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**SCHEDULE LGS-RR – LARGE GENERAL SERVICE – RENEWABLE RIDER**

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**1. AVAILABILITY:**

1.1 This Schedule LGS-RR (“**Schedule LGS-RR**”) is available only in conjunction with GRDA’s Schedule LGS – Large General Service (“**Schedule LGS**”) to customers connected to GRDA’s system with peak demands greater than or equal to one hundred fifty thousand (150,000) kW and monthly energy consumption greater than ninety-three million, five hundred thousand (93,500,000) kWh.

1.2 All provisions of Schedule LGS apply except as modified herein.

1.3 All references to credits and revenues within this Schedule LGS-RR may be either positive or negative.

1.4 The Renewable Credit formula in Section 4 of this Schedule LGS-RR is intended to credit the customer for any avoided fuel costs, net of any market revenues, as a result of not participating in the GRDA resource portfolio. The formula is a simplifying proxy for reflecting any such avoided fuel costs net of any such credit for market revenues.

1.5 The BSS Credit formula in Section 6 of this Schedule LGS-RR is intended to credit the customer for any net revenue that GRDA receives from the BSS(es) utilized herein.

1.6 GRDA will be the sole judge as to the availability of this Schedule LGS-RR and approval of the use of eligible Renewable Resources.

1.7 The PPSA may provide additional details and contractual requirements regarding Renewable Resources. In the event of any conflict between the PPSA and this Schedule LGS-RR, the PPSA will control. Additionally, in the event of any conflict between Schedule LGS and this Schedule LGS-RR, this Schedule LGS-RR will control.

**2. DEFINITIONS:**

2.1 “**BSS**” means an SPP “Bilateral Settlement Schedule” financial arrangement between GRDA and another SPP Market Participant for trading a quantity of energy generated by a Renewable Resource utilized hereunder. Such arrangements may include “Day-Ahead Non-Asset Energy” and “Real-Time Non-Asset Energy,” each as defined in the SPP Tariff.

2.2 “**BSS Credit**” has the meaning set forth in Section 6.

2.3 “**Dollar Adjustment**” has the meaning set forth in Section 5.5.

2.4 “**Energy Adjustment**” has the meaning set forth in Section 5.4.

2.5 “**Market Participant**” has the meaning set forth in the SPP Tariff.

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2.6 “**PPSA**” means a Power Purchase and Sale Agreement entered into between customer and GRDA in accordance with Schedule LGS.

2.7 “**Renewable Credit**” has the meaning set forth in Section 4.

2.8 “**Renewable Resource**” means any renewable energy generation technology, including wind, closed-loop biomass, open-loop biomass, geothermal energy, solar energy, small irrigation power, municipal solid waste, qualified hydropower production, and marine and hydrokinetic renewable energy.

2.9 “**Schedule LGS**” has the meaning set forth in Section 1.1.

2.10 “**Schedule LGS-RR**” has the meaning set forth in Section 1.1.

2.11 “**Schedule PCA**” means GRDA’s Schedule PCA – Power Cost Adjustment.

2.12 “**SPP**” means the Southwest Power Pool, Inc., or its successor.

2.13 “**SPP Tariff**” means the governing documents issued and maintained by SPP, including the “Open Access Transmission Tariff for Service Offered by Southwest Power Pool,” “Market Protocols SPP Integrated Marketplace,” “Southwest Power Pool Criteria,” “SPP Planning Criteria,” “Aggregate Transmission Service Study Process Manual,” and “Operating Criteria,” as may be amended or replaced, from time to time, by SPP.

### **3. DETERMINATION OF ELIGIBLE RENEWABLE RESOURCES:**

3.1 For a Renewable Resource to be eligible hereunder, the customer must hold title to the power and energy output of such Renewable Resource, which means that the customer must remain either the owner of such Renewable Resource or the contractual buyer of power and energy from such Renewable Resource. The customer does not need to assign a Renewable Resource to GRDA for use under this Schedule LGS-RR.

