

**ATTACHMENT AA**  
**RESOURCE ADEQUACY**

## **1.0 Overview**

Maintaining appropriate planning reserves ensures that the Transmission Provider will have sufficient capacity to serve the SPP Balancing Authority Area's peak demand. This Attachment AA requires a Load Responsible Entity to maintain capacity required to meet its load and planning reserve obligations. Additionally, this Attachment AA provides the obligations and responsibilities of the Transmission Provider, Market Participants, Load Responsible Entities, and Generator Owners with regard to load and planning reserves.

## **2.0 Definitions**

Terms defined herein shall only be applicable to this Attachment AA.

### **Asset Owner**

As defined in Attachment AE of this Tariff.

### **Behind-The-Meter Generation**

As defined in Attachment AE of this Tariff.

### **Deficiency Payment**

A payment by a Market Participant when one or more of its LREs has not met the Resource Adequacy Requirement as calculated in accordance with Section 14.2 of this Attachment AA.

### **Deliverable Capacity**

The accredited capacity of a Resource that is determined to be deliverable in either a Summer Season or a Winter Season Deliverability Study.

### **Demand Response Resource**

As defined in Attachment AE of this Tariff.

### **Demand Response Program**

Measurable load reduction program(s) capable of being controlled or dispatched by a Load Responsible Entity, a Market Participant, or the Transmission Provider.

### **Firm Capacity**

The accredited capacity of commercially operable generating units, or portions of generating units, adjusted to reflect purchases and sales of capacity with another party, and that is deliverable with firm transmission service to the LRE's load.

### **Firm Power**

Power purchases and sales deliverable with firm transmission service to serve the LRE's load with capacity, energy, and planning reserves, that must be continuously available in a manner comparable to power delivered to native load customers.

**Generator Owner**

The Asset Owner of a Resource.

**Jointly Owned Unit**

As defined in Attachment AE of this Tariff.

**Load Responsible Entity ("LRE")**

An Asset Owner with registered load in the Integrated Marketplace.

**Market Participant**

As defined in Attachment AE of this Tariff.

**Net Peak Demand**

The forecasted Peak Demand less the a) projected impacts of a Demand Response Program and b) adjusted to reflect the contract amount of Firm Power with another entity as specified in Section 8.2 of this Attachment AA.

**Non-Controllable and Non-Dispatchable Behind-The-Meter Generation**

Behind-The-Meter Generation resources that are non-controllable and non-dispatchable by the Transmission Provider, Market Participant, or the LRE.

**Non-Controllable and Non-Dispatchable Demand Response Programs**

Demand Response Programs that are non-controllable and non-dispatchable by the Transmission Provider, Market Participant, or the LRE.

**Peak Demand**

The highest demand including a) transmission losses for energy, b) the projected impacts of Non-Controllable and Non-Dispatchable Behind-The-Meter Generation, and c) the projected impacts of Non-Controllable and Non-Dispatchable Demand Response Programs measured over a one clock hour period.

**Resource**

As defined in Attachment AE of this Tariff.

**Summer Season**

June 1st through September 30th of each year.

**Winter Season**

December 1st through March 31st of each year.

**Workbook**

An electronic tool provided by the Transmission Provider which is used by an LRE or Generator Owner to submit information to the Transmission Provider for the purposes of administering this Attachment AA.

### **3.0 Roles and Responsibilities**

#### **3.1 Generator Owner and Load Responsible Entity**

Except as provided in Section 3.1(1) of this Attachment AA, the roles and responsibilities of the LRE and Generator Owner are separate and distinct from the other under this Attachment AA. An entity may be an LRE, a Generator Owner, or both. For an entity that is both an LRE and Generator Owner, the Transmission Provider shall recognize the rights, roles, and responsibilities as separate and distinct functions.

- (1) An LRE that is also a Generator Owner shall access its Workbook pursuant to the provisions of Section 9.3(b) of this Attachment AA but shall be considered an LRE for Workbook reporting purposes, and all excess capacity of the Generator Owner shall be considered LRE Excess Capacity for purposes of Resource Adequacy Assurance as described in Section 14.0 of this Attachment AA.

#### **3.2 Market Participant and Load Responsible Entity**

- (1) An LRE may be a Market Participant or can engage a third party Market Participant to represent it. If an LRE refuses to either (a) become a Market Participant or (b) engage a third party Market Participant to represent it, the Transmission Provider shall file an unexecuted Market Participant Agreement with the Commission pursuant to Section 2.2(6) of Attachment AE of this Tariff.
- (2) A Market Participant that represents an LRE under Attachment AH of this Tariff is the entity responsible under this Attachment AA to ensure the LRE's compliance with the Resource Adequacy Requirement.
- (3) The relationship between a Market Participant and its LRE, as established in the submission of the Workbook on February 15th, will be considered fixed for the upcoming Summer Season for enforcement of the Resource Adequacy Requirement.
- (4) The Market Participant is responsible to ensure its LRE(s) provides the necessary data to allow the Transmission Provider to verify its LRE(s)' compliance with the Resource Adequacy Requirement.

- (5) An LRE shall submit all necessary data to the Transmission Provider either directly or through the LRE's Market Participant.
- (6) A Market Participant may aggregate the forecasted Peak Demand of multiple LREs whose load assets are served by a common set of Designated Resources or a Firm Power transaction between the LREs. In such case, the Market Participant shall be considered the LRE for the aggregated demand and, for purposes of compliance with this Attachment AA, the Market Participant's forecasted Peak Demand shall be used to calculate a single Resource Adequacy Requirement for the aggregated load assets.
- (7) The Market Participant is responsible for any deficient capacity needed to be sufficient for the applicable year's Resource Adequacy Requirement through a Deficiency Payment incurred by the LRE(s) it represents.

