NWE dead-end structure. Customer is to provide a structure with a gang operated AB switch prior to the dead end structure. Metering will tap the buss between the AB and the dead end tower. Customer to provide dead end shoes, insulators, and compression connectors for phase and static conductors at the tower.
- Point of Interconnection – The point where the jumpers for the Interconnection Customer’s tap meet the 69 kV bus within the NorthWestern Energy Switchyard..

Pursuant to NorthWestern Energy’s OATT, NorthWestern Energy is not required or obligated to provide certain ancillary services to transmission customers and/or generators not serving load within NorthWestern’s balancing authority.

Pursuant to Section 9.7.1.2 of the LGIA, NorthWestern Energy, South Dakota (NWPS) will post scheduled outages of its transmission facilities in conjunction with NERC, Midwest Reliability Organization (MRO), Mid-Continent Area Power Pool (MAPP) and the Western Area Power Administration (Western), Upper Great Plains Region (UGPR) Standards.

#### **LGIA Section 5.4 Requirements:**

**5.4 Power System Stabilizers.** The Interconnection Customer shall procure, install, maintain and operate Power System Stabilizers in accordance with the guidelines and procedures established by the Applicable Reliability Council. Transmission Provider reserves the right to reasonably establish minimum acceptable settings for any installed Power System Stabilizers, subject to the design and operating limitations of the Large Generating Facility. If the Large Generating Facility's

Power System Stabilizers are removed from service or not capable of automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to wind generators.

**NorthWestern Energy Additional Requirements:**

Each Interconnected Unit shall meet the power system stabilizer (PSS) requirements of the Midwest Reliability Organization (MRO). The Generating Party shall cause the applicable PSS to be in service and properly calibrated as required by the MRO Standard PRC-502-MRO-01 on Power System Stabilizers attached hereto as Exhibit A.

**LGIA Section 9.1 Requirements:**

**9.1 General.** Each Party shall comply with the Applicable Reliability Council requirements. Each Party shall provide to the other Party all information that may reasonably be required by the other Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

**NorthWestern Energy Additional Requirements:**

Applicable Reliability Standards should include Regional Reliability Standards.

Please note that the National or Regional Reliability *Councils* have been changed to National or Regional Reliability *Organizations*.

**LGIA Section 9.4 Requirements:**

**9.4 Interconnection Customer Obligations.** Interconnection Customer shall at its own expense operate, maintain and control the Large Generating Facility and Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this LGIA. Interconnection Customer shall operate the Large Generating Facility and Interconnection Customer's Interconnection Facilities in accordance with all applicable requirements of the Control Area of which it is part, as such requirements are set forth in Appendix C, Interconnection Details, of this LGIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Either Party may request that the other Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this LGIA.

Voltage and Frequency Response. Each Interconnected Unit shall be capable, at all times (including during an Electric Disturbance), of continuous operation at 0.95 to 1.05 per unit (pu) voltage of nominal voltage (69 kV), as measured at the Point of Interconnection, and at 59.5 to 60.5 Hz, and shall be kept online and in operation during frequency

deviations beyond the range of 59.5 to 60.5 Hz to the extent required by the Applicable Reliability Standards.

NorthWestern Energy South Dakota transmission system, to which the Generating Facility is interconnected, is presently included in Western's WAUE Control Area. The Interconnection Customer has requested that its Generating Facility be included in the Western's WAUE Control Area. Northwestern will only allow the Generating Facility to operate provided that the necessary agreements are executed between the Interconnection Customer and Western allowing the Generating Facility, or such portions thereof, to be operated within the WAUE Control Area, and further, that Western has provided written notification to the Transmission Provider that such contractual arrangements are in-place. The Interconnection Customer shall be allowed to meter only the portion of the Generating Facility into the WAUE Control Area that is delivered to load inside of the WAUE Control Area. Due to the limited regulation capability of Western's WAUE Control Area to follow non-dispatchable and intermittent generation, the Interconnection Customer shall meter any portion of the Generating Facility delivered into a separate Control Area, into that Control Area, unless Western's UGPR agrees in writing to provide regulation for the portion of the Generation Facility that is delivered outside of the Western WAUE Control Area.

In order to meet the NERC mandatory control performance criteria within the WAUE's Control Area, Western will enforce certain requirements to enable new generating resources connecting to be reliably integrated to Western's transmission system and balancing authority. The Interconnection Customer will be required to negotiate the necessary agreements with Western that will detail how control performance standards will be met, for such portion of the Generating Facility that is metered into the WAUE Control Area.

In accordance with Article 9.4 of this LGIA, Interconnection Customer shall meet all applicable UGPR requirements for Control Area operations, including applicable Western metering requirements (Upper Great Plains Metering Policy, attached as Exhibit B of this Appendix C, and Treatment of Behind the Meter Generation for Transmission System Network Service Customers, attached as Exhibit C of this Appendix C, and UGPR Generation Metering Requirements, attached as Exhibit D of this Appendix C), for such portion of the Generating Facility that is metered into/out of the WAUE Control Area, as specified herein and also as specified in such separate agreements, and also such requirements (such as Operations Coordination between the Interconnection Customer, Northwestern, and UGPR during normal and emergency conditions, Outage notifications, Notification contracts, etc) as specified in an Operating Guidelines and Procedures manual for the Generating Facility, which will be developed and mutually agreed upon by the Interconnection Customer and Western.

Interconnection Customer shall be responsible to provide its portion of the WAUE Balancing Authority's Contingency Reserve obligation, if any, for such portion of the Generating Facility that is metered into the WAUE Control Area, as defined and in accordance with Western's requirements, and Applicable Reliability Standards.

In the event that Interconnection Customer does not meet its obligations to UGPR as set forth herein, Northwestern, upon notification from UGPR, shall immediately enforce such requirements pursuant to the provisions of this LGIA.

**LGIA Section 9.6.1 Requirements:**

**9.6.1 Power Factor Design Criteria.** Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at a power factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all generators in the Control Area on a comparable basis. See Appendix G for additional details.

**LGIA Section 9.8 Requirements:**

**9.8 Switching and Tagging Rules.** Each Party shall provide the other Party a copy of its switching and tagging rules that are applicable to the other Party's activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

**NorthWestern Energy Additional Requirements:**

Whenever disconnecting an Interconnected Unit from NWE's Electric System, the Generating Party shall perform such disconnection in accordance with Good Utility Practice and in compliance with NWE's transmission facility clearance procedures attached hereto as Exhibit 4 as may be amended, reasonably and without discrimination to the Generating Party, by NWE in its sole discretion from time to time. To switch on the NorthWestern Energy Transmission System, all personnel must be on the NWE qualified switchman list. If NWE amends its transmission facility clearance procedures, it will notify the Generating Party as soon as practicable thereafter, and provide to the Generating Party a new Exhibit E to this Agreement.

Interconnection Customer shall also notify UGPR of disconnections, outages of the Generating Facility as specified in an Operating Guidelines and Procedures manual for the Generating Facility, which will be developed and mutually agreed upon by the Interconnection Customer and Western

## **Appendix D to LGIA**

### **Security Arrangements Details**

Infrastructure security of Transmission System equipment and operations and control hardware and software is essential to ensure day-to-day Transmission System reliability and operational security. FERC will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission System to comply with the recommendations offered by the U.S. Department of Homeland Security (DHS) Critical Infrastructure Protection Board and, eventually, best practice recommendations and Critical Infrastructure Protection (CIP) Standards from the electric reliability authority. All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

**Appendix E to LGIA**  
**Commercial Operation Date**

This Appendix E is a part of the LGIA between Transmission Provider and Interconnection Customer.

**[Date]**

**Northwestern Corporation**  
**40 East Broadway**  
**Butte, MT 59701**

Re: Rolling Thunder Power Partner's Large Generating Facility

Dear Mr. Cashell:

On **[Date]** \_\_\_\_\_ has completed Trial Operation of Unit No. \_\_\_\_\_. This letter confirms that Rolling Thunder Power Partners, LLC commenced Commercial Operation of Unit No. \_\_\_\_ at the Large Generating Facility, effective as of **[Date plus one day]**.

Thank you.

**Mr/Ms**

## Appendix F to LGIA

### Addresses for Delivery of Notices and Billings

#### Notices:

Transmission Provider:

NorthWestern Energy  
Coordinator Transmission Contract/Tariff Compliance & Policy  
40 E. Broadway St.  
Butte, MT 59701

Interconnection Customer:

BP Wind Energy  
c/o Bob Myer  
700 Louisiana St., 33<sup>rd</sup> Floor  
Houston, Texas 77002

#### Billings and Payments:

Transmission Provider:

NorthWestern Energy  
Coordinator Transmission Contract/Tariff Compliance & Policy  
40 E. Broadway St.  
Butte, MT 59701

Interconnection Customer:

BP Wind Energy  
c/o Bob Myer  
700 Louisiana St., 33<sup>rd</sup> Floor  
Houston, Texas 77002

**Alternative Forms of Delivery of Notices (telephone, facsimile or email):**

Transmission Provider:

Coordinator Transmission Contract/Tariff Compliance & Policy

Phone: (406) 497-3126

Fax: (406) 497-2054

Email:

Interconnection Customer:

David Grant

Phone: (713) 354-4810 (w)

(281) 701-7497 (c)

Fax: (713) 354-2120

Email: david.grant@bp.com

**APPENDIX G****INTERCONNECTION REQUIREMENTS FOR A WIND GENERATING PLANT**

Appendix G sets forth requirements and provisions specific to a wind generating plant. All other requirements of this LGIA continue to apply to wind generating plant interconnections.

**A. Technical Standards Applicable to a Wind Generating Plant****i. Low Voltage Ride-Through (LVRT) Capability**

A wind generating plant shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the standard below. The LVRT standard provides for a transition period standard and a post-transition period standard.

**Transition Period LVRT Standard**

The transition period standard applies to wind generating plants subject to FERC Order 661 that have either: (i) interconnection agreements signed and filed with the Commission, filed with the Commission in unexecuted form, or filed with the Commission as non-conforming agreements between January 1, 2006 and December 31, 2006, with a scheduled in-service date no later than December 31, 2007, or (ii) wind generating turbines subject to a wind turbine procurement contract executed prior to December 31, 2005, for delivery through 2007.

1. Wind generating plants are required to remain in-service during three-phase faults with normal clearing (which is a time period of approximately 4 – 9 cycles) and single line to ground faults with delayed clearing, and subsequent post-fault voltage recovery to prefault voltage unless clearing the fault effectively disconnects the generator from the system. The clearing time requirement for a three-phase fault will be specific to the wind generating plant substation location, as determined by and documented by the transmission provider. The maximum clearing time the wind generating plant shall be required to withstand for a three-phase fault shall be 9 cycles at a voltage as low as 0.15 p.u., as measured at the high side of the wind generating plant step-up transformer (*i.e.* the transformer that steps the voltage up to the transmission interconnection voltage or “GSU”), after which, if the fault remains following the location-specific normal clearing time for three-phase faults, the wind generating plant may disconnect from the transmission system.
2. This requirement does not apply to faults that would occur between the wind generator terminals and the high side of the GSU or to faults that would result in a voltage lower than 0.15 per unit on the high side of the GSU serving the facility.

3. Wind generating plants may be tripped after the fault period if this action is intended as part of a special protection system.
4. Wind generating plants may meet the LVRT requirements of this standard by the performance of the generators or by installing additional equipment (e.g., Static VAR Compensator, etc.) within the wind generating plant or by a combination of generator performance and additional equipment.
5. Existing individual generator units that are, or have been, interconnected to the network at the same location at the effective date of the Appendix G LVRT Standard are exempt from meeting the Appendix G LVRT Standard for the remaining life of the existing generation equipment. Existing individual generator units that are replaced are required to meet the Appendix G LVRT Standard.

### **Post-transition Period LVRT Standard**

All wind generating plants subject to FERC Order No. 661 and not covered by the transition period described above must meet the following requirements:

1. Wind generating plants are required to remain in-service during three-phase faults with normal clearing (which is a time period of approximately 4 – 9 cycles) and single line to ground faults with delayed clearing, and subsequent post-fault voltage recovery to pre-fault voltage unless clearing the fault effectively disconnects the generator from the system. The clearing time requirement for a three-phase fault will be specific to the wind generating plant substation location, as determined by and documented by the transmission provider. The maximum clearing time the wind generating plant shall be required to withstand for a three-phase fault shall be 9 cycles after which, if the fault remains following the location-specific normal clearing time for three-phase faults, the wind generating plant may disconnect from the transmission system. A wind generating plant shall remain interconnected during such a fault on the transmission system for a voltage level as low as zero volts, as measured at the high voltage side of the wind GSU.
2. This requirement does not apply to faults that would occur between the wind generator terminals and the high side of the GSU.
3. Wind generating plants may be tripped after the fault period if this action is intended as part of a special protection system.
4. Wind generating plants may meet the LVRT requirements of this standard by the performance of the generators or by installing additional equipment (e.g., Static VAR

Compensator) within the wind generating plant or by a combination of generator performance and additional equipment.

5. Existing individual generator units that are, or have been, interconnected to the network at the same location at the effective date of the Appendix G LVRT Standard are exempt from meeting the Appendix G LVRT Standard for the remaining life of the existing generation equipment. Existing individual generator units that are replaced are required to meet the Appendix G LVRT Standard.

**ii. Power Factor Design Criteria (Reactive Power)**

A wind generating plant shall maintain a power factor within the range of 0.95 leading to 0.95 lagging, measured at the Point of Interconnection as defined in this LGIA, if the Transmission Provider's System Impact Study shows that such a requirement is necessary to ensure safety or reliability. The power factor range standard can be met by using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors if agreed to by the Transmission Provider, or a combination of the two. The Interconnection Customer shall not disable power factor equipment while the wind plant is in operation. Wind plants shall also be able to provide sufficient dynamic voltage support in lieu of the power system stabilizer and automatic voltage regulation at the generator excitation system if the System Impact Study shows this to be required for system safety or reliability.