3.2 For each Renewable Resource used hereunder, the customer will provide, or will cause its agent to provide, one (1) or more attendant BSS(es) to GRDA for the day-ahead and/or real-time energy production of such Renewable Resource. The settlement location of any such BSS will be the node of the applicable Renewable Resource. The customer will receive the BSS Credit for such BSS(es).

3.3 The customer will provide (or cause to be provided) to GRDA meter verification for each Renewable Resource used under this Schedule LGS-RR, via: (i) hourly interval data for a calendar month after the end of such month; (ii) directly from the Renewable Resource meter agent; or (ii) energy production data from a renewable energy credit registry. The customer will also ensure such Renewable Resource’s BSS(es) is (are) consistent with such meter verification. The Renewable Resource’s BSS(es) will be the source for the  $P_h$  value for such Renewable Resource

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(as defined in Section 4), unless such BSS(es) exceed(s) such meter verification, in which case, such meter verification will be the source for such  $P_h$  value. In either case, such  $P_h$  value will be the energy production (in kWh) attributable to the percentage of nameplate capacity specified on the “Renewable Resource Notification and Approval Form” in accordance with Section 3.6.

3.4 There is no limit to the number of Renewable Resources a customer can utilize under this Schedule LGS-RR, provided that all such Renewable Resources will be aggregated for the purpose of calculating the Renewable Credit in accordance with Section 4.

3.5 Renewable Resources must be either physically located in SPP, or at the customer’s option imported into SPP by the customer or its agent, provided that in the case of Renewable Resources imported into SPP, the customer or its agent (as applicable) has obtained any required NERC tag(s) and/or transmission service to do so. The customer will be responsible for all costs associated with any such NERC tags and/or transmission service.

3.6 The customer will complete an “LGS-RR Renewable Resource Notification and Approval Form” in the form of Exhibit 1 to this LGS-RR for each Renewable Resource the customer requests to be utilized hereunder, which form GRDA must approve in order for such Renewable Resource to be so utilized.

3.7 The customer may utilize this Schedule LGS-RR as follows:

- (a) Start of renewable energy. GRDA will begin the supply of energy from a Renewable Resource on the first day of a calendar month that is at least thirty (30) days after GRDA’s receipt of the customer’s notice requesting such supply; provided that the customer has taken all actions necessary to cause such energy to be financially settled to GRDA in accordance with this Schedule LGS-RR.
- (b) Stop of renewable energy. The customer may stop such supply of energy from a Renewable Resource or change the percentage of the nameplate capacity (kW) of a Renewable Resource utilized hereunder, in either case by providing notice to GRDA, and such supply will stop on the last day of a calendar month that is at least thirty (30) days after GRDA’s receipt of such notice; provided that the customer may only do so if such supply has been ongoing for at least ninety (90) consecutive days on the date of such stoppage.
- (c) Restart of renewable energy. The customer may restart supply of energy from a Renewable Resource that had been stopped in accordance with Section 3.7(b), and such supply will restart on the first day of a calendar month that is at least thirty (30) days after GRDA’s receipt of the customer’s notice requesting such supply; provided that the customer may only do so if such supply has been stopped for at least twelve (12) consecutive months on the date of such restarting.

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**4. RENEWABLE CREDIT:**

GRDA will provide to the customer a bill credit (which credit may be positive (a credit) or negative (a charge)) for the energy production from each Renewable Resource during each calendar month, calculated in accordance with the formula set forth in this Section 4, where the sum in such formula is over all hours in the monthly billing period, and subject to the constraints described in Section 5 (such credit, as constrained, the “**Renewable Credit**”). The Renewable Credit will be applied to the customer’s monthly Schedule LGS bill. For the avoidance of doubt, the Renewable Credit is different and separate from, and in addition to, the BSS Credit set forth in Section 6.

$$\text{Renewable Credit} = \text{SUM} \left( P_h \times (F_{\text{avg}} - L_h) \right)$$

where:

$P_h$  = energy production from all Renewable Resources used under this Schedule LGS-RR in the  $h^{\text{th}}$  hour of the applicable calendar month (kWh)

$F_{\text{avg}}$  = GRDA’s average fuel cost over the month (\$/kWh), defined as the sum of the Base Power Cost and the PCA for the month, each as defined and determined in Schedule PCA

$L_h$  = Day-Ahead LMP at an aggregate settlement location representative of GRDA’s resources that would have been utilized to serve the customer’s load (which as of the effective date hereof is GRDA\_Hub) in the  $h^{\text{th}}$  hour of the month (\$/kWh)

**5. CONSTRAINTS ON THE RENEWABLE CREDIT:**

5.1 The Renewable Credit is subject to the following constraints:

- (a) In any given hour, the  $P_h$  used to calculate the Renewable Credit for that hour can be no greater than customer’s kWh consumption in that hour ( $C_h$ ).
- (b) For the applicable calendar month, the sum of the total  $P_h$  (which sum is defined as  $P$ ) used to calculate the Renewable Credit cannot be more than  $X\%$  of the customer’s total consumption  $C$  (i.e.  $P/C$  cannot be greater than  $X\%$ ), where  $X\%$  is illustrated in the table in Section 5.2, defined by Formula A in Section 5.3, and adjusted (as necessary) in accordance with Section 5.4 and (if applicable) Section 5.6.
- (c) The total amount of the Renewable Credit is collared at  $\pm \$Y$  per month, where  $\$Y$  is illustrated in the table in Section 5.2, defined by Formula B in Section 5.3, and adjusted (as necessary) in accordance with Section 5.5 and (if applicable) Section 5.6.

5.2 The table below provides illustrative values for  $X\%$  and  $\$Y$  for several specific values of  $C$ . However, to definitively determine the values of  $X\%$  and  $\$Y$  for any particular value of  $C$ , Formula A and Formula B (respectively) defined in Section 5.3 must be used.

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Customer’s Monthly Consumption (kWh) (C)	Max % of Customer’s Consumption Used for Renewable Credit (X%)	Max Amount of Renewable Credit (\$Y)
< 93,500,000	0%	\$0
93,500,000	50%	±\$50,000
180,083,500	75%	±\$175,000
266,667,000	100%	±\$300,000
> 266,667,000	100%	±\$300,000

5.3 The values for X% and \$Y, for consumption values between 93,500,000 and 266,667,000 kWh/month, are linearly interpolated between 50% and 100%, and between \$50,000 and \$300,000, for X% and \$Y respectively. As result, X% and \$Y are calculated as follows:

**Formula A:**  $X\% = \text{if } (C \geq 93,500,000, \min (100\%, 50\% + (C - 93,500,000) \times ((100\% - 50\%) / (266,667,000 - 93,500,000))), 0\%)$

**Formula B:**  $\$Y = \pm \text{if } (C \geq 93,500,000, \min (\$300,000, \$50,000 + (C - 93,500,000) \times ((\$300,000 - \$50,000) / (266,667,000 - 93,500,000))), \$0)$

where:

C = The customer’s monthly consumption (in kWh)

5.4 If the fraction P/C for the applicable calendar month is greater than the maximum allowed value of X% according to Formula A, then the Renewable Credit will be adjusted by multiplying the Renewable Credit by the ratio X%/(P/C), which resulting value will become the new value of the Renewable Credit for such month. This process is the “**Energy Adjustment**”, which is illustrated by the following example:

*Example:* If P = 50,000,000 kWh and C = 93,500,000 kWh, then P/C = 53.48%. At the 93,500,000 kWh level of consumption, X% = 50%. Therefore, the adjustment factor applied to the Renewable Credit would be X% / (P/C) = 50/53.48 = 0.935.