### **3.3 Procedures for Assignment of Market Participant Obligations**

- (1) A Market Participant may assign its duties, obligations and responsibilities for an LRE under this Attachment AA, but only to another Market Participant. A non-Market Participant must become a Market Participant prior to accepting an assignment.
- (2) Assignor Market Participant shall be responsible to negotiate and contract with another Market Participant for the assignment of its duties, obligations, and responsibilities with respect to the LRE. A valid assignment must be in writing, bilaterally executed by both parties, and the assignee Market Participant shall affirmatively accept the duties, obligations, and responsibilities of the assignor Market Participant under this Attachment AA.
- (3) Assignor Market Participant shall provide copies of the assignment to the Transmission Provider prior to February 15th of each calendar year. In the event the demonstration of such assignment does not occur prior to February 15th of each calendar year, the Transmission Provider shall not be required to accept the assignment for the upcoming Summer Season.

- (4) A valid assignment by the assignor Market Participant under this Attachment AA does not affect the assignor Market Participant's status as a Market Participant or other rights and obligations it may have under other provisions of this Tariff.
- (5) Except as otherwise provided in Sections 3.3(6), 3.3(7), and 3.3(8) of this Attachment AA, upon demonstration of a valid assignment, Transmission Provider will accept the transfer of the LRE to the assignee Market Participant, and enforce the provisions of Attachment AA against the assignee Market Participant, without recourse against the assignor Market Participant.
- (6) Either party may serve the Transmission Provider with written notice of the assignment's termination. The Transmission Provider will recognize the assignment's termination if the notice contains a written acknowledgement by both parties that the assignment has been terminated. Upon termination of the assignment, the duties, obligations, and responsibilities of the Market Participant for the transferred LRE under Attachment AA of the Tariff shall immediately revert back to assignor Market Participant, unless a replacement assignment that meets the requirements of this section is provided to the Transmission Provider.
- (7) Nothing in the Transmission Provider's acceptance of the assignment shall be construed to create or give rise to any liability on the part of the Transmission Provider and the parties to the assignment expressly waive any claims that may arise in their favor against the Transmission Provider, except as specifically may be provided in the Tariff. The Transmission Provider shall be held harmless by the by parties for any breach of the assignment or dispute between the parties with regards to the assignment, and such dispute shall not delay or cancel the financial responsibilities of the assignee Market Participant under this Attachment AA. Any dispute between the Transmission Provider and either party may be subject to the dispute resolution provisions of Section 12 of the Tariff.
- (8) The Transmission Provider shall not be responsible for the actions of any party, or have any affirmative duties assigned to the Transmission Provider under the assignment. The Transmission Provider's recognition of the assignment shall not be construed as Transmission Provider's acceptance of the provisions of the assignment that may conflict with the Tariff or the Transmission Provider's



administration of the Tariff, and specifically, the application of this Attachment AA against the assignee Market Participant, or upon termination of the assignment, the assignor Market Participant. In the event there exists a conflict between a term of the assignment and this Tariff, the provisions of this Tariff shall control.

#### 4.0 Planning Reserve Margin

The Planning Reserve Margin (“PRM”) shall be set in the SPP Planning Criteria. Determination of the PRM will be supported by a probabilistic Loss of Load Expectation (“LOLE”) Study, which will analyze the ability of the Transmission Provider to reliably serve the SPP Balancing Authority Area’s forecasted Peak Demand. The Transmission Provider, with input from the stakeholders, shall develop the inputs and assumptions and methodologies to be used for the LOLE Study. The Transmission Provider will study the PRM such that the LOLE for the applicable planning year does not exceed one (1) day in ten (10) years, or 0.1 day per year. The PRM shall be determined using probabilistic methods in the LOLE Study to ensure the LOLE does not exceed 0.1 day per year. Study assumptions of the LOLE Study will consider the following factors, including, but not limited to: forecasted demand and generation, load profiles, generator forced outages, load forecast uncertainty, demand response programs, and variable energy resource profiles. The Transmission Provider, with stakeholder input, will provide a recommended PRM value and a recommended implementation timeline for any proposed change in the PRM value to the Markets and Operations Policy Committee, Regional State Committee, and the SPP Board of Directors. The PRM value and implementation timeline recommended by the Transmission Provider will be determined based on the LOLE Study results and will consider, but not be limited to, the following:

- Available generating capacity and new generator development timelines;
- Historical operational experiences that reflect actual Resource performance, energy consumption and system conditions throughout the SPP Balancing Authority Area;
- Uncertainties associated with projected future Resource mix, Peak Demand in the SPP Balancing Authority Area, Resource performance, demand response and other projections assumed in the LOLE Study;
- Appropriate balancing of risks projected to be incurred across the seasons being studied in the LOLE Study;
- Duration and magnitude of the loss-of-load events identified as possible by the LOLE Study;

- Ability of the SPP Balancing Authority to reliably plan for energy assistance from neighboring regions;
- Other factors that impact the SPP Balancing Authority's future ability to reliably meet the SPP Balancing Authority Area's Peak Demand expectations, such as extreme weather, disruptive load growth, and final or pending state and federal policies.

#### **4.1 Planning Reserve Margin Timeline**

- (1) The LOLE Study will be performed by the Transmission Provider on a biennial basis. If the Transmission Provider determines that it is necessary to perform an additional LOLE Study more often than on a biennial basis, the Transmission Provider will provide notice on the Transmission Provider's website detailing the need for the additional LOLE Study and providing an opportunity for comment, no less than thirty (30) days prior to initiating such study.
- (2) The Transmission Provider shall publicly post the final results of the LOLE Study and explanations of all assumptions on the Transmission Provider's website.
- (3) After posting the final results of the LOLE Study, and at least thirty (30) Calendar Days prior to the next quarterly meetings of the Regional State Committee and the SPP Board of Directors, the Transmission Provider, with stakeholder input, will make a recommendation to the Markets and Operations Policy Committee, Regional State Committee, and the SPP Board of Directors for any change to the current PRM value. The Transmission Provider will outline in detail the methodology and assumptions used to conduct the LOLE Study, as well as the methodology and assumptions used to determine a recommendation of a change in the PRM value based on the LOLE Study results. At these same quarterly meetings of the Regional State Committee and the SPP Board of Directors, if there is a recommended change in the current PRM, the Transmission Provider will recommend to the Regional State Committee and the SPP Board of Directors the planning year for which the change in the PRM will apply.