**iii. Supervisory Control and Data Acquisition (SCADA) Capability**

The wind plant shall provide SCADA capability to transmit data and receive instructions from the Transmission Provider to protect system reliability. The Transmission Provider and the wind plant Interconnection Customer shall determine what SCADA information is essential for the proposed wind plant, taking into account the size of the plant and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

## **WECC Power System Stabilizer Design and Performance Criteria**

### **Purpose of PSS**

Power System Stabilizers (PSS) are designed to enhance damping of power system oscillations in order to extend power transfer limits of the system and maintain reliable operation of the grid.

### **Type of PSS**

WECC recommends a dual input integral of accelerating power type of PSS (IEEE Type PSS2A).

Electric power type PSS are not acceptable in the WECC system because they are ineffective in damping interarea modes of oscillations.

### **Minimum Performance Requirements of PSS**

The minimum acceptable performance of PSS is to provide a compensated frequency response of the excitation system and synchronous machine such that through the frequency range from 0.1 Hertz to 1.0 Hertz the phase will not exceed  $\pm 30$  degrees.

PSS output limits shall be at least  $\pm 5\%$  of the synchronous machine terminal voltage.

PSS gain shall be set to provide a gain margin of least 6 dB and no more than 10 dB.

PSS washout time constant shall be set as low as possible while maintaining the compensated phase criteria.

### **Performance verification requirements**

Performance verification reports shall include a minimum of the following:

#### **Description of facility:**

Unit type (including ratings).

Excitation system and AVR type.

PSS type, inputs, and available setting ranges for adjustable parameters. Include description of PSS failure detection system if provided.

PSS modifications required to provide final settings.

#### **List of final settings, including:**

A description of test methodology and rationale for final settings.

Output limit settings.

Gain.

Lead and lag time constants.

Washout time constant.

Other filtering parameters (fixed or settable).

#### **Models (per IEEE standard 421.5)**

PSS model and parameters.  
Excitation model and parameters.

Bode plots

Excitation response with unit connected to electrical system without PSS in service.  
(See Figure 7 in WECC PSS Tuning Guidelines.)

PSS response alone. (See Figure 8 in WECC PSS Tuning Guidelines.)

Excitation response with PSS in service and unit connected to electrical system. This plot can be either via test or calculated based on previous two plots.

Simulations If settings are developed through simulations, provide actual excitation responses, on and off line step and/or frequency responses, versus excitation model responses used in simulation. Step responses shall include generator terminal voltage, field voltage, and field current as well as exciter field voltage and current, if applicable.

Time plots Step response showing generator terminal voltage, field voltage, field current, power, PSS output, AVR output with PSS in service and out of service.  
(See Figure 5 in WECC PSS Tuning Guidelines.)

Related documents: WECC PSS Policy Statement WECC PSS Tuning Guidelines WECC Tutorial on PSS IEEE Standards 421 series

Approved by Technical Operations Subcommittee: September 15, 2003

Approved by Operating Committee: March 12, 2004

Approved by Board of Directors: April 23, 2004

## UPPER GREAT PLAINS METER POLICY

SUBJECT: Meter Policy

PURPOSE: Establish a policy for the Upper Great Plains Region (UGPR) meter responsibilities and requirements. Western Area Power Administration (Western) recognizes it does not currently own all the revenue meters used for our billing purposes and that specific circumstances may require deviating from this policy statement; however, the UGPR prefers these arrangements and conditions and will work with our customers to achieve them.

### A. TECHNICAL REQUIREMENTS

1. All meters, whether owned and maintained by Western, its customers, or a third party, shall comply with the requirements in this policy, with those listed in the General Requirements for Interconnection and, if applicable, shall comply with the latest revision of section 6 (Metering) of the General Power Contract Provisions (GPCP). In the event the requirements stated in this policy differ from the requirements stated in the GPCP or an executed Contract, the GPCP or Contract requirements shall prevail.
2. All meters shall meet an accuracy of  $\pm 0.3$  percent at unity power factor with 100 percent, 50 percent, and 10 percent current and  $\pm 0.7$  percent at 50 percent power factor with 100 percent current. Any new meters or replacement meters will have multi-level password protection; this will allow access to the meter readings while protecting the meter setting parameters with a different password.
3. All meters and instrument transformers will be installed to correctly measure power (kW) and energy (kWh) for all unbalances and will not be bypassed without approval by Western. Meters at all deliveries shall be 3-element. It is recognized there are several locations that employ 2-element metering. Those locations that are 2-element metering and are on a delta or ungrounded wye connected delivery, may remain in service until they are scheduled to be replaced.
4. Current Transformers (CT) shall be a wound or bushing type that meets the ANSI standard C57.13 of 0.3 percent at burdens B-0.1, B-0.2, B-0.5, B-0.9, and B-1.8. The CTs shall have a continuous thermal rating factor of at least 1.5. Multi-ratio CTs are required to meet the accuracy stated on the ratio being used. The CT will be loaded to at least 10 percent of the winding ratio unless differences are specifically allowed in a contract or agreement with Western.
5. Potential Transformers shall meet ANSI standard C57.13 of 0.3 percent accuracy class at the following burdens:

## UPPER GREAT PLAINS METER POLICY

- a. At system voltages below 25-kV with burdens of W, X, and Y.
  - b. At system voltages 25-kV and above with burdens W, X, Y, Z, and ZZ.
6. Load control boundary meters shall provide the analog and digital outputs compatible with Western's load control system and shall comply with the following:
- a. Instantaneous telemetering to the Watertown Operations Office (WOO) from all load control boundary interconnections.
  - b. Hourly watt-hour telemetering, preferably digital watt-hour telemetering, to the WOO from all load control boundary interconnections.
  - c. All 345-kV and higher interconnections shall be individually telemetered to the WOO. Quantities metered at 230-kV and 161-kV will normally require individual telemetering unless the Manager, System Reliability and Transmission Operations, concurs in a specific totalizing arrangement.
  - d. Totalizing of multiple deliveries to each separate load control area at one substation will normally be permitted. Remote totalizing of quantities from more than one foreign load control area shall be avoided.
  - e. To the extent possible, the same meter and transmitter should be used to provide the analog and digital metering information.
7. All meters shall be solid state models from which Western can collect data by:
- a. Remote interrogation using Utility Translation System MV-90 translation program.
  - b. Local interrogation - the data can be collected at the meter sites:
    - 1) by using a PC and then uploading the data to the translator over a normal telephone line.
    - 2) by removing the recorder cartridge and mailing it to the translator operator where applicable.
    - 3) by using a portable meter reader and then uploading data from the portable reader to the translator over a normal telephone line.
  - c. The make and model of the meters used in the UGPR will be approved by

## UPPER GREAT PLAINS METER POLICY

the State Maintenance Managers and the Maintenance Engineering Manager.

8. All customer supplied meters must be compatible with existing Western equipment (hardware, software, test equipment) and approved by the State Maintenance Manager responsible for the delivery point.
9. Location of metering PTs and CTs shall be designed and installed so that it is possible to maintain power to the meter during breaker bypass configurations.
10. A properly designed space that meets appropriate State and Federal Safety and Health Regulations shall be provided to protect meters and other communication equipment from the environment.

### B. REVENUE AND LOAD CONTROL BOUNDARY METERS

1. Western will be responsible for reading, testing, calibrating, maintaining, and replacing Western-owned meters.
2. Western will continue its policy to own all revenue meters on deliveries to Western customers. Ownership of load control boundary points meters are determined during contractual negotiations with the interested parties.
  - a. Revenue: Metering associated with an existing customer's desire to establish a new delivery point will be the financial responsibility of the customer. Generally, Western will own, maintain, and replace the meter, at the expense of the customer. It is preferable the meters, for any new delivery, be furnished by Western at the customer's expense. If a meter is furnished by the customer, it must be approved by the State Maintenance Office ultimately responsible for its installation and maintenance. When new delivery points are established, the customer will also be responsible for the communications necessary to facilitate remote interrogation.
  - b. Load Control: Financial responsibility for the metering system at new load control boundary points will be determined during negotiations for the new interconnections. This will include ownership, maintenance, replacement, and modification (MRM) responsibilities for the meter, instrument transformers, and communications and telemetering needed for remote interrogation of the meter.
3. The meter points will be reviewed by the Power Billing/Energy Accounting and Dispatch functions annually to ensure any changes have been accounted for properly. Any requests for load control metering changes will be coordinated

## UPPER GREAT PLAINS METER POLICY

with WOO and ample time given to review and respond to the effects of the change. The Maintenance organization will review load control boundary meters, within Western facilities, and all revenue metering systems to ensure accurate readings are being provided at the same interval as required for testing the meter. The following test intervals shall be used:

- a. **Revenue Meters:** All revenue meters that serve loads less than 100 kVA and single-phase meters shall be tested and calibrated once every 5 years. All solid state 3-phase meters shall be tested at least once every 3 years.
  - b. **Load Control Boundary Meters:** All single-phase load control boundary meters shall be tested and calibrated once every 5 years. All solid state 3-phase meters shall be tested at least once every 3 years.
4. Any meter above 120 volts that is not instrument rated shall be provided with a disconnect device on the line side of the meter to facilitate the safe maintenance and repair of the meter. Using a socket type meter in place of the disconnect device is not acceptable. If delivery can sustain short outages while the disconnect device is open for maintenance and testing, the 480-volt meters are acceptable. If these conditions cannot be met, the customer will be responsible for all costs to change to a 120-volt meter when Western takes over responsibilities for 480-volt meters.
5. At points of delivery, points of input, or load control boundary points where another entity owns the meter, Western requires the right to be notified, in advance, of the date and time for the meter test and will be present for testing. The supplemental power supplier will provide Western with two copies of the meter test report. The meter data will be made available each month to Western's billing department. Western also reserves the right to request that a meter be tested.

Also, if the meter owner modifies meter facilities, Western reserves the right to review and approve meter facility modifications prior to implementation, and be present at the site when the modifications are accomplished.

6. When a request is made for a meter function that is not currently available with the existing meter, the entity making the request will be financially responsible for any modifications needed to meet the request.
- a. If the meter is not owned by Western, the requester will obtain approval to make the modification from all parties associated with the meter.
  - b. If the original meter was owned by Western, ownership of the new meter

## UPPER GREAT PLAINS METER POLICY

will transfer to Western, at no cost, after the installation is complete. Responsibility for maintenance and replacement for the new meter will be the same as for the meter being replaced.

### C. GENERATION METERS

1. Meters shall meet the technical requirements of Section A, Technical Requirements. These requirements apply to generation operating inside the UGPR control area even if not directly connected to Western transmission facilities.
2. Generating meters will be owned, maintained, and replaced by the owner of the generation.
3. Instantaneous megawatt and hourly MWH data and generation status indication will be remotely provided to our WOO.
4. The customer will provide a communication circuit needed to transmit the data from the generating facility to WOO.
5. The customer will be responsible for providing an interface that is compatible with the equipment at WOO and to ensure that no MWH data is lost in hourly reporting.
6. Western requires the right to be notified, in advance, of the date and time for the meter test and will be present for testing. Western will be provided with two copies of the meter test report. Western also reserves the right to request that a meter be tested.

### D. NEW INTERCONNECTIONS AND NEW REVENUE METER DELIVERY POINTS

The party requesting the interconnection will be responsible for providing:

1. Instrument transformers that meet Western's engineering standards and the technical requirements in Section A.
2. Communication and telemetering equipment for a load control boundary point if necessary.
3. A reliable communication circuit for remote interrogation of the meter if the metered quantities are needed for billing calculations or if information from the meter is needed by Western to fulfill requests for information from customers.

## UPPER GREAT PLAINS METER POLICY

4. Meters according to the technical standards detailed in Section A. If the meter serves a load of 100-kVA or greater ownership of the meter will transfer to Western. For meters serving loads less than 100-kVA, ownership will remain with the customer.
5. Maintenance, replacement or modifications (MRM) of equipment listed in Sections D1, D2, D3, and meters serving a load of less than 100-kVA installed in a customer's facility.
6. Monies to Western for Western to perform MRM of equipment listed in Sections D1, D2, D3, and D4. Installed in a Western substation and for meters serving a load of 100-kVA or greater installed in a customer facility.
7. Appropriate set of drawings for the delivery point. An "A" size 1-line diagram and full-size 3-line diagrams of the CT, PT, and panel layout drawings are required for approval prior to installation of the meter. Nameplate data on the CT and PT shall be included with the approval drawings. Western shall be notified prior to any modifications to the CT and PT circuits. The design will include the following:
  - a. The use of shorting terminal blocks on CT installations. The shorting blocks will be ahead of any metering test blocks, preferably at the CT location, to allow the safe installation and modification of the metering circuits.
  - b. A means of disconnecting PT circuits ahead of the metering test block. Western prefers the use of potential fuses for this purpose.

### E. REPLACEMENT OF EXISTING INSTRUMENT TRANSFORMERS (ITs)

The instrument transformer's location, reason for change, and ownership determine the responsibility for maintenance and replacement. As a general rule, the customer will be responsible for any instrument transformer costs resulting from load growth or other modifications or improvements to their system. This would include the replacement of instrument transformers resulting from a delivery voltage change by the customer's supplemental power supplier or wheeling agent.

Customers shall notify their Power Marketing representative and the Power Billing department located at the WOO in Watertown, SD, of any equipment failures immediately upon discovery so all necessary adjustments can be made and arrangements can be made for repair or replacement.

Except in an emergency, a customer shall not replace any failed instrument transformers or change CT ratios without first notifying Western. Notification should be in writing at least 10

## UPPER GREAT PLAINS METER POLICY

working days prior to the scheduled transformer change.

Every effort will be made to complete the replacement of failed equipment as soon as possible after its discovery.

Any failed instrument transformers owned by Western must be returned to Western for proper environmental disposal.

Western will use multi-level password protected meters when installing new meters and when existing meters warrant replacement.