5.5 If the Renewable Credit for the applicable calendar month is outside the allowed range of \$Y according to Formula B, then the Renewable Credit will be reduced (if positive) or increased (if negative) to be brought back to the maximum (if positive) or the minimum (if negative) value of such range, which resulting value will become the new value of the Renewable Credit for such month. This process is the “**Dollar Adjustment**”, which is illustrated by the following examples:

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*Example (i):* If the Renewable Credit is calculated to be \$55,000 and the allowed value according to Formula B is in the  $\pm$ \$50,000 range, then the Renewable Credit will be reduced to \$50,000, which is the maximum value of such range.

*Example (ii):* If the Renewable Credit is calculated to be -\$55,000 and the allowed value according to Formula B is in the  $\pm$ \$50,000 range, then the Renewable Credit will be increased to -\$50,000, which is the minimum value of such range.

5.6 If both (i) the fraction  $P/C$  is greater than the maximum value of  $X\%$  according to Formula A and (ii) the Renewable Credit is outside the allowed range of  $\$Y$  according to Formula B, then the Renewable Credit will first be adjusted by the Energy Adjustment. If, after such adjustment, the Renewable Credit is still outside the allowed range of  $\$Y$  according to Formula B, then the Renewable Credit will be further adjusted by the Dollar Adjustment. The resulting value after one or both adjustments (as applicable) will become the new value of the Renewable Credit for such month.

**6. BSS CREDIT:**

GRDA will provide to the customer a bill credit that passes through all of the SPP market revenue (and/or charges) that GRDA receives from the SPP market settlement of the energy generated by all Renewable Resources through their applicable BSS(es), net of any reasonable costs associated with such BSS(es) (such credit, the “**BSS Credit**”). The BSS Credit will be applied to the customer’s monthly Schedule LGS bill. For the avoidance of doubt, the BSS Credit is different and separate from, and in addition to, the Renewable Credit set forth in Section 4.

**7. BILLING:**

GRDA will apply the Renewable Credit and the BSS Credit under this Schedule LGS-RR to customer’s monthly Schedule LGS bill, and such credits will be subject to the same terms of payment as such bill.

**8. OTHER TAXES, FEES AND DUTIES:**

The customer will pay, in addition to the other rates and charges set forth on this schedule, any taxes, fees and duties required to be collected by GRDA and paid to the proper agency charged with the collection of such taxes, fees or duties.



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**9. CHANGES TO SCHEDULE LGS-RR:**

The terms, charges, and credits in this Schedule LGS-RR may be changed by GRDA from time to time as provided by the “Grand River Dam Authority Act” (82 O.S. §§ 861, *et seq.*, as amended).





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**EXHIBIT 1**

**LGS-RR Renewable Resource Notification and Approval Form**

SPP Integrated Marketplace Bilateral Settlement Schedule. GRDA and the customer agree to the information below regarding the Renewable Resource identified herein, and GRDA will use this information to establish a “Contract Header” (as defined in the SPP Tariff) in order to create a BSS for such Renewable Resource. Capitalized Terms used but not defined herein will have the meanings ascribed to such terms in GRDA’s Schedule LGS-RR.

1. Renewable Resource Name: \_\_\_\_\_
2. SPP Integrated Marketplace Registered Asset Owner: \_\_\_\_\_
3. Physical Location of Renewable Resource: \_\_\_\_\_
4. Nameplate Capacity (kW) of Renewable Resource: \_\_\_\_\_
5. Percentage (%) of Nameplate Capacity Utilized Under LGS-RR: \_\_\_\_\_
6. Market Product(s) (check all that apply):  
 Day-Ahead Non-Asset Energy     Real-Time Non-Asset Energy
7. Settlement Location (Renewable Resource Node): \_\_\_\_\_
8. Start Date & Time of BSS: \_\_\_\_\_
9. End Date & Time of BSS: \_\_\_\_\_
10. Additional Information: \_\_\_\_\_

**Note:** The energy production (kWh) of the Renewable Resource, and therefore of the BSS, will be the amount attributable to the percentage of nameplate capacity utilized.

**GRAND RIVER DAM AUTHORITY**

**CUSTOMER**

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_