- (4) Any change in the current PRM must be approved by the Regional State Committee and the SPP Board of Directors and the approvals must be based on the results of the LOLE Study. The approved change in the current PRM approved by the Regional State Committee and the SPP Board of Directors will be determined based on the LOLE Study results and will consider, but not be limited to, the same factors listed in Section 4.1(3) of this Attachment AA that SPP staff considers when recommending the PRM value to the Regional State Committee and the SPP Board of Directors. At the same meetings, where the Regional State Committee and the SPP Board of Directors approved the change in the current PRM, the Regional State Committee and the SPP Board of Directors will determine the planning year for which any changed PRM value will apply, which will align with the study years analyzed and will consider regional available capacity and generator interconnection queue timelines.
- (5) If the PRM approved by the Regional State Committee and the SPP Board of Directors is one (1) percentage point or greater than the current PRM (e.g., increased from 15% to 16%) or is one (1) percentage point or greater than the PRM value identified in the final results of the LOLE Study, the approved PRM will be implemented for the planning year beginning at least one year after the Regional State Committee's and the SPP Board of Directors' approval of the new PRM, but no earlier than the study years analyzed in the LOLE Study.

## **5.0 Summer Season Resource Adequacy Requirement**

**5.1** The Resource Adequacy Requirement is equal to the LRE's Summer Season Net Peak Demand plus its Summer Season Net Peak Demand multiplied by the PRM.

(1) The LRE is responsible to meet the Resource Adequacy Requirement for the Summer Season or pay for any deficient capacity needed to be sufficient for the applicable year's Resource Adequacy Requirement through a Deficiency Payment as calculated in accordance with Section 14.2 of this Attachment AA.

**5.2** The Deliverable Capacity or Firm Capacity utilized by an LRE to meet the Resource Adequacy Requirement may not be included in the Deliverable Capacity or Firm Capacity utilized by another LRE to meet the Resource Adequacy Requirement. Deliverable Capacity or Firm Capacity that is contracted to other entities shall not be available to the LRE that is transferring the Deliverable Capacity or Firm Capacity for compliance with the Resource Adequacy Requirement.

**5.3** If an LRE serves load both internal and external to the SPP Balancing Authority Area, compliance with the Resource Adequacy Requirement contained in this Attachment AA is not intended to affect an LRE's obligation to maintain distinct and separate amounts of Resources to cover its applicable planning reserve obligation for its load located external to the SPP Balancing Authority Area. Load and Resources that are pseudo-tied or dynamically scheduled into the SPP Balancing Authority Area shall be considered internal for purposes of determining the Resource Adequacy Requirement.

## **6.0 Winter Season Obligation**

- 6.1** The Winter Season Obligation is equal to the LRE's Winter Season Net Peak Demand plus its Winter Season Net Peak Demand multiplied by the PRM.
- 6.2** The Deliverable Capacity or Firm Capacity utilized by an LRE to meet the Winter Season Obligation may not be utilized by another LRE to meet the Winter Season Obligation. Deliverable Capacity or Firm Capacity that is contracted to other entities shall not be available to the LRE that is transferring the Deliverable Capacity or Firm Capacity for compliance with the Winter Season Obligation.
- 6.3** If an LRE serves load both internal and external to the SPP Balancing Authority Area, compliance with the Winter Season Obligation contained in this Attachment AA is not intended to affect an LRE's obligation to maintain distinct and separate amounts of Resources to cover its applicable planning reserve obligation for its load located external to the SPP Balancing Authority Area. Load and Resources that are pseudo-tied or dynamically scheduled into the SPP Balancing Authority Area shall be considered internal for purposes of determining the Winter Season Obligation.

## **7.0 Qualification of Deliverable Capacity, Firm Capacity, Firm Power, Demand Response Programs, and Behind-The-Meter Generation**

- 7.1** As part of the annual Workbook submission, an LRE or Generator Owner with Deliverable Capacity from resources internal to the SPP Balancing Authority Area shall qualify such capacity by: (a) registering the Resource in the Integrated Marketplace; (b) submitting, or causing to be submitted, to the Transmission Provider the current Operational Test results as performed in accordance with the SPP Planning Criteria; and (c) submitting, or causing to be submitted, to the Transmission Provider the current Capability Test results as performed in accordance with the SPP Planning Criteria.
- 7.2** As part of the annual Workbook submission, an LRE or Generator Owner with Firm Capacity from a resource(s) internal to the SPP Balancing Authority Area shall qualify such capacity by: (a) demonstrating the resource(s) is (i) registered in the Integrated Marketplace or (ii) listed as a Designated Resource in the Network Integration Transmission Service Agreement; (b) submitting, or causing to be submitted, to the Transmission Provider the current Operational Test results as performed in accordance with the SPP Planning Criteria; (c) submitting, or causing to be submitted, to the Transmission Provider the current Capability Test results as performed in accordance with the SPP Planning Criteria; and (d) demonstrating that there is firm transmission service from the internal resource(s) to the LRE's load.
- 7.3** As part of the annual Workbook submission, an LRE or Generator Owner with Firm Capacity from a resource(s) external to the SPP Balancing Authority Area shall qualify such capacity by: (a) demonstrating ownership or contractual rights; (b) submitting, or causing to be submitted, to the Transmission Provider the current operational test results per the requirements of the Balancing Authority where the resource(s) is located; (c) demonstrating that there is firm transmission service from the external resource(s) to the LRE's load; and (d) attesting that any external capacity being identified is not otherwise being used as capacity in any other Balancing Authority Area or in another resource adequacy construct.