The following situations further illustrate how responsibilities will be determined:

### 1. FINANCIAL RESPONSIBILITY FOR INSTRUMENT TRANSFORMERS

- a. Western-owned instrument transformers will be purchased or furnished by Western.
- b. Customer-owned instrument transformers will be purchased or furnished by the Customer.
- c. Any changes resulting from the customers load growth will be the responsibility of the customer.
- d. Any new or additional metering point requested or required by the customer will be the responsibility of the customer.
- e. Any changes resulting from a change by the customer's supplemental supplier or a third party wheeling agent will be the responsibility of the customer.

### 2. REPLACEMENT RESPONSIBILITY FOR INSTRUMENT TRANSFORMERS

- a. Customer-owned instrument transformers installed in Western facilities will be replaced by Western personnel.
- b. Customer-owned instrument transformers installed in customer facilities will be the responsibility of the customer.
- c. Customer-owned instrument transformers installed in a supplemental supplier or wheeling agent's facility will be the responsibility of the customer.

## UPPER GREAT PLAINS METER POLICY

- d. Western-owned instrument transformers installed in Western facilities will be replaced by Western personnel.
- e. Western-owned instrument transformers installed in customer facilities will be furnished by Western for replacement by the customer.
- f. Western-owned instrument transformers installed in third party facilities will be replaced under a negotiated agreement with the third party.

### F. TRANSFORMER/LINE LOSS COMPENSATION

The choices listed below are available for adjusting the energy (kWh) delivered to or received from the customer when the points of delivery and measurement are different. The customer, with Western's concurrence, can choose to either:

1. Use the standard 2 percent transformer loss adjustment factor plus a line loss if applicable, in preparation of the power bill.
2. Use a negotiated transformer loss factor plus a line loss, if applicable, in the preparation of the power bill. The customer must obtain a written agreement from supplemental power supplier(s) and/or wheeling agent(s) stating the mutually agreed value. The choices in Sections F1 and F2 would have the power bill's delivered value increased by the appropriate loss factor for Western supplying power to the customer, and if applicable, decreased by the same loss factor for the received value when Western receives power from the customer.
3. Use a transformer and/or line loss compensating meter. The customer, with Western's concurrence, must obtain written agreement from the supplemental power supplier(s) and/or wheeling agent(s) to use a loss compensating meter, for the values used in the meter formula to calculate the percent kWh's loss compensation, and for a value of transformer and/or line loss in the event the meter fails. The application of the transformer loss compensating meter is technically correct ONLY when:
  - a. A certified copy of the transformer test report either from the transformer manufacturer or a third party transformer test shop is available from which to obtain the appropriate losses necessary to program the meter.
  - b. Only one transformer serves the metered load.
  - c. And only one delivery is served from the transformer.

If the above conditions are not met, Western recommends either Section F1 or

## UPPER GREAT PLAINS METER POLICY

F2 be chosen.

If the customer requires transformer and/or line loss compensation and the existing meter does not have transformer loss compensation ability, the customer will bear the financial responsibility to either replace or modify the existing meter for providing transformer and/or line loss compensation, including the cost of installing the meter. The new meter with transformer and/or line loss compensation will meet the technical specification of this policy and Western will accept ownership of the meter. Financial responsibility for future calibration, maintenance, repair, and replacement of the new meter will belong to the entity that had this responsibility prior to the replacement. The customer shall not be credited for providing Western with a loss compensating meter. At existing deliveries where Western's meter is replaced, the old meter will be returned to Western.

### G. REMOTE ACCESS TO METERS

Western will allow access to Western-owned meters under the conditions defined below. The requesting party is responsible for providing communications to the meter and compensating Western for any additions equipment needed to communicate with the meter. The requestor can either provide their own communications path to the meter or negotiate with Western or another entity providing a communications path to the meter site.

1. The existing meter has multiple levels of password protected access that would allow the requester to access through a level of control that would not allow them to alter the meters parameters. In addition it would be acceptable, if the meter and the software used to access the meter allows access and prevents the alteration of the meters parameters without needing a password.
2. The meter does not meet the conditions in section G.1.
  - a. Access would not be granted unless the requestor assumes responsibility for all costs associated with obtaining a multi-level password protected meter that meets the technical requirements of this policy.
    - 1) If the meter is used by Western for revenue/load control purposes, the new meter would be installed by Western and the requestor would compensate Western for the installation cost.
    - 2) Ownership of the new meter would transfer, at no cost, to Western after the installation is completed. Responsibility for Maintenance, replacement, or modifications (MRM) of the meter would be the same as the meter being replaced.

UPPER GREAT PLAINS METER POLICY

When remote access privileges are granted to another entity, Western will reserve the right to immediately revoke the access privilege if the meter's security has been breached and meter equipment parameters and/or billing data has been changed or corrupted by the customer or their representative.

APPROVED: \_\_\_\_\_  
Gerald C. Wegner  
Regional Manager

DATE: \_\_\_\_\_

### **Treatment of Behind the Meter Generation For Transmission System Network Service Customers**

This policy documents the requirements for generation located on a customer's system beyond a revenue meter used for loads which are included in the determination of the coincident peak and load ratio share for network transmission service via the Transmission System (TS). The Federal Energy Regulatory Commission has set these requirements, to assure equitable distribution of Network Integration Transmission Service (NITS) charges. Behind the meter generation that is on line during a transmission system peak should not lower the network customer's bill, because all network customers must collectively pay for a system that would provide for the customer's entire energy needs in the event the generation is not available. All generation that is behind the meter of a designated network load ("behind the meter generation") shall be metered. The NITS service charges will be calculated based on the following:

The generation behind the designated NITS load(s) is on-line and is serving load at the time of Transmission System peak;

The customer NITS load is determined by using the rolling average of the 12 month Coincident-Peak (12-CP) at the time of transmission system peak; and is calculated as:

The amount delivered from the transmission system PLUS the generation level behind the meter, MINUS metered delivery back into the transmission system.

This requirement applies to all generation except:

- Generation sources that have a total installed capacity of less than 150 kW. Multiple units of a size less than 150 kW at the same substation, but their combined capacity is greater than 150 kW, are not exempt from this policy.
- Generation sources that only run isolated from the transmission system. The generator will be exempt from this policy if the generator only runs when the load is disconnected from the interconnected grid including generation sources dispatched for use with load management systems.

To implement this policy, Western has established the following requirements:

- The applicable generation shall be equipped with interval metering equipment that is compatible with the applicable Western Area Power Administration regional power billing equipment. All metering equipment will meet the technical and functional requirements in the Western Area Power Administration Regional Meter Policy. Western Area Power Administration will remotely interrogate the meter.

- The network transmission customer has the responsibility to ensure installation of required metering equipment. If the required metering is not available, the customer's load ratio share and the transmission system coincident peak will be calculated as if the generation was in service at full load.
- All generation sites of 10 Megawatts or larger, and all generation (regardless of size) that is accredited within the Western Electricity Coordinating Council or the Mid-Continent Area Power Pool, shall have sufficient equipment installed to provide continuous real time monitoring to the appropriate Western Area Power Administration regional control center.

Approved by the Power Systems Operations Council on February 22, 2007  
Darren Buck Chair

# Western Area Power Administration Upper Great Plains Region (UGPR)

## UGPR Generation Metering Requirements

This regional business practice supplements the posted Western-wide document titled "Treatment of Behind the Meter Generation for Transmission System Network Service Customers", and documents additional Upper Great Plains Region (UGPR) specific metering requirements for generation located within the UGPR balancing areas:

- a) For multiple generating units at the same location where the units are considered a single resource, one revenue meter is acceptable as long as there is no load trapped behind the meter and as long as any sales of this generation are from the "Resource" and not from any individual unit. Multiple units at the same location not meeting the single resource requirement are considered as individual resources and require the units to be metered individually to facilitate energy imbalance, energy replacement (for loss of a unit) or schedule curtailment purposes.
- b) Continuous real time monitoring that is required to be transmitted to the UGPR control center shall include real time watts, vars, transmission system or bus voltage at the point of interconnection and unit breaker status as well as the hourly accumulated watts. If available, transmission system or bus frequency should also be provided. The equipment itself and communications necessary to transmit this data to the UGPR control center shall be installed and maintained at the customer's expense.
- c) Generation sites within the UGPR Eastern Interconnection (WAUE) balancing area greater than or equal to 30 MW (greater than or equal to 5 MW within the UGPR Western Interconnection (WAUW) balancing area) must have the ability to scan at a maximum rate of 4 seconds. 50% of the balancing area's L<sub>10</sub> was used as the rationale for this requirement:
  - (1) WAUE –  $54.66 \text{ MW} / 2 = 27.33$  (rounded to 30 MW)
  - (2) WAUW –  $7.78 \text{ MW} / 2 = 3.89$  (rounded to 5 MW)
- d) Generation sites within either the WAUE or WAUW balancing areas that have or will have the ability to provide Automatic Generation Control (AGC) must have a maximum scan rate of 4 seconds.
- e) At generation sites where UGPR has operational jurisdiction of the generation equipment (unit breakers, or collector breakers, for example), a maximum scan rate of 4 seconds is required.

- f) For generation sites where items (c), (d), or (e) do not apply, scan rates not exceeding one minute are sufficient.
  
- g) In addition to scan rates, data security and reliability will also be considered in deciding on final communication configurations. RTU-based traffic is considered the most reliable and secure option, based on UGPR's current architecture. However, for installations that do not require a maximum scan rate of 4 seconds, and that do not result in any control actions being sent to substation equipment, other communications methods can be considered.

Revised – July 12, 2007

WAPA-UGPR-Generation-Metering-Requirements.doc



Safety, Health, and  
Environmental Services  
**Safety Standard**

<b>Clearance and Hazard Warning Procedure for Electrical Work</b>			
<b><u>Number</u></b>	<b><u>Date Issued</u></b>	<b><u>Date Revised</u></b>	<b><u>Approved By</u></b>
C - 1	01/04/93	03/28/07	Barry J. O'Leary Director Safety, Health, and Environmental Services

### **1.0 Statement of Standard**

- 1.1 This standard is intended to provide clearance procedures to insure the safety of personnel engaged in electrical utility work.

### **2.0 Scope**

- 2.1 The procedures set forth in this standard apply to all company and contractor employees who perform work on the NorthWestern Energy (NWE) distribution and transmission systems and facilities.

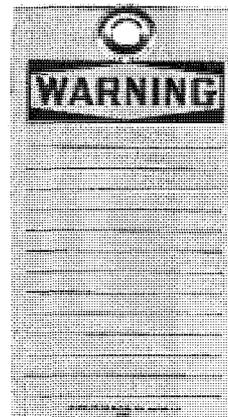
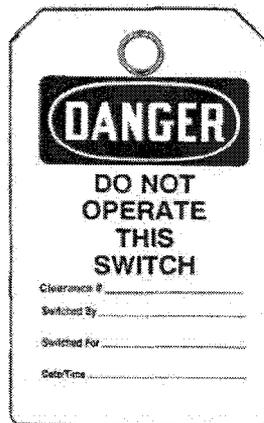
### **3.0 Regulatory References**

- 3.1 29 CFR 1910.269 – OSHA's Electric Power Generation, Transmission, and Distribution Standard
- 3.2 National Electrical Safety Code, Sections 442 – 446

### **4.0 Definitions**

- 4.1 **Limits of Protection**: The limits of protection consist of the equipment and devices that are operated to open a section of line for establishing a clearance. These are to be referred to using specific equipment and device numbers.
- 4.2 **Qualified Person**: One who adequately understands the installation, construction, and operation of the electrical system, including electrical equipment, and has knowledge of the associated hazards of these systems and equipment. Qualified persons will be trained in and familiar with the safety-related work practices, safety procedures, and other safety requirements that pertain to their specific job assignments. Qualified persons shall be trained and competent in the skills and techniques to recognize energized parts, to determine nominal voltages of energized parts, the minimum approach distances for various voltages, and the personal protective measures and equipment for working on energized parts. A person must be "qualified" to enter a substation.
- 4.3 **Certified Switch Person**: In addition to the meeting the requirements for "Qualified Person" above, a "Certified Switch Person" is a person capable of safely performing switching duties and establishing a clearance. Only a Certified Switch Person can be authorized by the SOCC Operator to perform switching and establish clearances on NorthWestern Energy's system.

- 4.4 **Clearance:** The process of completely isolating a given section of line or equipment from all other lines or equipment through tagged, and if possible locked, switching devices that provide a visual open. The use of proper grounding methods and work procedures is required when working on de-energized equipment. (Note: Any exceptions to the requirement for visual opens must be mutually approved by the Manager of SOCC Operations and the Director of Safety, Health, and Environmental Services).
- 4.5 **Hot Line Hold:** When a live line work method is used, a hot line hold will be requested. A hot line hold is not a clearance. A hot line hold is a guarantee to the crew that an energized circuit upon which the hold exists will not be re-energized should it trip out while the hold is in effect.
- 4.6 **Terminal Clearance:** Consistent with Good Utility Practice, a formal assurance of isolation of terminal or terminals of an interconnecting circuit provided by the operator who has the authority over the terminal to a requesting operator who wishes to authorize "dead-line" work on that circuit. The Terminal Clearance assures the requesting operator that the terminal or source is open, properly cleared, and tagged according to local procedures, and it will not be energized until a release is given by the operator receiving the Terminal Clearance.
- 4.7 **Terminal Hold:** Consistent with Good Utility Practice, a formal assurance of non-reclosure at the terminal or terminals of an interconnecting circuit provided by the operator who has the authority over the terminal to a requesting operator who wishes to authorize "hot-line" work on or near the circuit. The Terminal Hold assures the requesting operator that the terminal or source on "hold" has relays in service to provide protection in the event of a fault; and, once tripped out of service, will not be re-energized, automatically or manually, until the operator receiving the Terminal Hold has advised that all personnel and materials are in the clear and it is safe to energize.
- 4.8 **SOCC Operator:** Person located at the System Operations Control Center (SOCC) in Butte who is qualified to issue switching orders, clearances, or hot line holds.
- 4.9 **Worker in Charge:** The line availability request may be made by a supervisor or engineer, but the clearance shall only be issued to the worker in charge of the clearance. A worker in charge must meet the definition of a "qualified person" and a "certified switch person" as defined above. The worker in charge must be present while the work is completed.
- 4.10 **Warning/Clearance Tags:** An item attached to an electrical circuit to indicate a clearance, hot line hold or abnormal condition exists on that circuit. The two tagging devices pictured below are currently in use on NWE's system.