- 7.4** As part of the annual Workbook submission, an LRE with Firm Power from a resource(s) internal to the SPP Balancing Authority Area shall qualify those purchases or sales by: (a) demonstrating the resource(s) is (i) registered in the Integrated Marketplace or (ii) listed as a Designated Resource in the Network Integration Transmission Service Agreement; (b) submitting, or causing to be submitted, to the Transmission Provider the current Operational Test results as performed in accordance with the SPP Planning Criteria; (c) submitting, or causing to be submitted, to the Transmission Provider the current Capability Test results as performed in accordance with the SPP Planning Criteria; and (d) demonstrating that there is firm transmission service from the internal resource(s) to the LRE's load.
- 7.5** As part of the annual Workbook submission, an LRE with Firm Power from a resource(s) external to the SPP Balancing Authority Area shall qualify those purchases or sales by: (a) demonstrating ownership or contractual rights; (b) submitting, or causing to be submitted, to the Transmission Provider the current operational test results per the requirements of the Balancing Authority where the resource(s) is located; (c) demonstrating that there is firm transmission service from the external resource(s) to the LRE's load; (d) demonstrating that the capacity includes planning reserves; and (e) attesting that any external capacity being identified is not otherwise being used as capacity in any other Balancing Authority Area or in another resource adequacy construct.
- 7.6** As part of the annual Workbook submission, an LRE shall qualify a Demand Response Program by: (a) submitting, or causing to be submitted, to the Transmission Provider the appropriate reporting and documentation requirements in accordance with the SPP Business Practices; (b) submitting, or causing to be submitted, to the Transmission Provider the current Operational Test results as performed in accordance with the SPP Planning Criteria; (c) submitting, or causing to be submitted, to the Transmission Provider the current Capability Test results as performed in accordance with the SPP Planning Criteria.



- 7.7** As part of the annual Workbook submission, an LRE claiming Firm Capacity from Behind-The-Meter Generation less than 10 MW internal to the SPP Balancing Authority Area shall qualify such generation by: (a) being controlled or dispatched by an Load Responsible Entity or Market Participant; (b) submitting, or causing to be submitted, to the Transmission Provider the appropriate reporting and documentation requirements in accordance with the SPP Business Practices; (c) submitting, or causing to be submitted, to the Transmission Provider the current Operational Test results as performed in accordance with the SPP Planning Criteria; (d) submitting, or causing to be submitted, to the Transmission Provider the current Capability Test results as performed in accordance with the SPP Planning Criteria; and (e) demonstrating that there is firm delivery from the internal resource(s) to the LRE's load.
- 7.8** A resource qualified in accordance with Section 7.1, 7.2, 7.4, or 7.7 of this Attachment AA shall be capable of supplying its accredited capacity, as determined in accordance with SPP Planning Criteria, for a minimum of four (4) continuous hours. The requirement set forth in Section 7.8 shall not apply to run-of-the-river hydroelectric, wind, or solar resources.
- 7.9** A Demand Response Program qualified in accordance with Section 7.6 of this Attachment AA shall be capable of maintaining an LRE's level of net peak demand achieved by the highest level of projected load reduction during four consecutive hours.
- 7.10** The Transmission Provider shall make all reasonable efforts to preserve the confidentiality of information received pursuant to Section 7 of this Attachment AA when such information is so designated as "confidential" and if such designation is reasonable, except to the extent required by this Tariff, by regulatory or judicial order, by law or statute.

## **8.0 Qualification and Verification of Power Purchase Agreements**

**8.1** An LRE or Generator Owner shall provide the Transmission Provider a copy of the power purchase agreement(s) to enable the Transmission Provider to verify the Deliverable Capacity, Firm Capacity, or Firm Power and to confirm compliance with this Attachment AA. On a prospective basis, the LRE or Generator Owner shall only submit a copy of a new or modified agreement(s).

(1) Any redacted versions of a power purchase agreement submitted by an LRE or Generator Owner shall contain sufficient information to allow the Transmission Provider to verify compliance with the Resource Adequacy Requirement.

(2) An LRE or Generator Owner with a power purchase agreement that does not identify the specific resource(s) shall identify each resource that is available or partially available through an attestation supporting the power purchase agreement.

**8.2** When the purchaser and seller are both LREs, a power purchase agreement that qualifies as Firm Power shall result in a Net Peak Demand adjustment of the obligation for capacity and planning reserves from the purchaser to the seller. The purchaser shall deduct the purchased contract amount from its Net Peak Demand and the seller shall add the amount to its Net Peak Demand. The responsibility to maintain the Resource Adequacy Requirement and the Winter Season Obligation shall transfer from the purchaser to the seller.

**8.3** When the seller is not an LRE, a power purchase agreement that qualifies as Firm Power shall not result in a Net Peak Demand adjustment and the purchaser will remain responsible for the Resource Adequacy Requirement and Winter Season Obligation for load served by the agreement. The purchaser shall not deduct the purchased contract amount from its Net Peak Demand; however, the purchaser may reflect as Firm Capacity the contract amount of the agreement plus the purchaser's PRM multiplied by the contract amount. Firm transmission service is only required for the contract amount.

- 8.4** When the purchaser is not an LRE, a power purchase agreement that qualifies as Firm Power shall result in a Firm Capacity transaction for load served by the agreement. The seller, who is an LRE, shall not include the purchased contract amount in its Net Peak Demand; however, the seller shall reflect as Firm Capacity the contract amount of the agreement plus the seller's PRM multiplied by the contract amount. Firm transmission service is only required for the contract amount.
- 8.5** A power purchase agreement executed prior to July 1, 2018 will continue to be defined and qualified as Firm Power if it does not include provisions permitting the seller to interrupt deliveries thereunder for reasons other than Force Majeure (as defined in Section 10.1 of this Tariff) or uncured defaults. All other power purchase agreements must specifically meet the definition of Firm Power.
- 8.6** An LRE may arrange for short-term capacity to provide a part of its Firm Capacity or short-term Firm Power to reduce a portion of its Summer Season Net Peak Demand or Winter Season Net Peak Demand, subject to the following provisions:
- (1) Such short-term capacity or short-term Firm Power shall be available for a minimum of four consecutive months, starting either June 1st or December 1st;
  - (2) The amount of short-term Firm Capacity or short-term Firm Power purchased in aggregate shall not exceed 25% of an LRE's applicable Net Peak Demand; and
  - (3) If the seller under a short-term Firm Power agreement is not an LRE, then the purchaser under the short-term Firm Power agreement will remain responsible for any Resource Adequacy Requirement or Winter Season Obligation for load served under the short-term Firm Power agreement.
- 8.7** The Transmission Provider shall make all reasonable efforts to preserve the confidentiality of information received pursuant to Section 8 of this Attachment AA when such information is so designated as "confidential" and if such designation is reasonable, except to the extent required by this Tariff, by regulatory or judicial order, by law or statute.