## 5.0 General Procedures

- 5.1 A clearance shall be taken for personal protection on all work within the minimum safe approach distances of electric circuits or the work shall be accomplished through live line work methods.
- 5.2 When doing hot work, a hot line hold shall be taken and the reclosure features of protective devices disabled. Normal hot line hold precautions include, but are not limited to, the following:
  - 5.2.1 All normally open devices that could have been closed into the desired work site are checked open and tagged in the open position.
  - 5.2.2 All auto transfer and auto sectionalizing switches are decoupled from stored energy operators.
  - 5.2.3 Reclose cutout switches (e.g. 79CO switches) are turned off and tagged on control panels.
  - 5.2.4 Control switches (e.g. 101 switches) are tagged on control panels.
- 5.3 SOCC Operators have jurisdiction over all clearances and switching on the NWE system shown on the system one-line diagram. In some cases, switching and clearance authority has been delegated to a division, district, or area.
- 5.4 Permission must be granted by the SOCC Operator before any equipment is operated or is removed from service for maintenance or repair if any of the following exist **and** the device is operating on a line specifically under SOCC control and jurisdiction. (In South Dakota, this includes all devices operating at 34.5 kV and above, and those operating at less than 34.5 kV that serve more than one town.)
  - 5.4.1 The device is operated by dispatcher command via SCADA control.
  - 5.4.2 The device could cause the closing of a loop that would become a parallel circuit to a higher voltage circuit.
  - 5.4.3 The device will cause a loss of SCADA analog values or indication status.
  - 5.4.4 The device is a point of interconnection with another utility.
- 5.5 When a clearance or hot line hold involves another dispatching jurisdiction, for example REA's, WAPA, PPL Montana, or local NWE divisions/areas, all coordination shall be handled by the SOCC. SOCC refers to these as Terminal Clearances or Terminal Holds.
- 5.6 All personnel, including contract personnel, must be registered as a Certified Switch Person with the SOCC Operator to take clearances or establish (or remove) clearances. This applies to any lines under SOCC control and jurisdiction. See Section 10.0 for additional requirements.
- 5.7 Clearances must be established through devices that provide a visual open. A switch shall not be used to interrupt current beyond its rated capacity to do so. Whenever possible, circuits shall be de-energized using power circuit breakers or similar fault interrupting devices. Switches may include power circuit breakers, circuit switchers, distribution reclosers, air break switches, single blade disconnects, fused disconnects, cutouts, or underground load break elbows. (Note: Any exceptions to the requirement for visual opens must be mutually approved by the Manager of SOCC Operations and the Director of Safety, Health, and Environmental Services).

## 6.0 Use of Warning/Clearance Devices

- 6.1 Clearance Tags and Shepherds Hooks

- 6.1.1 Attach a Clearance Tag to every switch and remote control point capable of operating a switch used to isolate a circuit for a clearance. Lock if mechanically possible.
  - 6.1.2 Attach a Clearance Tag to every switch and remote control point capable of re-energizing a circuit on a hot line hold. Lock if mechanically possible.
  - 6.1.3 For distribution work, completely remove cutout blades from the cutout device and tag for a clearance.
  - 6.1.4 Place a shepherd's hook on each phase of single blade switching devices (only one Clearance Tag is required per circuit). The tag may be placed on one of the shepherd's hooks or attached on the supporting structure near the ground (not accessible to the public).
  - 6.1.5 The name of the person taking the clearance or hot line hold and the name or initials of the person performing the switching shall be on the tag. The date, time, and nature of the clearance will also be completed on the tag. For South Dakota clearances or hot line holds, a clearance number will be created and completed on the tag. It will be noted on the tag if the clearance involves a "Terminal Clearance" or a "Terminal Hold".
  - 6.1.6 All clearance requests and releases between the worker in charge and the SOCC Operator shall include the limits of protection per the system one-line diagram.
  - 6.1.7 When receiving a clearance in South Dakota from the SOCC Operator, the worker in charge will be issued a clearance number that is to be used as a reference for that work. For example, "I understand that the SOCC Operator is issuing me clearance number (actual number of clearance) and a clearance on that section of line between (exact description of line and the limits of protection)."
  - 6.1.8 The SOCC Operator will issue a clearance without grounds but will encourage the worker in charge to take their own precautions. For example, "SOCC Operations is prepared to issue a clearance to (name) on that section of line (exact description of line and the limits of protection). This clearance is issued without grounds, take your own precautions concerning grounding, and guard yourself against backfeed, induction from underbuild, or any other potential energization source." A clearance number will also be issued and referenced for South Dakota clearances.
- 6.2 SOCC Tags and Magnetic Flags
- 6.2.1 SOCC tags or magnetic flags shall be placed on the dispatching board by the SOCC Operator to show the existing status of the switches and the supervisory control system shall be appropriately tagged that a clearance or hot line hold has been issued through that switch.
- 6.3 Warning Tags
- 6.3.1 A Warning Tag cannot be used as a Clearance Tag and shall not be used for personal protection. A Warning Tag can be used to alert personnel to abnormal conditions or for informational purposes.
  - 6.3.2 A description of the hazard and a contact person should be completed on each Warning Tag. When the information on the Warning Tag no longer applies, the tag is to be removed.
  - 6.3.3 Where warning information is pertinent to SOCC Operators, such information shall be communicated to the operators.

**7.0 Clearances Under SOCC Control/Jurisdiction**

- 7.1 When line availability for a clearance is requested, the SOCC Operator shall:
- 7.1.1 Establish a switching protocol that includes the following:
    - 7.1.1.1 Determine if lines can be de-energized or shall initiate the modification needed in a clearance request due to system requirements.
    - 7.1.1.2 Determine which switching devices shall be used and in what sequence.
  - 7.1.2 Issue and record all switching orders and clearances indicating the changed status in the system displays at the SOCC.
  - 7.1.3 When requested and if feasible, the SOCC Operator will document the switching protocol and transmit the documentation to the person requesting the clearance for review. If the SOCC Operator is not able to document the switching protocol, the operating area requesting the clearance can document the switching protocol and transmit the documentation to SOCC for review.
- 7.2 When requesting a clearance the requestor shall:
- 7.2.1 Request line availability using the standard request form issued by the SOCC and, except in emergencies, a minimum of two days in advance. Notes: Certain transmission circuits over 161 kV require a 45-day notice. One-line system diagrams should be used when developing requests.
  - 7.2.2 Inform the SOCC Operator if the work planned will modify the system one-line diagram or the equipment's operational capability.
  - 7.2.3 Use names and identifications shown on the system one-line diagram to describe equipment needed in the clearance.
  - 7.2.4 Indicate the time to start, and the overall duration needed for a clearance.
- 7.3 When taking a clearance the worker in charge shall:
- 7.3.1 Request from SOCC a clearance on a section of line or equipment using names and identifications shown on the system one-line diagram to describe equipment needed in the clearance.
  - 7.3.2 Hold a tailboard conference to inform all crewmembers about the job plans.
  - 7.3.3 Repeat switching instructions between the field and the SOCC Operator to assure proper directions and results have been achieved.
  - 7.3.4 Ensure that all sources of power feedback, including any sources of distribution power feedback, have been eliminated.
  - 7.3.5 Tag all switches, decouple, and lock if mechanically possible.
  - 7.3.6 Tag SCADA control point devices ("open/close" and "reclosing").
  - 7.3.7 Test the line for nominal voltage, then install protective working grounds.
  - 7.3.8 Take appropriate precautions for induced voltages from nearby parallel lines, from distribution underbuild, or for possible sources of backfeed.
- 7.4 When releasing a clearance the worker in charge shall:
- 7.4.1 Ensure that the line and equipment is operational and fit for use.
  - 7.4.2 Ensure that all grounds are removed.

- 7.4.3 Ensure that all men and equipment are in the clear.
- 7.4.4 Inform the SOCC Operator of any operational limitations.
- 7.4.5 Release a clearance at the end of the shift or the job, whichever comes first. The SOCC Operator and local supervision must mutually agree to extend a clearance beyond a shift.
- 7.4.6 Release a clearance before turning the job over to another person, when leaving the area, or when no longer the person responsible for the work that is being performed.
- 7.4.7 Issue the following statement to release a clearance:  
 "This is (name) and I am releasing my clearance on the section of line (exact description of line and the limits of protection). All my personal working shorts and grounds have been removed, all my crew and equipment are in the clear, and as far as I'm concerned that section of line is ready for normal service." The clearance number shall be referenced for South Dakota clearances.
- 7.5 All switching on equipment under the jurisdiction of a SOCC Operator shall be done as follows:
  - 7.5.1 The SOCC Operator shall authorize a Certified Switch Person to operate a switching device using names shown on the system one-line diagram and ask that person to check all three phases open/closed.
  - 7.5.2 The Certified Switch Person shall perform the designated switching operation, tag/untag the switch and check all three blades open/closed. If mechanically possible, a lock will also be applied.
  - 7.5.3 The Certified Switch Person shall report the switch status as tagged/untagged, that all three phases were checked open/closed, and as appropriate, locked/decoupled.
  - 7.5.4 All three phases of a circuit must be switched open/closed.
  - 7.5.5 All switches and points of visible break shall be tagged, and if mechanically possible, decoupled and locked.
  - 7.5.6 The Certified Switch Person shall complete the name of the worker in charge of the clearance or hot line hold, the date, and the type of clearance issued on the tag. For South Dakota, a clearance number will be created and completed on the tag. The name of the Certified Switch Person performing the switching shall also be on the tag. It will be noted on the tag if the clearance involves a "Terminal Clearance" or a "Terminal Hold".
- 7.6 Records
  - 7.6.1 The SOCC Operator is to record all switching orders complete with times, the operation, who performed the switching, which switch was operated, and who is taking the clearance. The Certified Switch Person who performed the switching must complete a switching log in the control house for any substation switching.

## 8.0 Clearances Not Under SOCC Control/Jurisdiction

- 8.1 Divisions, districts, or areas are responsible for clearances on lines and equipment that are not under the jurisdiction of a SOCC Operator and those lines delegated to them by SOCC.
- 8.2 When taking clearances, the worker in charge shall:

- 8.2.1 Have or gain adequate knowledge of the system (through experience, maps/drawings, or patrolling) to safely switch or direct others to switch the circuit out and establish a clearance.
- 8.2.2 Hold a tailboard conference to inform all crewmembers about the job plans.
- 8.2.3 Ensure that all sources of power are isolated from the circuit to be worked on by visible opens for a clearance and, as available, blocked reclosers for hot line holds.
- 8.2.4 Tag all switches, decouple, and lock if mechanically possible.
- 8.2.5 Test to determine the line for nominal voltage, then install protective working grounds.
- 8.3 When releasing clearances the worker in charge shall:
  - 8.3.1 Ensure that the equipment is operational and fit for use.
  - 8.3.2 Ensure that all grounds are removed.
  - 8.3.3 Ensure that all men and equipment are in the clear.
  - 8.3.4 Remove tags and locks, then energize the circuit.
- 8.4 All switching shall be ordered by the worker in charge as follows:
  - 8.4.1 A Certified Switch Person shall perform the designated switching operation, check open/closed and tag/untag, and if mechanically possible, lock the switch.
  - 8.4.2 The Certified Switch Person shall report back the switch status as checked open/closed, tagged/untagged, and as appropriate, locked.
  - 8.4.3 The name of the person taking the clearance or hot line hold and the name or initials of the person performing the switching shall be on the tag. The date on the tag shall also be completed.
  - 8.4.4 The Certified Switch Person who performed the switching must complete a switching log in the control house for any substation switching.
- 8.5 Tagging is not needed when a crew has established a clearance on a portion of a circuit that is in their control **and** the entire portion of the line under the clearance is visible to the crew.

## 9.0 Additional General Precautions and Exceptions

- 9.1 Never re-energize a circuit on a hot line hold or a clearance without permission of the worker in charge having the hold or clearance.
- 9.2 Notify the SOCC Operator if a circuit becomes de-energized or if a fault occurs when you have a hot line hold through SOCC.
- 9.3 In an emergency where the person holding a clearance cannot release the clearance, a local NWE supervisor or a journeyman lineman working under the clearance shall assume responsibility as approved by the SOCC Operator. The local NWE supervisor or the journeyman lineman that released the clearance shall notify the original clearance holder of the change as soon as practical.
- 9.4 Third parties can be used to relay switching orders when direct communication with the SOCC Operator is impossible and:
  - 9.4.1 The SOCC Operator and the person requesting the clearance consider the third party capable.