## 9.0 Resource Adequacy Timeline

The Resource Adequacy process is performed annually beginning on July 1st of each year. For any prescribed date that falls on a weekend or holiday, the date of performance shall be the next business day.

- (1) On July 1st of each year the Transmission Provider shall post the following on the SPP website and distribute via email distribution list:
  - (a) Notification of the commencement of the process; and
  - (b) A timeline indicating when the Market Participant, LRE, and Generator Owner are required to meet their respective obligations.
- (2) By October 1st of each year the Transmission Provider will perform the Deliverability Study for the upcoming Summer Season.
- (3) On October 1st of each year the Transmission Provider shall post and provide notice via email distribution list:
  - (a) The following on the SPP website:
    - (i) The unpopulated Workbook;
    - (ii) Instructions for completing the Workbook; and
    - (iii) The deadline to submit the Workbook.
  - (b) The following on a secure website:
    - (i) A Workbook populated with the results of the Summer Season Deliverability Study for each individual Generator Owner.
- (4) The Transmission Provider shall not modify the unpopulated Workbook after December 31st of each year. Any modification to the unpopulated Workbook by the Transmission Provider after the initial October 1st posting shall be posted on the SPP website and distributed via email distribution list.

- (5) By February 15th of each year, each Market Participant and participating Generator Owner will ensure the Transmission Provider is provided with a Workbook.
- (6) No later than five (5) calendar days after February 15th, the Transmission Provider shall provide notice to all Market Participants, LREs, and Generator Owners that have not submitted a Workbook by the deadline. Such notice shall include the communication that the Market Participant may need to pay for any deficient capacity needed to be sufficient for the applicable year's Resource Adequacy Requirement through a Deficiency Payment if such deficiency is not cured. A Market Participant, LRE, or Generator Owner that receives such notice shall have ten (10) calendar days to submit its Workbook. Failure to provide a Workbook within the ten (10) calendar days after notification shall result in the Transmission Provider disclosing a listing of the entities that have not submitted a Workbook to the Supply Adequacy Working Group, which will provide a report to the Markets and Operations Policy Committee.
- (7) No later than April 1st of each year, the Transmission Provider will review the information in the Workbook to determine whether each LRE meets the Resource Adequacy Requirement. The Transmission Provider will notify the Market Participant and the LRE if the LRE has not met the Resource Adequacy Requirement.
- (8) By April 1st of each year the Transmission Provider will perform the Deliverability Study for the upcoming Winter Season.
- (9) By April 1st of each year the Transmission Provider shall post and provide notice via email distribution list:
  - (a) The following on a secure website:
    - i) A Workbook populated with the results of the Winter Season Deliverability Study for each individual Generator Owner.

- (10) By May 15th of each year, an LRE or Generator Owner shall update its Workbook to reflect purchases and sales that occurred after the initial submission.
- (11) By May 15th of each year, an LRE must demonstrate it has cured any deficiency in compliance with the Resource Adequacy Requirement.
- (12) No later than June 15th of each year, the Transmission Provider shall post its final report on the status of each LRE's compliance with the Resource Adequacy Requirement for the upcoming Summer Season and whether the respective Market Participant must pay for any deficient capacity needed to be sufficient for the applicable Resource Adequacy Requirement through a Deficiency Payment.
- (13) On or before June 30th of each year, and after the posting of the final report, the Transmission Provider shall calculate and assess the Deficiency Payment for any deficient capacity needed by an LRE to be sufficient for the applicable Resource Adequacy Requirement in accordance with the provisions contained in Sections 14.2 and 14.3, respectively, of this Attachment AA.

## **10.0 Deliverability Study**

- 10.1** The Transmission Provider shall perform a Deliverability Study for the Summer Season and a Deliverability Study for the Winter Season every year. Each Deliverability Study will evaluate the deliverability to the SPP Balancing Authority Area of each Resource registered in the Integrated Marketplace and not whether such Resources are deliverable to specific delivery points or SPP Zones. Each Deliverability Study will result in a determination of each Resource's seasonal capacity that is deliverable to the SPP Balancing Authority Area. The results of the Summer Season Deliverability Study shall be valid for the upcoming Summer Season and the subsequent Summer Season. The results of the Winter Season Deliverability Study shall be valid for the upcoming Winter Season and the subsequent Winter Season.
- 10.2** The Transmission Provider will utilize its current transmission planning models to perform the Summer Season Deliverability Study and the Winter Season Deliverability Study. The Transmission Provider will begin each Deliverability Study with the initial assumption that any Resource generating in the planning model is automatically deliverable to the SPP Balancing Authority Area for the dispatched output. A Resource's total capacity equals the generating unit's maximum output of MWs. For multiple generating units at one site, the total capacity for the site is the sum of maximum MWs of all generating units. A transfer level equal to the difference between the Resource's maximum MW capacity and the amount dispatched in the planning model is determined for each Resource. Each transfer will consist of at least one Resource or may consist of multiple Resources grouped together, as specified in either the Summer Season Deliverability Study or the Winter Season Deliverability Study scope. A First Contingency Incremental Transfer Capability ("FCITC") analysis of each transfer will be performed to determine the deliverability of the Resource. Transmission Facilities 100 kV and above will be included in the FCITC analysis. A three percent (3%) transfer distribution factor threshold will be used to analyze constraints impacted by the transfer.