- 9.4.2 The third party writes down the words of the SOCC Operator and the worker, then repeats the wording exactly.
- 9.5 A general foreman may take the clearance for all of the crews under his/her direction.
- 9.6 When multiple crews are working on the same circuit, but not under a general foreman, each sub-foreman shall be issued a separate clearance. When the clearance is not handled by SOCC, such as those in NWE divisions, districts, or areas, one person must be designated as the worker in charge to control all the switching and clearances, insuring all crews have released their clearance before the circuit is re-energized.
- 9.7 Substations difficult to isolate from a transmission line may be included in a clearance through SOCC if:
- 9.7.1 The NWE division, district, or area establishes a clearance on the distribution side of the substation by eliminating any back feed from the distribution system.
- 9.7.2 An NWE division, district, or area supervisor makes prior arrangements with SOCC supervision for the clearance.
- 9.8 When relay work is to be performed in substations affecting the system under SOCC control and jurisdiction, it is necessary to notify the SOCC Operator about the work and possible effect on operations.
- 9.9 Whenever possible notify employees responsible for dealing with customers such as the local service center dispatcher, office attendant, town manager, the call center, or local supervisor that service is being interrupted.
- 9.10 In special circumstances, a circuit may be temporarily taken "out of service". A Certified Switch Person will take a clearance through SOCC. Switches shall be tagged and locked open, the line shall be tested for nominal voltage, and grounds shall be applied. The clearance will then be released and the line deemed "out of service" by SOCC. When the line is to be returned to service, a Certified Switch Person shall contact SOCC and take a new clearance, then verify that the section of line is ready for operation and release the clearance using standard clearance release procedures. The Manager of System Operations at SOCC will have sole jurisdiction in the approval of a "special circumstance" request.
- 9.11 When a circuit that has been "out of service" is returned to service, it is the responsibility of division, district, or area personnel to insure with absolute certainty that all affected parties have been notified.
- 9.12 In circumstances where more than one party receives a clearance on equipment, each party must release his/her own clearance. At no time should one party release another party's clearance.

## 10.0 Additional Requirements

- 10.1 All personnel entering NWE transmission and distribution facilities must meet the minimum specifications for Qualified Persons, as defined in 29 CFR 1910.269 (a).
- 10.2 All personnel entering NWE transmission or distribution facilities must inform the SOCC Operator before entering or immediately upon entering the facility.
- 10.3 Before performing any switching or taking any clearances in NWE facilities under SOCC jurisdiction and control, a Qualified Person needs to be registered with the SOCC Operator as a Certified Switch Person. NorthWestern Energy and contract operating personnel are included in this requirement. An NWE "Switching Certification Record" shall be completed for all Certified Switch Persons and forwarded to the SOCC Operator for proper registration.

Attachment 11

## **Service Agreement No. 30-SD**

Standard Large Generator Interconnection Agreement (LGIA)  
between NorthWestern Corporation  
and Rolling Thunder I Power Partners, LLC

*Redlined Pages*

NorthWestern Corporation  
(South Dakota)

FERC Open Access Transmission Tariff  
Volume No. 2

**STANDARD LARGE GENERATOR  
INTERCONNECTION AGREEMENT (LGIA)**

**BETWEEN**

**NORTHWESTERN CORPORATION**

**AND**

**ROLLING THUNDER I POWER PARTNERS, LLC**

<b>28.1</b>	<b>General</b> .....	<b>69</b>
	<b>28.1.1 Good Standing</b> .....	<b>69</b>
	<b>28.1.2 Authority</b> .....	<b>69</b>
	<b>28.1.3 No Conflict</b> .....	<b>69</b>
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## STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT

THIS STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT (“Agreement”) is made and entered into this 13<sup>th</sup> day of February, 2009, by and between Rolling Thunder I Power Partners, LLC, a limited liability company organized and existing under the laws of the State/Commonwealth of Delaware (“Interconnection Customer” with a Large Generating Facility), and NorthWestern Corporation, a corporation organized and existing under the laws of the State of Delaware (“Transmission Provider and Transmission Owner”). Interconnection Customer and Transmission Provider each may be referred to as a “Party” or collectively as the “Parties.”

### Recitals

**WHEREAS**, Transmission Provider operates the Transmission System; and

**WHEREAS**, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Large Generating Facility in Appendix C to this Agreement; and,

**WHEREAS**, Interconnection Customer and Transmission Provider have agreed to enter into this Agreement for the purpose of interconnecting the Large Generating Facility with the Transmission System;

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein, it is agreed:

When used in this Standard Large Generator Interconnection Agreement, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used or the Open Access Transmission Tariff (Tariff).

### Article 1. Definitions

**Adverse System Impact** shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

**Affected System** shall mean an electric system other than the Transmission Provider’s Transmission System that may be affected by the proposed interconnection.

**Affected System Operator** shall mean the entity that operates an Affected System.

**Affiliate** shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

**IN WITNESS WHEREOF**, the Parties have executed this LGIA in duplicate originals, each of which shall constitute and be an original effective Agreement between the Parties.

NorthWestern Corporation

By: s/ Robert C. Rowe

Title: President & Chief Executive Officer

Date: June 1, 2009

~~{Generator}~~

Rolling Thunder I Power Partners, LLC.

By: s/

Title: Vice President

Date: 5/11/09

## Appendix C to LGIA

### Interconnection Details

The proposed generator and interconnection information includes:

- Project Name – Rolling Thunder Wind
- Size (Rating) – 50MW
- Generator Type – Wind
- Interconnection Type – Network Resource
- Location – 69kV Line #35 located near Ree Heights, SD
- Facilities – 20, C-93 Clipper Turbines, 2.5MW each.
- Power Factor – 0.95 leading to 0.95 lagging at the Point of Interconnection.
- Point of Change of Ownership– The Point of Change of Ownership between Northwestern Energy’s transmission system and the Interconnection Customer Interconnection Facilities is the point where the Interconnection Customer’s 69 kV line dead-end insulators and static conductor meet the NWE dead-end structure. Customer is to provide a structure with a gang operated AB switch prior to the dead end structure. Metering will tap the buss between the AB and the dead end tower. Customer to provide dead end shoes, insulators, and compression connectors for phase and static conductors at the tower.
- Point of Interconnection – The point where the jumpers for the Interconnection Customer’s tap meet the 69 kV bus within the NorthWestern Energy Switchyard..

Pursuant to NorthWestern Energy’s OATT, NorthWestern Energy is not required or obligated to provide certain ancillary services to transmission customers and/or generators not serving load within NorthWestern’s balancing authority.

Pursuant to Section 9.7.1.2 of the LGIA, NorthWestern Energy, South Dakota (NWPS) will post scheduled outages of its transmission facilities in conjunction with NERC, Midwest Reliability Organization (MRO), Mid-Continent Area Power Pool (MAPP) and the Western Area Power Administration (Western), Upper Great Plains Region (UGPR) Standards.

#### **LGIA Section 5.4 Requirements:**

**5.4 Power System Stabilizers.** The Interconnection Customer shall procure, install, maintain and operate Power System Stabilizers in accordance with the guidelines and procedures established by the Applicable Reliability Council. Transmission Provider reserves the right to reasonably establish minimum acceptable settings for any installed Power System Stabilizers, subject to the design and operating

limitations of the Large Generating Facility. If the Large Generating Facility's Power System Stabilizers are removed from service or not capable of automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to wind generators.

**NorthWestern Energy Additional Requirements:**

Each Interconnected Unit shall meet the power system stabilizer (PSS) requirements of the Midwest Reliability Organization (MRO). The Generating Party shall cause the applicable PSS to be in service and properly calibrated as required by the MRO Standard PRC-502-MRO-01 on Power System Stabilizers attached hereto as Exhibit A.

**LGIA Section 9.1 Requirements:**

**9.1 General.** Each Party shall comply with the Applicable Reliability Council requirements. Each Party shall provide to the other Party all information that may reasonably be required by the other Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

**NorthWestern Energy Additional Requirements:**

Applicable Reliability Standards should include Regional Reliability Standards.

Please note that the National or Regional Reliability *Councils* have been changed to National or Regional Reliability *Organizations*.

**LGIA Section 9.4 Requirements:**

**9.4 Interconnection Customer Obligations.** Interconnection Customer shall at its own expense operate, maintain and control the Large Generating Facility and Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this LGIA. Interconnection Customer shall operate the Large Generating Facility and Interconnection Customer's Interconnection Facilities in accordance with all applicable requirements of the Control Area of which it is part, as such requirements are set forth in Appendix C, Interconnection Details, of this LGIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Either Party may request that the other Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this LGIA.

Voltage and Frequency Response. Each Interconnected Unit shall be capable, at all times (including during an Electric Disturbance), of continuous operation at 0.95 to 1.05 per

unit (pu) voltage of nominal voltage (69 kV), as measured at the Point of Interconnection, and at 59.5 to 60.5 Hz, and shall be kept online and in operation during frequency deviations beyond the range of 59.5 to 60.5 Hz to the extent required by the Applicable Reliability Standards.

NorthWestern Energy South Dakota transmission system, to which the Generating Facility is interconnected, is presently included in Western's WAUE Control Area. The Interconnection Customer has requested that its Generating Facility be included in the Western's WAUE Control Area. Northwestern will only allow the Generating Facility to operate provided that the necessary agreements are executed between the Interconnection Customer and Western allowing the Generating Facility, or such portions thereof, to be operated within the WAUE Control Area, and further, that Western has provided written notification to the Transmission Provider that such contractual arrangements are in-place. The Interconnection Customer shall be allowed to meter only the portion of the Generating Facility into the WAUE Control Area that is delivered to load inside of the WAUE Control Area. Due to the limited regulation capability of Western's WAUE Control Area to follow non-dispatchable and intermittent generation, the Interconnection Customer shall meter any portion of the Generating Facility delivered into a separate Control Area, into that Control Area, unless Western's UGPR agrees in writing to provide regulation for the portion of the Generation Facility that is delivered outside of the Western WAUE Control Area.

In order to meet the NERC mandatory control performance criteria within the WAUE's Control Area, Western will enforce certain requirements to enable new generating resources connecting to be reliably integrated to Western's transmission system and balancing authority. The Interconnection Customer will be required to negotiate the necessary agreements with Western that will detail how control performance standards will be met, for such portion of the Generating Facility that is metered into the WAUE Control Area.

In accordance with Article 9.4 of this LGIA, Interconnection Customer shall meet all applicable UGPR requirements for Control Area operations, including applicable Western metering requirements (Upper Great Plains Metering Policy, attached as Exhibit B of this Appendix C, and Treatment of Behind the Meter Generation for Transmission System Network Service Customers, attached as Exhibit C of this Appendix C, and UGPR Generation Metering Requirements, attached as Exhibit D of this Appendix C), for such portion of the Generating Facility that is metered into/out of the WAUE Control Area, as specified herein and also as specified in such separate agreements, and also such requirements (such as Operations Coordination between the Interconnection Customer, Northwestern, and UGPR during normal and emergency conditions, Outage notifications, Notification contracts, etc) as specified in an Operating Guidelines and Procedures

manual for the Generating Facility, which will be developed and mutually agreed upon by the Interconnection Customer and Western.

Interconnection Customer shall be responsible to provide its portion of the WAUE Balancing Authority's Contingency Reserve obligation, if any, for such portion of the Generating Facility that is metered into the WAUE Control Area, as defined and in accordance with Western's requirements, and Applicable Reliability Standards.

In the event that Interconnection Customer does not meet its obligations to UGPR as set forth herein, Northwestern, upon notification from UGPR, shall immediately enforce such requirements pursuant to the provisions of this LGIA.

**LGIA Section 9.6.1 Requirements:**

**9.6.1 Power Factor Design Criteria.** Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at a power factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all generators in the Control Area on a comparable basis. See Appendix G for additional details.

**LGIA Section 9.8 Requirements:**

**9.8 Switching and Tagging Rules.** Each Party shall provide the other Party a copy of its switching and tagging rules that are applicable to the other Party's activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

**NorthWestern Energy Additional Requirements:**

Whenever disconnecting an Interconnected Unit from NWE's Electric System, the Generating Party shall perform such disconnection in accordance with Good Utility Practice and in compliance with NWE's transmission facility clearance procedures attached hereto as Exhibit 4 as may be amended, reasonably and without discrimination to the Generating Party, by NWE in its sole discretion from time to time. To switch on the NorthWestern Energy Transmission System, all personnel must be on the NWE qualified switchman list. If NWE amends its transmission facility clearance procedures, it will notify the Generating Party as soon as practicable thereafter, and provide to the Generating Party a new Exhibit E to this Agreement.

Interconnection Customer shall also notify UGPR of disconnections, outages of the Generating Facility as specified in an Operating Guidelines and Procedures manual for the Generating Facility, which will be developed and mutually agreed upon by the Interconnection Customer and Western

## Appendix D to LGIA

### Security Arrangements Details

Infrastructure security of Transmission System equipment and operations and control hardware and software is essential to ensure day-to-day Transmission System reliability and operational security. FERC will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission System to comply with the recommendations offered by the [President's U.S. Department of Homeland Security \(DHS\)](#) Critical Infrastructure Protection Board and, eventually, best practice recommendations [and Critical Infrastructure Protection \(CIP\) Standards](#) from the electric reliability authority. All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

## **WECC Power System Stabilizer Design and Performance Criteria**

### **Purpose of PSS**

Power System Stabilizers (PSS) are designed to enhance damping of power system oscillations in order to extend power transfer limits of the system and maintain reliable operation of the grid.

### **Type of PSS**

WECC recommends a dual input integral of accelerating power type of PSS (IEEE Type PSS2A).

Electric power type PSS are not acceptable in the WECC system because they are ineffective in damping interarea modes of oscillations.

### **Minimum Performance Requirements of PSS**

The minimum acceptable performance of PSS is to provide a compensated frequency response of the excitation system and synchronous machine such that through the frequency range from 0.1 Hertz to 1.0 Hertz the phase will not exceed  $\pm 30$  degrees.

PSS output limits shall be at least  $\pm 5\%$  of the synchronous machine terminal voltage.

PSS gain shall be set to provide a gain margin of least 6 dB and no more than 10 dB.

PSS washout time constant shall be set as low as possible while maintaining the compensated phase criteria.

### **Performance verification requirements**

Performance verification reports shall include a minimum of the following:

#### **Description of facility:**

Unit type (including ratings).

Excitation system and AVR type.

PSS type, inputs, and available setting ranges for adjustable parameters. Include description of PSS failure detection system if provided.

PSS modifications required to provide final settings.

#### **List of final settings, including:**

A description of test methodology and rationale for final settings.

Output limit settings.

Gain.

Lead and lag time constants.

Washout time constant.

Other filtering parameters (fixed or settable).