- 10.3** The Summer Season Deliverability Study and the Winter Season Deliverability Study results for each Generator Owner's Resource shall consist of the total Resource's deliverability of MW amounts. Each Generator Owner of a Jointly Owned Unit will coordinate to determine the MW deliverability amounts for its share of a Jointly Owned Unit.
- 10.4** The amount of Deliverable Capacity of any Resource available for purchase to meet the PRM portion of the Resource Adequacy Requirement or Winter Season Obligation shall equal the lesser of: a) the Resource's accredited capacity less the MW amount of capacity that has been committed to meet i) Firm Capacity and ii) a sale to another entity; or b) the amount of a Resource's total deliverable MWs less the MW amount of capacity that has been committed to meet i) Firm Capacity and ii) a sale to another entity, as determined from the Generator Owner's Workbook.
- 10.5** A Generator Owner that does not submit a Workbook that contains the amount of generation capacity available through each Deliverability Study shall be deemed to have no Deliverable Capacity and shall not be entitled to receive any revenue distributions collected from Deficiency Payments.
- 10.6** Demand Response Resource(s) classified as Demand Response Program(s) shall not be a) eligible to be used as Deliverable Capacity and b) available for purchase to satisfy the PRM portion of the Resource Adequacy Requirement or the Winter Season Obligation.
- 10.7** A power purchase agreement to satisfy the PRM portion of the Resource Adequacy Requirement or Winter Season Obligation based on the most recent Summer Season or Winter Season Deliverability Study may only rely on the results of such study for no longer than the upcoming Summer Season or Winter Season and the subsequent Summer Season or Winter Season.
- (1) Deliverable Capacity purchases by an LRE to satisfy the PRM portion of the Resource Adequacy Requirement or Winter Season Obligation will not require firm transmission service to support the capacity. Deliverable Capacity purchases



shall not entitle a Market Participant to receive Auction Revenue Rights under Attachment AE of the Tariff.

- (2) Deliverable Capacity purchases shall not be utilized to serve any portion of the LRE's Summer Season Net Peak Demand or Winter Season Net Peak Demand. If the LRE's power purchase agreement to satisfy the PRM portion of the Resource Adequacy Requirement or Winter Season Obligation also includes capacity needed to serve any portion of its Summer Season Net Peak Demand or Winter Season Net Peak Demand, the LRE must secure firm transmission service for such capacity to serve any portion of its Summer Season Net Peak Demand or Winter Season Net Peak Demand.

## **11.0 Workbook**

**11.1** The Generator Owner's Workbook will contain, but is not limited to, the following information:

- (1) Capacity sales to another entity; and
- (2) Uncommitted Deliverable Capacity available to meet the PRM.

**11.2** The LRE's Workbook will contain, but is not limited to, the following information:

- (1) The LRE's Summer Season Net Peak Demand;
- (2) Firm Capacity owned by the LRE;
- (3) Purchases and sales for Deliverable Capacity;
- (4) Purchases and sales for Firm Capacity;
- (5) Purchases and sales for Firm Power; and
- (6) Uncommitted Deliverable Capacity available to meet the PRM.

**11.3** The LRE's Workbook shall be subject to the following provisions:

- (1) A Workbook will be used to qualify the LRE's compliance with the Resource Adequacy Requirement for the upcoming Summer Season. Absent a calculation error or otherwise incorrect information, an LRE that demonstrates compliance with the requirements of Section 5.0 of this Attachment AA is considered to have met its Resource Adequacy Requirement, subject to any subsequently reported sales. An LRE shall update its Workbook by May 15th to correct calculation errors or incorrect information.
- (2) A Workbook may include any Resources, provided the Resource's capacity is expected to be available during June 15th through September 15th. After February 15th, if the expected availability of a Resource changes to unavailable during June 15th through September 15th, the Resource will be considered as available for purposes of meeting the Resource Adequacy Requirement.
- (3) Resources contained in the Workbook that are identified by February 15th to be unavailable during part or all of the period from June 15th through September

15th will not count as capacity for purposes of meeting the LRE's compliance with the Resource Adequacy Requirement. Should a Resource that is initially identified to be unavailable during part or all of the period from June 15th through September 15th but subsequently becomes available and the LRE updates its Workbook by May 15th, such Resource will count as capacity for purposes of meeting the Resource Adequacy Requirement.

## **12.0 Post-Season Analysis**

The Transmission Provider shall conduct a post-Summer Season analysis to compare the LRE's actual Summer Season Net Peak Demand versus the LRE's planning forecast. The analysis would be used to evaluate, at a minimum, LRE's planning forecast consistency and develop further improvements for the resource adequacy process. The Transmission Provider will take the results to the Supply Adequacy Working Group for review who may refer cases of potential discrepancies to the Markets and Operations Policy Committee for further investigation and action, if necessary.

### **13.0 Cost of New Entry**

The Cost of New Entry (“CONE”) value shall be 85.61 \$/kw-yr. The CONE value shall be reviewed on or before November 1st of each year by the Transmission Provider and any changes shall be filed with the Commission. The Transmission Provider shall post the Commission-approved CONE for the next Summer Season on the SPP website within ten (10) calendar days of Commission approval.

The Transmission Provider’s calculation of the CONE for the SPP Balancing Authority Area shall be based on publicly available information (e.g., information provided by the Energy Information Administration) relevant to the estimated annual capital and fixed operating costs of a hypothetical natural gas-fired peaking facility. The Transmission Provider shall consider factors, including, but not limited to: (1) physical factors (such as, the type of generating resource that could reasonably be constructed to provide Firm Capacity in the SPP Balancing Authority Area, costs associated with locating the Resource within the SPP Balancing Authority Area); (2) financial factors (such as, the hypothetical debt/equity ratio for the Resource, the cost of capital, a reasonable return on equity, applicable taxes, interest, insurance); and (3) other costs (such as, costs related to permitting, environmental compliance, operating and maintenance expenses). In calculating the CONE value, the Transmission Provider shall not consider the anticipated net revenue from the sale of capacity, energy or Ancillary Services.

## 14.0 Resource Adequacy Assurance

### 14.1 Variables

The variables used in the calculations are as follows:

- (1) Generator Owner Excess Capacity  
The available Deliverable Capacity above the committed capacity of Generator Owner Resource(s) as reflected in its completed Workbook.
- (2) LRE Deficient Capacity  
Resource Adequacy Requirement less the sum of Deliverable Capacity and Firm Capacity, or zero if the sum of Deliverable Capacity and Firm Capacity is greater than or equal to the Resource Adequacy Requirement.
- (3) LRE Excess Capacity  
Deliverable Capacity and Firm Capacity less Resource Adequacy Requirement, or zero if the Deliverable Capacity and Firm Capacity is less than or equal to the Resource Adequacy Requirement.
- (4) SPP Balancing Authority Area Planning Reserve  
[(The sum of all LREs' Deliverable Capacity and Firm Capacity less the sum of all LREs' Summer Season Net Peak Demand) plus the sum of all Generator Owner Excess Capacity] divided by the sum of all LREs' Summer Season Net Peak Demand.
- (5) Sufficiency Valuation Curve  
A piecewise curve defined by four linear functions assessing the value of excess accredited capacity based on the relative magnitude of accredited capacity to the sum of all LREs' Resource Adequacy Requirement.
- (6) Sufficiency Valuation Clearing Price  
The intersection of the Sufficiency Valuation Curve and the Regional Accredited Value.
- (7) Regional Accredited Value  
The total capacity to meet the Resource Adequacy Requirement plus the Generator Owned Excess Capacity and LRE Excess Capacity.