#### **Models (per IEEE standard 421.5)**

PSS model and parameters.  
Excitation model and parameters.

Bode plots

Excitation response with unit connected to electrical system without PSS in service.  
(See Figure 7 in WECC PSS Tuning Guidelines.)

PSS response alone. (See Figure 8 in WECC PSS Tuning Guidelines.)

Excitation response with PSS in service and unit connected to electrical system. This plot can be either via test or calculated based on previous two plots.

Simulations If settings are developed through simulations, provide actual excitation responses, on and off line step and/or frequency responses, versus excitation model responses used in simulation. Step responses shall include generator terminal voltage, field voltage, and field current as well as exciter field voltage and current, if applicable.

Time plots Step response showing generator terminal voltage, field voltage, field current, power, PSS output, AVR output with PSS in service and out of service.  
(See Figure 5 in WECC PSS Tuning Guidelines.)

Related documents: WECC PSS Policy Statement WECC PSS Tuning Guidelines WECC Tutorial on PSS IEEE Standards 421 series

Approved by Technical Operations Subcommittee: September 15, 2003

Approved by Operating Committee: March 12, 2004

Approved by Board of Directors: April 23, 2004

## UPPER GREAT PLAINS METER POLICY

SUBJECT: Meter Policy

PURPOSE: Establish a policy for the Upper Great Plains Region (UGPR) meter responsibilities and requirements. Western Area Power Administration (Western) recognizes it does not currently own all the revenue meters used for our billing purposes and that specific circumstances may require deviating from this policy statement; however, the UGPR prefers these arrangements and conditions and will work with our customers to achieve them.

### A. TECHNICAL REQUIREMENTS

1. All meters, whether owned and maintained by Western, its customers, or a third party, shall comply with the requirements in this policy, with those listed in the General Requirements for Interconnection and, if applicable, shall comply with the latest revision of section 6 (Metering) of the General Power Contract Provisions (GPCP). In the event the requirements stated in this policy differ from the requirements stated in the GPCP or an executed Contract, the GPCP or Contract requirements shall prevail.
2. All meters shall meet an accuracy of  $\pm 0.3$  percent at unity power factor with 100 percent, 50 percent, and 10 percent current and  $\pm 0.7$  percent at 50 percent power factor with 100 percent current. Any new meters or replacement meters will have multi-level password protection; this will allow access to the meter readings while protecting the meter setting parameters with a different password.
3. All meters and instrument transformers will be installed to correctly measure power (kW) and energy (kWh) for all unbalances and will not be bypassed without approval by Western. Meters at all deliveries shall be 3-element. It is recognized there are several locations that employ 2-element metering. Those locations that are 2-element metering and are on a delta or ungrounded wye connected delivery, may remain in service until they are scheduled to be replaced.
4. Current Transformers (CT) shall be a wound or bushing type that meets the ANSI standard C57.13 of 0.3 percent at burdens B-0.1, B-0.2, B-0.5, B-0.9, and B-1.8. The CTs shall have a continuous thermal rating factor of at least 1.5. Multi-ratio CTs are required to meet the accuracy stated on the ratio being used. The CT will be loaded to at least 10 percent of the winding ratio unless differences are specifically allowed in a contract or agreement with Western.
5. Potential Transformers shall meet ANSI standard C57.13 of 0.3 percent accuracy class at the following burdens:

## UPPER GREAT PLAINS METER POLICY

- a. At system voltages below 25-kV with burdens of W, X, and Y.
  - b. At system voltages 25-kV and above with burdens W, X, Y, Z, and ZZ.
6. Load control boundary meters shall provide the analog and digital outputs compatible with Western's load control system and shall comply with the following:
- a. Instantaneous telemetering to the Watertown Operations Office (WOO) from all load control boundary interconnections.
  - b. Hourly watt-hour telemetering, preferably digital watt-hour telemetering, to the WOO from all load control boundary interconnections.
  - c. All 345-kV and higher interconnections shall be individually telemetered to the WOO. Quantities metered at 230-kV and 161-kV will normally require individual telemetering unless the Manager, System Reliability and Transmission Operations, concurs in a specific totalizing arrangement.
  - d. Totalizing of multiple deliveries to each separate load control area at one substation will normally be permitted. Remote totalizing of quantities from more than one foreign load control area shall be avoided.
  - e. To the extent possible, the same meter and transmitter should be used to provide the analog and digital metering information.
7. All meters shall be solid state models from which Western can collect data by:
- a. Remote interrogation using Utility Translation System MV-90 translation program.
  - b. Local interrogation - the data can be collected at the meter sites:
    - 1) by using a PC and then uploading the data to the translator over a normal telephone line.
    - 2) by removing the recorder cartridge and mailing it to the translator operator where applicable.
    - 3) by using a portable meter reader and then uploading data from the portable reader to the translator over a normal telephone line.
  - c. The make and model of the meters used in the UGPR will be approved by

## UPPER GREAT PLAINS METER POLICY

the State Maintenance Managers and the Maintenance Engineering Manager.

8. All customer supplied meters must be compatible with existing Western equipment (hardware, software, test equipment) and approved by the State Maintenance Manager responsible for the delivery point.
9. Location of metering PTs and CTs shall be designed and installed so that it is possible to maintain power to the meter during breaker bypass configurations.
10. A properly designed space that meets appropriate State and Federal Safety and Health Regulations shall be provided to protect meters and other communication equipment from the environment.

### B. REVENUE AND LOAD CONTROL BOUNDARY METERS

1. Western will be responsible for reading, testing, calibrating, maintaining, and replacing Western-owned meters.
2. Western will continue its policy to own all revenue meters on deliveries to Western customers. Ownership of load control boundary points meters are determined during contractual negotiations with the interested parties.
  - a. Revenue: Metering associated with an existing customer's desire to establish a new delivery point will be the financial responsibility of the customer. Generally, Western will own, maintain, and replace the meter, at the expense of the customer. It is preferable the meters, for any new delivery, be furnished by Western at the customer's expense. If a meter is furnished by the customer, it must be approved by the State Maintenance Office ultimately responsible for its installation and maintenance. When new delivery points are established, the customer will also be responsible for the communications necessary to facilitate remote interrogation.
  - b. Load Control: Financial responsibility for the metering system at new load control boundary points will be determined during negotiations for the new interconnections. This will include ownership, maintenance, replacement, and modification (MRM) responsibilities for the meter, instrument transformers, and communications and telemetering needed for remote interrogation of the meter.
3. The meter points will be reviewed by the Power Billing/Energy Accounting and Dispatch functions annually to ensure any changes have been accounted for properly. Any requests for load control metering changes will be coordinated

## UPPER GREAT PLAINS METER POLICY

with WOO and ample time given to review and respond to the effects of the change. The Maintenance organization will review load control boundary meters, within Western facilities, and all revenue metering systems to ensure accurate readings are being provided at the same interval as required for testing the meter. The following test intervals shall be used:

- a. Revenue Meters: All revenue meters that serve loads less than 100 kVA and single-phase meters shall be tested and calibrated once every 5 years. All solid state 3-phase meters shall be tested at least once every 3 years.
  - b. Load Control Boundary Meters: All single-phase load control boundary meters shall be tested and calibrated once every 5 years. All solid state 3-phase meters shall be tested at least once every 3 years.
4. Any meter above 120 volts that is not instrument rated shall be provided with a disconnect device on the line side of the meter to facilitate the safe maintenance and repair of the meter. Using a socket type meter in place of the disconnect device is not acceptable. If delivery can sustain short outages while the disconnect device is open for maintenance and testing, the 480-volt meters are acceptable. If these conditions cannot be met, the customer will be responsible for all costs to change to a 120-volt meter when Western takes over responsibilities for 480-volt meters.
5. At points of delivery, points of input, or load control boundary points where another entity owns the meter, Western requires the right to be notified, in advance, of the date and time for the meter test and will be present for testing. The supplemental power supplier will provide Western with two copies of the meter test report. The meter data will be made available each month to Western's billing department. Western also reserves the right to request that a meter be tested.

Also, if the meter owner modifies meter facilities, Western reserves the right to review and approve meter facility modifications prior to implementation, and be present at the site when the modifications are accomplished.

6. When a request is made for a meter function that is not currently available with the existing meter, the entity making the request will be financially responsible for any modifications needed to meet the request.
- a. If the meter is not owned by Western, the requester will obtain approval to make the modification from all parties associated with the meter.
  - b. If the original meter was owned by Western, ownership of the new meter

## UPPER GREAT PLAINS METER POLICY

will transfer to Western, at no cost, after the installation is complete. Responsibility for maintenance and replacement for the new meter will be the same as for the meter being replaced.

### C. GENERATION METERS

1. Meters shall meet the technical requirements of Section A, Technical Requirements. These requirements apply to generation operating inside the UGPR control area even if not directly connected to Western transmission facilities.
2. Generating meters will be owned, maintained, and replaced by the owner of the generation.
3. Instantaneous megawatt and hourly MWH data and generation status indication will be remotely provided to our WOO.
4. The customer will provide a communication circuit needed to transmit the data from the generating facility to WOO.
5. The customer will be responsible for providing an interface that is compatible with the equipment at WOO and to ensure that no MWH data is lost in hourly reporting.
6. Western requires the right to be notified, in advance, of the date and time for the meter test and will be present for testing. Western will be provided with two copies of the meter test report. Western also reserves the right to request that a meter be tested.

### D. NEW INTERCONNECTIONS AND NEW REVENUE METER DELIVERY POINTS

The party requesting the interconnection will be responsible for providing:

1. Instrument transformers that meet Western's engineering standards and the technical requirements in Section A.
2. Communication and telemetering equipment for a load control boundary point if necessary.
3. A reliable communication circuit for remote interrogation of the meter if the metered quantities are needed for billing calculations or if information from the meter is needed by Western to fulfill requests for information from customers.

## UPPER GREAT PLAINS METER POLICY

4. Meters according to the technical standards detailed in Section A. If the meter serves a load of 100-kVA or greater ownership of the meter will transfer to Western. For meters serving loads less than 100-kVA, ownership will remain with the customer.
5. Maintenance, replacement or modifications (MRM) of equipment listed in Sections D1, D2, D3, and meters serving a load of less than 100-kVA installed in a customer's facility.
6. Monies to Western for Western to perform MRM of equipment listed in Sections D1, D2, D3, and D4. Installed in a Western substation and for meters serving a load of 100-kVA or greater installed in a customer facility.
7. Appropriate set of drawings for the delivery point. An "A" size 1-line diagram and full-size 3-line diagrams of the CT, PT, and panel layout drawings are required for approval prior to installation of the meter. Nameplate data on the CT and PT shall be included with the approval drawings. Western shall be notified prior to any modifications to the CT and PT circuits. The design will include the following:
  - a. The use of shorting terminal blocks on CT installations. The shorting blocks will be ahead of any metering test blocks, preferably at the CT location, to allow the safe installation and modification of the metering circuits.
  - b. A means of disconnecting PT circuits ahead of the metering test block. Western prefers the use of potential fuses for this purpose.

### E. REPLACEMENT OF EXISTING INSTRUMENT TRANSFORMERS (ITs)

The instrument transformer's location, reason for change, and ownership determine the responsibility for maintenance and replacement. As a general rule, the customer will be responsible for any instrument transformer costs resulting from load growth or other modifications or improvements to their system. This would include the replacement of instrument transformers resulting from a delivery voltage change by the customer's supplemental power supplier or wheeling agent.

Customers shall notify their Power Marketing representative and the Power Billing department located at the WOO in Watertown, SD, of any equipment failures immediately upon discovery so all necessary adjustments can be made and arrangements can be made for repair or replacement.

Except in an emergency, a customer shall not replace any failed instrument transformers or change CT ratios without first notifying Western. Notification should be in writing at least 10

## UPPER GREAT PLAINS METER POLICY

working days prior to the scheduled transformer change.

Every effort will be made to complete the replacement of failed equipment as soon as possible after its discovery.

Any failed instrument transformers owned by Western must be returned to Western for proper environmental disposal.

Western will use multi-level password protected meters when installing new meters and when existing meters warrant replacement.

The following situations further illustrate how responsibilities will be determined:

### 1. FINANCIAL RESPONSIBILITY FOR INSTRUMENT TRANSFORMERS

- a. Western-owned instrument transformers will be purchased or furnished by Western.
- b. Customer-owned instrument transformers will be purchased or furnished by the Customer.
- c. Any changes resulting from the customers load growth will be the responsibility of the customer.
- d. Any new or additional metering point requested or required by the customer will be the responsibility of the customer.
- e. Any changes resulting from a change by the customer's supplemental supplier or a third party wheeling agent will be the responsibility of the customer.

### 2. REPLACEMENT RESPONSIBILITY FOR INSTRUMENT TRANSFORMERS

- a. Customer-owned instrument transformers installed in Western facilities will be replaced by Western personnel.
- b. Customer-owned instrument transformers installed in customer facilities will be the responsibility of the customer.
- c. Customer-owned instrument transformers installed in a supplemental supplier or wheeling agent's facility will be the responsibility of the customer.

## UPPER GREAT PLAINS METER POLICY

- d. Western-owned instrument transformers installed in Western facilities will be replaced by Western personnel.
- e. Western-owned instrument transformers installed in customer facilities will be furnished by Western for replacement by the customer.
- f. Western-owned instrument transformers installed in third party facilities will be replaced under a negotiated agreement with the third party.