- (8) Sufficiency Charge  
LRE Deficient Capacity multiplied by the Sufficiency Valuation Clearing Price.
- (9) Generator Owner Capacity Allocation  
A *pro rata* allocation of Generator Owner Excess Capacity, as described in Section 14.4 of this Attachment AA, used to resolve any LRE Deficient Capacity.
- (10) LRE Capacity Allocation  
A *pro rata* allocation of LRE Excess Capacity, as described in Section 14.4 of this Attachment AA, used to resolve any LRE Deficient Capacity.

## 14.2 Deficiency Payment

- (1) LREs will be subject to the following Deficiency Payment calculation except as provided under the alternative Deficiency Payment provisions described in Section 14.2(2) of this Attachment AA.
  - (a) Deficiency Payment =  
  
LRE Deficient Capacity \* CONE \* CONE FACTOR  
  
Where the CONE FACTOR shall be:
    - (i) 125% when the SPP Balancing Authority Area Planning Reserve is greater than or equal to the PRM plus 8%; or
    - (ii) 150% when the SPP Balancing Authority Area Planning Reserve is greater than or equal to the PRM plus 3%, but less than the PRM plus 8%; or
    - (iii) 200% when the SPP Balancing Authority Area Planning Reserve is less than the PRM plus 3%.
  - (b) An LRE that resolves its capacity deficiency for the purpose of meeting the Resource Adequacy Requirement by May 15th of the applicable year will be considered compliant.
  - (c) An LRE that fails to obtain sufficient capacity to meet the Resource Adequacy Requirement by May 15th of the applicable year, or fails to correct its Workbook by May 15th of the applicable year, shall be subject

to the Deficiency Payment for any deficient capacity needed by an LRE to be sufficient for the applicable Resource Adequacy Requirement. An LRE will be sufficient for Resource Adequacy Requirement with its payment of the Deficiency Payment.

- (d) A Market Participant, or its LRE, that does not submit the Workbook to the Transmission Provider by May 15th of the applicable year will be considered one hundred percent (100%) deficient and in violation of the Resource Adequacy Requirement for the upcoming Summer Season and shall subject the responsible Market Participant to the Deficiency Payment for the entire Resource Adequacy Requirement. To calculate the LRE Deficient Capacity, the Transmission Provider shall set the Deliverable Capacity and Firm Capacity to zero and utilize the previous year's Summer Season Peak Demand.
  - (e) LRE Capacity Allocation and Generator Owner Capacity Allocation must not be contracted to any other entity internal or external to SPP's Balancing Authority Area at any point during the applicable Summer Season for the Revenue Distribution as described in Section 14.4 of this Attachment AA. Within seven (7) Business Days after May 15th, the Transmission Provider shall notify LREs or Generator Owners the amount LRE Capacity Allocation and Generator Owner Capacity Allocation that shall not be subsequently contracted to any other entity internal or external to SPP's Balancing Authority Area at any point during the applicable Summer Season.
- (2) LREs will be subject the following Deficiency Payment based on the following Sufficiency Valuation Curve, instead of the Deficiency Payment described in Section 14.2(1) of this Attachment AA, when: (i) there is a PRM increase approved by the SPP Board of Directors within the previous two (2) calendar years; (ii) the LRE had not contracted to sell capacity to another entity external to SPP's Balancing Authority Area after the approval of the PRM change and had LRE Deficient Capacity; and (iii) LRE has demonstrated adequate capacity to



meet the current applicable Summer Season's Resource Adequacy Requirement based upon the PRM in effect prior to the increase approved by the SPP Board of Directors.

- (a) Deficiency Payment based on the Sufficiency Valuation Curve = LRE Deficient Capacity multiplied by the Sufficiency Valuation Clearing Price
  - (i) Sufficiency Valuation Curve is defined piecewise as:
    - (a) 200% CONE when the Regional Accredited Value is less than or equal to the sum of all LREs' Summer Season Net Peak Demand;
    - (b) Net CONE when the Regional Accredited Value equals the sum of all LREs' Resource Adequacy Requirement;
    - (c) \$0 when the Regional Accredited Value equals or exceeds 115% times the sum of all LREs' Resource Adequacy Requirement; and
    - (d) The capacity sufficiency valuation for the Regional Accredited Value above the sum of all LREs' Summer Season Net Peak Demand and below the sum of all LREs' Resource Adequacy Requirement will lie along a linear curve connecting (a) and (b). The capacity sufficiency valuation for the Regional Accredited Value above the sum of all LREs' Resource Adequacy Requirement and below 115% of that sum will lie along a linear curve connecting (b) and (c).
    - (e) The calculation and methodology for the Sufficiency Valuation Curve Calculation are found in the Business Practices.
- (b) An LRE that resolves its capacity deficiency for the purpose of meeting the Resource Adequacy Requirement by May 15th of the applicable year will be considered compliant.
- (c) An LRE that fails to obtain sufficient capacity to meet the Resource Adequacy Requirement by May 15th of the applicable year, or fails to

correct its Workbook by May 15th of the applicable year, will be considered deficient for the upcoming Summer Season. The responsible Market Participant shall be subject to the Deficiency Payment and such payment shall not relieve the LRE's obligation to comply with the Resource Adequacy Requirement.