### F. TRANSFORMER/LINE LOSS COMPENSATION

The choices listed below are available for adjusting the energy (kWh) delivered to or received from the customer when the points of delivery and measurement are different. The customer, with Western's concurrence, can choose to either:

- 1. Use the standard 2 percent transformer loss adjustment factor plus a line loss if applicable, in preparation of the power bill.
- 2. Use a negotiated transformer loss factor plus a line loss, if applicable, in the preparation of the power bill. The customer must obtain a written agreement from supplemental power supplier(s) and/or wheeling agent(s) stating the mutually agreed value. The choices in Sections F1 and F2 would have the power bill's delivered value increased by the appropriate loss factor for Western supplying power to the customer, and if applicable, decreased by the same loss factor for the received value when Western receives power from the customer.
- 3. Use a transformer and/or line loss compensating meter. The customer, with Western's concurrence, must obtain written agreement from the supplemental power supplier(s) and/or wheeling agent(s) to use a loss compensating meter, for the values used in the meter formula to calculate the percent kWh's loss compensation, and for a value of transformer and/or line loss in the event the meter fails. The application of the transformer loss compensating meter is technically correct ONLY when:
  - a. A certified copy of the transformer test report either from the transformer manufacturer or a third party transformer test shop is available from which to obtain the appropriate losses necessary to program the meter.
  - b. Only one transformer serves the metered load.
  - c. And only one delivery is served from the transformer.

If the above conditions are not met, Western recommends either Section F1 or

## UPPER GREAT PLAINS METER POLICY

F2 be chosen.

If the customer requires transformer and/or line loss compensation and the existing meter does not have transformer loss compensation ability, the customer will bear the financial responsibility to either replace or modify the existing meter for providing transformer and/or line loss compensation, including the cost of installing the meter. The new meter with transformer and/or line loss compensation will meet the technical specification of this policy and Western will accept ownership of the meter. Financial responsibility for future calibration, maintenance, repair, and replacement of the new meter will belong to the entity that had this responsibility prior to the replacement. The customer shall not be credited for providing Western with a loss compensating meter. At existing deliveries where Western's meter is replaced, the old meter will be returned to Western.

### G. REMOTE ACCESS TO METERS

Western will allow access to Western-owned meters under the conditions defined below. The requesting party is responsible for providing communications to the meter and compensating Western for any additions equipment needed to communicate with the meter. The requestor can either provide their own communications path to the meter or negotiate with Western or another entity providing a communications path to the meter site.

1. The existing meter has multiple levels of password protected access that would allow the requester to access through a level of control that would not allow them to alter the meters parameters. In addition it would be acceptable, if the meter and the software used to access the meter allows access and prevents the alteration of the meters parameters without needing a password.
2. The meter does not meet the conditions in section G.1.
  - a. Access would not be granted unless the requestor assumes responsibility for all costs associated with obtaining a multi-level password protected meter that meets the technical requirements of this policy.
    - 1) If the meter is used by Western for revenue/load control purposes, the new meter would be installed by Western and the requestor would compensate Western for the installation cost.
    - 2) Ownership of the new meter would transfer, at no cost, to Western after the installation is completed. Responsibility for Maintenance, replacement, or modifications (MRM) of the meter would be the same as the meter being replaced.

## UPPER GREAT PLAINS METER POLICY

When remote access privileges are granted to another entity, Western will reserve the right to immediately revoke the access privilege if the meter's security has been breached and meter equipment parameters and/or billing data has been changed or corrupted by the customer or their representative.

APPROVED: \_\_\_\_\_  
Gerald C. Wegner  
Regional Manager

DATE: \_\_\_\_\_

### **Treatment of Behind the Meter Generation For Transmission System Network Service Customers**

This policy documents the requirements for generation located on a customer's system beyond a revenue meter used for loads which are included in the determination of the coincident peak and load ratio share for network transmission service via the Transmission System (TS). The Federal Energy Regulatory Commission has set these requirements, to assure equitable distribution of Network Integration Transmission Service (NITS) charges. Behind the meter generation that is on line during a transmission system peak should not lower the network customer's bill, because all network customers must collectively pay for a system that would provide for the customer's entire energy needs in the event the generation is not available. All generation that is behind the meter of a designated network load ("behind the meter generation") shall be metered. The NITS service charges will be calculated based on the following:

The generation behind the designated NITS load(s) is on-line and is serving load at the time of Transmission System peak;

The customer NITS load is determined by using the rolling average of the 12 month Coincident-Peak (12-CP) at the time of transmission system peak; and is calculated as:

The amount delivered from the transmission system PLUS the generation level behind the meter, MINUS metered delivery back into the transmission system.

This requirement applies to all generation except:

- Generation sources that have a total installed capacity of less than 150 kW. Multiple units of a size less than 150 kW at the same substation, but their combined capacity is greater than 150 kW, are not exempt from this policy.
- Generation sources that only run isolated from the transmission system. The generator will be exempt from this policy if the generator only runs when the load is disconnected from the interconnected grid including generation sources dispatched for use with load management systems.

To implement this policy, Western has established the following requirements:

- The applicable generation shall be equipped with interval metering equipment that is compatible with the applicable Western Area Power Administration regional power billing equipment. All metering equipment will meet the technical and functional requirements in the Western Area Power Administration Regional Meter Policy. Western Area Power Administration will remotely interrogate the meter.

- The network transmission customer has the responsibility to ensure installation of required metering equipment. If the required metering is not available, the customer's load ratio share and the transmission system coincident peak will be calculated as if the generation was in service at full load.
- All generation sites of 10 Megawatts or larger, and all generation (regardless of size) that is accredited within the Western Electricity Coordinating Council or the Mid-Continent Area Power Pool, shall have sufficient equipment installed to provide continuous real time monitoring to the appropriate Western Area Power Administration regional control center.

Approved by the Power Systems Operations Council on February 22, 2007  
Darren Buck Chair

# Western Area Power Administration Upper Great Plains Region (UGPR)

## UGPR Generation Metering Requirements

This regional business practice supplements the posted Western-wide document titled "Treatment of Behind the Meter Generation for Transmission System Network Service Customers", and documents additional Upper Great Plains Region (UGPR) specific metering requirements for generation located within the UGPR balancing areas:

- a) For multiple generating units at the same location where the units are considered a single resource, one revenue meter is acceptable as long as there is no load trapped behind the meter and as long as any sales of this generation are from the "Resource" and not from any individual unit. Multiple units at the same location not meeting the single resource requirement are considered as individual resources and require the units to be metered individually to facilitate energy imbalance, energy replacement (for loss of a unit) or schedule curtailment purposes.
- b) Continuous real time monitoring that is required to be transmitted to the UGPR control center shall include real time watts, vars, transmission system or bus voltage at the point of interconnection and unit breaker status as well as the hourly accumulated watts. If available, transmission system or bus frequency should also be provided. The equipment itself and communications necessary to transmit this data to the UGPR control center shall be installed and maintained at the customer's expense.
- c) Generation sites within the UGPR Eastern Interconnection (WAUE) balancing area greater than or equal to 30 MW (greater than or equal to 5 MW within the UGPR Western Interconnection (WAUW) balancing area) must have the ability to scan at a maximum rate of 4 seconds. 50% of the balancing area's L<sub>10</sub> was used as the rationale for this requirement:
  - (1) WAUE –  $54.66 \text{ MW} / 2 = 27.33$  (rounded to 30 MW)
  - (2) WAUW –  $7.78 \text{ MW} / 2 = 3.89$  (rounded to 5 MW)
- d) Generation sites within either the WAUE or WAUW balancing areas that have or will have the ability to provide Automatic Generation Control (AGC) must have a maximum scan rate of 4 seconds.
- e) At generation sites where UGPR has operational jurisdiction of the generation equipment (unit breakers, or collector breakers, for example), a maximum scan rate of 4 seconds is required.

- f) For generation sites where items (c), (d), or (e) do not apply, scan rates not exceeding one minute are sufficient.
  
- g) In addition to scan rates, data security and reliability will also be considered in deciding on final communication configurations. RTU-based traffic is considered the most reliable and secure option, based on UGPR's current architecture. However, for installations that do not require a maximum scan rate of 4 seconds, and that do not result in any control actions being sent to substation equipment, other communications methods can be considered.

Revised – July 12, 2007

WAPA-UGPR-Generation-Metering-Requirements.doc



Safety, Health, and  
Environmental Services  
**Safety Standard**

<b>Clearance and Hazard Warning Procedure for Electrical Work</b>			
<b><u>Number</u></b>	<b><u>Date Issued</u></b>	<b><u>Date Revised</u></b>	<b><u>Approved By</u></b>
C - 1	01/04/93	03/28/07	Barry J. O'Leary Director Safety, Health, and Environmental Services

**1.0 Statement of Standard**

- 1.1 This standard is intended to provide clearance procedures to insure the safety of personnel engaged in electrical utility work.

**2.0 Scope**

- 2.1 The procedures set forth in this standard apply to all company and contractor employees who perform work on the NorthWestern Energy (NWE) distribution and transmission systems and facilities.

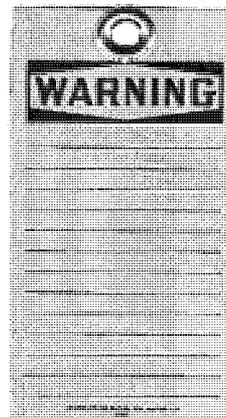
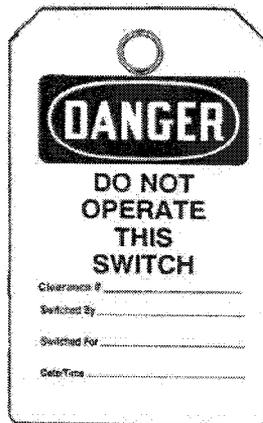
**3.0 Regulatory References**

- 3.1 29 CFR 1910.269 – OSHA's Electric Power Generation, Transmission, and Distribution Standard
- 3.2 National Electrical Safety Code, Sections 442 – 446

**4.0 Definitions**

- 4.1 Limits of Protection: The limits of protection consist of the equipment and devices that are operated to open a section of line for establishing a clearance. These are to be referred to using specific equipment and device numbers.
- 4.2 Qualified Person: One who adequately understands the installation, construction, and operation of the electrical system, including electrical equipment, and has knowledge of the associated hazards of these systems and equipment. Qualified persons will be trained in and familiar with the safety-related work practices, safety procedures, and other safety requirements that pertain to their specific job assignments. Qualified persons shall be trained and competent in the skills and techniques to recognize energized parts, to determine nominal voltages of energized parts, the minimum approach distances for various voltages, and the personal protective measures and equipment for working on energized parts. A person must be "qualified" to enter a substation.
- 4.3 Certified Switch Person: In addition to the meeting the requirements for "Qualified Person" above, a "Certified Switch Person" is a person capable of safely performing switching duties and establishing a clearance. Only a Certified Switch Person can be authorized by the SOCC Operator to perform switching and establish clearances on NorthWestern Energy's system.

- 4.4 **Clearance:** The process of completely isolating a given section of line or equipment from all other lines or equipment through tagged, and if possible locked, switching devices that provide a visual open. The use of proper grounding methods and work procedures is required when working on de-energized equipment. (Note: Any exceptions to the requirement for visual opens must be mutually approved by the Manager of SOCC Operations and the Director of Safety, Health, and Environmental Services).
- 4.5 **Hot Line Hold:** When a live line work method is used, a hot line hold will be requested. A hot line hold is not a clearance. A hot line hold is a guarantee to the crew that an energized circuit upon which the hold exists will not be re-energized should it trip out while the hold is in effect.
- 4.6 **Terminal Clearance:** Consistent with Good Utility Practice, a formal assurance of isolation of terminal or terminals of an interconnecting circuit provided by the operator who has the authority over the terminal to a requesting operator who wishes to authorize "dead-line" work on that circuit. The Terminal Clearance assures the requesting operator that the terminal or source is open, properly cleared, and tagged according to local procedures, and it will not be energized until a release is given by the operator receiving the Terminal Clearance.
- 4.7 **Terminal Hold:** Consistent with Good Utility Practice, a formal assurance of non-reclosure at the terminal or terminals of an interconnecting circuit provided by the operator who has the authority over the terminal to a requesting operator who wishes to authorize "hot-line" work on or near the circuit. The Terminal Hold assures the requesting operator that the terminal or source on "hold" has relays in service to provide protection in the event of a fault; and, once tripped out of service, will not be re-energized, automatically or manually, until the operator receiving the Terminal Hold has advised that all personnel and materials are in the clear and it is safe to energize.
- 4.8 **SOCC Operator:** Person located at the System Operations Control Center (SOCC) in Butte who is qualified to issue switching orders, clearances, or hot line holds.
- 4.9 **Worker in Charge:** The line availability request may be made by a supervisor or engineer, but the clearance shall only be issued to the worker in charge of the clearance. A worker in charge must meet the definition of a "qualified person" and a "certified switch person" as defined above. The worker in charge must be present while the work is completed.
- 4.10 **Warning/Clearance Tags:** An item attached to an electrical circuit to indicate a clearance, hot line hold or abnormal condition exists on that circuit. The two tagging devices pictured below are currently in use on NWE's system.