- (d) A Market Participant, or its LRE, that does not submit the Workbook to the Transmission Provider by May 15th of the applicable year will be considered one hundred percent (100%) deficient and in violation of the Resource Adequacy Requirement for the upcoming Summer Season and shall subject the responsible Market Participant to the Deficiency Payment for the entire Resource Adequacy Requirement. To calculate the LRE Deficient Capacity, the Transmission Provider shall set the Deliverable Capacity and Firm Capacity to zero and utilize the previous year's Summer Season Peak Demand.
- (e) For the purposes of calculating the Sufficiency Valuation Clearing Price, the Regional Accredited Value must not contain accredited capacity that is contracted to any entity external to the SPP Balancing Authority Area.
- (f) LRE Capacity Allocation and Generator Owner Capacity Allocation must not be contracted to any other entity internal or external to SPP's Balancing Authority Area at any point during the applicable Summer Season for the Revenue Distribution as described in Section 14.4 of this Attachment AA. Within seven (7) Business Days after May 15th, the Transmission Provider shall notify LREs or Generator Owners the amount LRE Capacity Allocation and Generator Owner Capacity Allocation that shall not be subsequently contracted to any other entity internal or external to SPP's Balancing Authority Area at any point during the applicable Summer Season.

### **14.3 Billing Procedure**

On an annual basis, the Transmission Provider shall calculate the Deficiency Payment amounts to be assessed against a Market Participant pursuant to Section 14.2 of this Attachment AA needed by the LRE to be sufficient for the applicable year's Resource Adequacy Requirement. On or before June 30th of the applicable calendar year, the Transmission Provider shall submit an invoice to the Market Participant as a charge for the Deficiency Payment amount. The invoice shall be paid by the Market Participant within seven (7) calendar days of receipt. All payments shall be made in immediately available funds payable to the Transmission Provider, or by wire transfer to a bank named by the Transmission Provider. In the event of a dispute between the Transmission Provider and the Market Participant related to the calculation and assessment of a Deficiency Payment, the Market Participant shall pay the amount in dispute, and the Transmission Provider shall deposit into an escrow account the portion of the invoice in dispute, pending resolution of such dispute.

#### 14.4 Revenue Distribution

Revenues from Deficiency Payments collected by the Transmission Provider shall be distributed to Market Participant(s) for its LRE(s) with LRE Excess Capacity or Generator Owner(s) with Generator Owner Excess Capacity on a *pro rata* basis according to the following:

- (1) In the event that the sum of all LRE Excess Capacity is greater than or equal to the sum of LRE Deficient Capacity then:
  - (a) LRE revenue =  
(individual LRE Excess Capacity / sum of all LRE Excess Capacity) \*  
sum of the Deficiency Payment(s); and
  - (b) LRE Capacity Allocation =  
(individual LRE Excess Capacity / sum of all LRE Excess Capacity) \*  
sum of the LRE Deficient Capacity
- (2) In the event that the sum of all LRE Excess Capacity is less than the sum of LRE Deficient Capacity, then the allocation of revenues shall be distributed according to the following steps:

- (a) LRE revenue =  
$$\left[ \frac{\text{individual LRE Excess Capacity}}{\text{sum of LRE Deficient Capacity}} \right] * \text{sum of the Deficiency Payment(s)};$$
- (b) LRE Capacity Allocation = the entirety of that LRE's LRE Excess Capacity; and
- (c) Any remaining revenues not allocated pursuant to Section 14.4(2)(a) of this Attachment AA will be allocated to Generator Owner(s) in accordance with each Generator Owner's submitted completed Workbook in the following manner:
  - (i) In the event that the sum of all LRE Excess Capacity and all Generation Owner Excess Capacity is greater than or equal to the sum of Deficient Planning Reserve(s) then:
    - (a) Generator Owner revenue =  
$$\left[ \frac{\text{sum of LRE Deficient Capacity} - \text{sum of all LRE Excess Capacity}}{\text{sum of LRE Deficient Capacity}} \right] * (\text{individual Generator Owner Excess Capacity} / \text{sum of all Generator Owner Excess Capacity}) * \text{sum of Deficiency Payment(s)};$$
and
    - (b) Generator Owner Capacity Allocation =  
$$\left[ \frac{\text{sum of LRE Deficient Capacity} - \text{sum of all LRE Excess Capacity}}{\text{sum of LRE Deficient Capacity}} \right] * (\text{individual Generator Owner Excess Capacity} / \text{sum of all Generator Owner Excess Capacity}) * \text{sum of LRE Deficient Capacity};$$
or
  - (ii) In the event that the sum of all LRE Excess Capacity and all Generator Owner Excess Capacity is less than the sum of Deficient Planning Reserve(s) then:
    - (a) Generator Owner revenue =

$[(\text{individual Generator Owner Excess Capacity} / \text{sum of LRE Deficient Capacity}) * \text{sum of Deficiency Payment(s)}];$

(b) Generator Owner Capacity Allocation =

the entirety of that Generator Owner's Generator Owner Excess Capacity; and

(c) All remaining revenue not allocated in Section 14.4(2)(c)(ii)(a) of this Attachment AA will be allocated to each LRE that has met its Resource Adequacy Requirement, without paying a Deficiency Payment or a waiver of the obligation to pay a Deficiency Payment, on a load ratio share based on Summer Season Net Peak Demand:

LRE revenue =

$[(\text{sum of LRE Deficient Capacity} - \text{sum of all LRE Excess Capacity} - \text{sum of all Generator Owner Excess Capacity}) / \text{sum of LRE Deficient Capacity}] * (\text{individual LRE Summer Season Net Peak Demand} / \text{sum of LRE Summer Season Net Peak Demand(s) that have met the Resource Adequacy Requirement}) * \text{sum of Deficiency Payment(s)}$

(3) The Transmission Provider shall not be liable to an LRE for any revenues collected and distributed pursuant to this Attachment AA, or for damages arising out of or relating to any act or omission, performance, or failure to perform of a Market Participant with respect to such revenues or distribution thereof. It is the responsibility of each Market Participant to distribute such revenues that it receives pursuant to Section 14.4 of this Attachment AA to its eligible LREs.

## 14.5 Dispute Resolution

All disputes under this Attachment AA shall be subject to the dispute resolution procedures contained in Section 12 of this Tariff.