## **5.0 General Procedures**

- 5.1 A clearance shall be taken for personal protection on all work within the minimum safe approach distances of electric circuits or the work shall be accomplished through live line work methods.
- 5.2 When doing hot work, a hot line hold shall be taken and the reclosure features of protective devices disabled. Normal hot line hold precautions include, but are not limited to, the following:
  - 5.2.1 All normally open devices that could have been closed into the desired work site are checked open and tagged in the open position.
  - 5.2.2 All auto transfer and auto sectionalizing switches are decoupled from stored energy operators.
  - 5.2.3 Reclose cutout switches (e.g. 79CO switches) are turned off and tagged on control panels.
  - 5.2.4 Control switches (e.g. 101 switches) are tagged on control panels.
- 5.3 SOCC Operators have jurisdiction over all clearances and switching on the NWE system shown on the system one-line diagram. In some cases, switching and clearance authority has been delegated to a division, district, or area.
- 5.4 Permission must be granted by the SOCC Operator before any equipment is operated or is removed from service for maintenance or repair if any of the following exist **and** the device is operating on a line specifically under SOCC control and jurisdiction. (In South Dakota, this includes all devices operating at 34.5 kV and above, and those operating at less than 34.5 kV that serve more than one town.)
  - 5.4.1 The device is operated by dispatcher command via SCADA control.
  - 5.4.2 The device could cause the closing of a loop that would become a parallel circuit to a higher voltage circuit.
  - 5.4.3 The device will cause a loss of SCADA analog values or indication status.
  - 5.4.4 The device is a point of interconnection with another utility.
- 5.5 When a clearance or hot line hold involves another dispatching jurisdiction, for example REA's, WAPA, PPL Montana, or local NWE divisions/areas, all coordination shall be handled by the SOCC. SOCC refers to these as Terminal Clearances or Terminal Holds.
- 5.6 All personnel, including contract personnel, must be registered as a Certified Switch Person with the SOCC Operator to take clearances or establish (or remove) clearances. This applies to any lines under SOCC control and jurisdiction. See Section 10.0 for additional requirements.
- 5.7 Clearances must be established through devices that provide a visual open. A switch shall not be used to interrupt current beyond its rated capacity to do so. Whenever possible, circuits shall be de-energized using power circuit breakers or similar fault interrupting devices. Switches may include power circuit breakers, circuit switchers, distribution reclosers, air break switches, single blade disconnects, fused disconnects, cutouts, or underground load break elbows. (Note: Any exceptions to the requirement for visual opens must be mutually approved by the Manager of SOCC Operations and the Director of Safety, Health, and Environmental Services).

## **6.0 Use of Warning/Clearance Devices**

- 6.1 Clearance Tags and Shepherds Hooks

- 6.1.1 Attach a Clearance Tag to every switch and remote control point capable of operating a switch used to isolate a circuit for a clearance. Lock if mechanically possible.
  - 6.1.2 Attach a Clearance Tag to every switch and remote control point capable of re-energizing a circuit on a hot line hold. Lock if mechanically possible.
  - 6.1.3 For distribution work, completely remove cutout blades from the cutout device and tag for a clearance.
  - 6.1.4 Place a shepherd's hook on each phase of single blade switching devices (only one Clearance Tag is required per circuit). The tag may be placed on one of the shepherd's hooks or attached on the supporting structure near the ground (not accessible to the public).
  - 6.1.5 The name of the person taking the clearance or hot line hold and the name or initials of the person performing the switching shall be on the tag. The date, time, and nature of the clearance will also be completed on the tag. For South Dakota clearances or hot line holds, a clearance number will be created and completed on the tag. It will be noted on the tag if the clearance involves a "Terminal Clearance" or a "Terminal Hold".
  - 6.1.6 All clearance requests and releases between the worker in charge and the SOCC Operator shall include the limits of protection per the system one-line diagram.
  - 6.1.7 When receiving a clearance in South Dakota from the SOCC Operator, the worker in charge will be issued a clearance number that is to be used as a reference for that work. For example, "I understand that the SOCC Operator is issuing me clearance number (actual number of clearance) and a clearance on that section of line between (exact description of line and the limits of protection)."
  - 6.1.8 The SOCC Operator will issue a clearance without grounds but will encourage the worker in charge to take their own precautions. For example, "SOCC Operations is prepared to issue a clearance to (name) on that section of line (exact description of line and the limits of protection). This clearance is issued without grounds, take your own precautions concerning grounding, and guard yourself against backfeed, induction from underbuild, or any other potential energization source." A clearance number will also be issued and referenced for South Dakota clearances.
- 6.2 SOCC Tags and Magnetic Flags
- 6.2.1 SOCC tags or magnetic flags shall be placed on the dispatching board by the SOCC Operator to show the existing status of the switches and the supervisory control system shall be appropriately tagged that a clearance or hot line hold has been issued through that switch.
- 6.3 Warning Tags
- 6.3.1 A Warning Tag cannot be used as a Clearance Tag and shall not be used for personal protection. A Warning Tag can be used to alert personnel to abnormal conditions or for informational purposes.
  - 6.3.2 A description of the hazard and a contact person should be completed on each Warning Tag. When the information on the Warning Tag no longer applies, the tag is to be removed.
  - 6.3.3 Where warning information is pertinent to SOCC Operators, such information shall be communicated to the operators.

## **7.0 Clearances Under SOCC Control/Jurisdiction**

- 7.1 When line availability for a clearance is requested, the SOCC Operator shall:
- 7.1.1 Establish a switching protocol that includes the following:
    - 7.1.1.1 Determine if lines can be de-energized or shall initiate the modification needed in a clearance request due to system requirements.
    - 7.1.1.2 Determine which switching devices shall be used and in what sequence.
  - 7.1.2 Issue and record all switching orders and clearances indicating the changed status in the system displays at the SOCC.
  - 7.1.3 When requested and if feasible, the SOCC Operator will document the switching protocol and transmit the documentation to the person requesting the clearance for review. If the SOCC Operator is not able to document the switching protocol, the operating area requesting the clearance can document the switching protocol and transmit the documentation to SOCC for review.
- 7.2 When requesting a clearance the requestor shall:
- 7.2.1 Request line availability using the standard request form issued by the SOCC and, except in emergencies, a minimum of two days in advance. Notes: Certain transmission circuits over 161 kV require a 45-day notice. One-line system diagrams should be used when developing requests.
  - 7.2.2 Inform the SOCC Operator if the work planned will modify the system one-line diagram or the equipment's operational capability.
  - 7.2.3 Use names and identifications shown on the system one-line diagram to describe equipment needed in the clearance.
  - 7.2.4 Indicate the time to start, and the overall duration needed for a clearance.
- 7.3 When taking a clearance the worker in charge shall:
- 7.3.1 Request from SOCC a clearance on a section of line or equipment using names and identifications shown on the system one-line diagram to describe equipment needed in the clearance.
  - 7.3.2 Hold a tailboard conference to inform all crewmembers about the job plans.
  - 7.3.3 Repeat switching instructions between the field and the SOCC Operator to assure proper directions and results have been achieved.
  - 7.3.4 Ensure that all sources of power feedback, including any sources of distribution power feedback, have been eliminated.
  - 7.3.5 Tag all switches, decouple, and lock if mechanically possible.
  - 7.3.6 Tag SCADA control point devices ("open/close" and "reclosing").
  - 7.3.7 Test the line for nominal voltage, then install protective working grounds.
  - 7.3.8 Take appropriate precautions for induced voltages from nearby parallel lines, from distribution underbuild, or for possible sources of backfeed.
- 7.4 When releasing a clearance the worker in charge shall:
- 7.4.1 Ensure that the line and equipment is operational and fit for use.
  - 7.4.2 Ensure that all grounds are removed.

- 7.4.3 Ensure that all men and equipment are in the clear.
- 7.4.4 Inform the SOCC Operator of any operational limitations.
- 7.4.5 Release a clearance at the end of the shift or the job, whichever comes first. The SOCC Operator and local supervision must mutually agree to extend a clearance beyond a shift.
- 7.4.6 Release a clearance before turning the job over to another person, when leaving the area, or when no longer the person responsible for the work that is being performed.
- 7.4.7 Issue the following statement to release a clearance:  

"This is (name) and I am releasing my clearance on the section of line (exact description of line and the limits of protection). All my personal working shorts and grounds have been removed, all my crew and equipment are in the clear, and as far as I'm concerned that section of line is ready for normal service." The clearance number shall be referenced for South Dakota clearances.
- 7.5 All switching on equipment under the jurisdiction of a SOCC Operator shall be done as follows:
  - 7.5.1 The SOCC Operator shall authorize a Certified Switch Person to operate a switching device using names shown on the system one-line diagram and ask that person to check all three phases open/closed.
  - 7.5.2 The Certified Switch Person shall perform the designated switching operation, tag/untag the switch and check all three blades open/closed. If mechanically possible, a lock will also be applied.
  - 7.5.3 The Certified Switch Person shall report the switch status as tagged/untagged, that all three phases were checked open/closed, and as appropriate, locked/decoupled.
  - 7.5.4 All three phases of a circuit must be switched open/closed.
  - 7.5.5 All switches and points of visible break shall be tagged, and if mechanically possible, decoupled and locked.
  - 7.5.6 The Certified Switch Person shall complete the name of the worker in charge of the clearance or hot line hold, the date, and the type of clearance issued on the tag. For South Dakota, a clearance number will be created and completed on the tag. The name of the Certified Switch Person performing the switching shall also be on the tag. It will be noted on the tag if the clearance involves a "Terminal Clearance" or a "Terminal Hold".
- 7.6 Records
  - 7.6.1 The SOCC Operator is to record all switching orders complete with times, the operation, who performed the switching, which switch was operated, and who is taking the clearance. The Certified Switch Person who performed the switching must complete a switching log in the control house for any substation switching.

## **8.0 Clearances Not Under SOCC Control/Jurisdiction**

- 8.1 Divisions, districts, or areas are responsible for clearances on lines and equipment that are not under the jurisdiction of a SOCC Operator and those lines delegated to them by SOCC.
- 8.2 When taking clearances, the worker in charge shall:

- 8.2.1 Have or gain adequate knowledge of the system (through experience, maps/drawings, or patrolling) to safely switch or direct others to switch the circuit out and establish a clearance.
- 8.2.2 Hold a tailboard conference to inform all crewmembers about the job plans.
- 8.2.3 Ensure that all sources of power are isolated from the circuit to be worked on by visible opens for a clearance and, as available, blocked reclosers for hot line holds.
- 8.2.4 Tag all switches, decouple, and lock if mechanically possible.
- 8.2.5 Test to determine the line for nominal voltage, then install protective working grounds.
- 8.3 When releasing clearances the worker in charge shall:
  - 8.3.1 Ensure that the equipment is operational and fit for use.
  - 8.3.2 Ensure that all grounds are removed.
  - 8.3.3 Ensure that all men and equipment are in the clear.
  - 8.3.4 Remove tags and locks, then energize the circuit.
- 8.4 All switching shall be ordered by the worker in charge as follows:
  - 8.4.1 A Certified Switch Person shall perform the designated switching operation, check open/closed and tag/untag, and if mechanically possible, lock the switch.
  - 8.4.2 The Certified Switch Person shall report back the switch status as checked open/closed, tagged/untagged, and as appropriate, locked.
  - 8.4.3 The name of the person taking the clearance or hot line hold and the name or initials of the person performing the switching shall be on the tag. The date on the tag shall also be completed.
  - 8.4.4 The Certified Switch Person who performed the switching must complete a switching log in the control house for any substation switching.
- 8.5 Tagging is not needed when a crew has established a clearance on a portion of a circuit that is in their control **and** the entire portion of the line under the clearance is visible to the crew.

## **9.0 Additional General Precautions and Exceptions**

- 9.1 Never re-energize a circuit on a hot line hold or a clearance without permission of the worker in charge having the hold or clearance.
- 9.2 Notify the SOCC Operator if a circuit becomes de-energized or if a fault occurs when you have a hot line hold through SOCC.
- 9.3 In an emergency where the person holding a clearance cannot release the clearance, a local NWE supervisor or a journeyman lineman working under the clearance shall assume responsibility as approved by the SOCC Operator. The local NWE supervisor or the journeyman lineman that released the clearance shall notify the original clearance holder of the change as soon as practical.
- 9.4 Third parties can be used to relay switching orders when direct communication with the SOCC Operator is impossible and:
  - 9.4.1 The SOCC Operator and the person requesting the clearance consider the third party capable.

- 9.4.2 The third party writes down the words of the SOCC Operator and the worker, then repeats the wording exactly.
- 9.5 A general foreman may take the clearance for all of the crews under his/her direction.
- 9.6 When multiple crews are working on the same circuit, but not under a general foreman, each sub-foreman shall be issued a separate clearance. When the clearance is not handled by SOCC, such as those in NWE divisions, districts, or areas, one person must be designated as the worker in charge to control all the switching and clearances, insuring all crews have released their clearance before the circuit is re-energized.
- 9.7 Substations difficult to isolate from a transmission line may be included in a clearance through SOCC if:
  - 9.7.1 The NWE division, district, or area establishes a clearance on the distribution side of the substation by eliminating any back feed from the distribution system.
  - 9.7.2 An NWE division, district, or area supervisor makes prior arrangements with SOCC supervision for the clearance.
- 9.8 When relay work is to be performed in substations affecting the system under SOCC control and jurisdiction, it is necessary to notify the SOCC Operator about the work and possible effect on operations.
- 9.9 Whenever possible notify employees responsible for dealing with customers such as the local service center dispatcher, office attendant, town manager, the call center, or local supervisor that service is being interrupted.
- 9.10 In special circumstances, a circuit may be temporarily taken "out of service". A Certified Switch Person will take a clearance through SOCC. Switches shall be tagged and locked open, the line shall be tested for nominal voltage, and grounds shall be applied. The clearance will then be released and the line deemed "out of service" by SOCC. When the line is to be returned to service, a Certified Switch Person shall contact SOCC and take a new clearance, then verify that the section of line is ready for operation and release the clearance using standard clearance release procedures. The Manager of System Operations at SOCC will have sole jurisdiction in the approval of a "special circumstance" request.
- 9.11 When a circuit that has been "out of service" is returned to service, it is the responsibility of division, district, or area personnel to insure with absolute certainty that all affected parties have been notified.
- 9.12 In circumstances where more than one party receives a clearance on equipment, each party must release his/her own clearance. At no time should one party release another party's clearance.

## **10.0 Additional Requirements**

- 10.1 All personnel entering NWE transmission and distribution facilities must meet the minimum specifications for Qualified Persons, as defined in 29 CFR 1910.269 (a).
- 10.2 All personnel entering NWE transmission or distribution facilities must inform the SOCC Operator before entering or immediately upon entering the facility.
- 10.3 Before performing any switching or taking any clearances in NWE facilities under SOCC jurisdiction and control, a Qualified Person needs to be registered with the SOCC Operator as a Certified Switch Person. NorthWestern Energy and contract operating personnel are included in this requirement. An NWE "Switching Certification Record" shall be completed for all Certified Switch Persons and forwarded to the SOCC Operator for proper registration.