

**ADDENDUM #2 FOR RFP RESPONSE TO:  
2015-30 Photovoltaic Facility for FEMA Alternate Project  
Bid Opening: July 23, 2015  
Questions received between June 12, 2015 and June 30, 2015**

1. “The engineering and design shall accommodate an expected lifetime of thirty (30) years. Photovoltaic module expected lifetime where less than 30 years shall be reported along with expected deterioration after thirty (30) years of use” – The modules will carry a 25-year linear power warranty. But, the expected useful life is much longer. Is this sufficient or are you requiring a 30-year power warranty? Meaning, “life expectancy” is not a criteria commonly listed by module manufacturers and would not be backed by any guaranty.

**Answer: This is sufficient and we are not requiring a 30 year warranty. However the system should be designed to last at least thirty years. This is the expected time for the system to be fully depreciated.**

2. “Guaranteed PV power plant annual energy output” – Production guaranties are complex agreements and the amount of power that is guaranteed will depend entirely on the terms. For example, how many years is the guaranty? How will weather be taken into account in the expected output calc? What type of O&M will be provided on the system? What happens in the event of delays in replacement parts? I could state that we will guaranty 95% of expected power, but unless we have some sort of understanding of the terms, that guaranty isn’t meaningful.

**Answer: Please provide the annual energy production and include the assumptions that were used to calculate the output value.**

3. Is performance, production or any other bonding required?

**Answer: Yes, this information will be provided with the contract documents in Phase 2 of the bid process.**

4. System-size: Given the \$5.1 MM budget, should we maximize kWh capacity on the site for \$5.1 MM, or are there other City development, admin, etc... costs that need to be carried in the \$5.1 MM budget?

**Answer: Please maximize the kwh capacity for the budgeted amount.**

5. 100% of designed output: The system is not deemed complete until it “produces 100% of the designed output”. Can you clarify how this will be calculated?

**Answer: This will be determined based on the expected design output at the time of commissioning based on season, time of day and other similar factors. The intent is that the site be determined complete when the site is fully operating as designed.**

6. NEC Code: Will this project be subject to NEC2014?

**Answer: Yes, please use the NEC 2014.**

7. Temp range: The stated temperature range is wider than the typical ASHRAE parameters. Is there a reason for the wider range and can we use the ASHRAE standard to allow for greater string sizing flexibility?

**Answer: The temperature range listed is specific for the Colorado Front Range area and is what the facility needs to withstand for outdoor equipment**

8. MV Feeders: The RFP mentions that Loveland will provide 12.47kV 3PH underground feeders to the array site.

- a. Can you confirm if these are 3W or 4W, WYE or Delta?

**Answer: The 12.47kV is Wye connected that would be considered 4 wire.**

- b. Will the City provide a termination enclosure for these?

**Answer: Yes**

9. Protection & Relay Devices: Protection and relay devices are mentioned, but not detailed. Can you let us know the specification required for these devices?

**Answer: The City of Loveland will provide the protection and relay devices. These will be DNP3 protocol. The facility should also have plant level control of the inverters.**

10. Underground Trenching: 36" is specified as the min burial depth for cabling. Does this apply to all cabling, or just the MV cables?

**Answer: Medium voltage must be a minimum of 36". Low voltage cable may be a minimum of 24". The trench depth must comply with NESC 2014.**

11. Cables:

- a. The RFP does not address direct-burial cable. Can we assume that direct-burial is acceptable?

**Answer: The City prefers conduit rather than direct buried cable. Please provide the option to have the cable in conduit at a minimum.**

- b. The RFP specifies PVC-coated rigid for above ground conductors. What conductors does this apply to? For example, string conductors are technically above ground but would be virtually impossible to put in conduit.

**Answer: The intent is to properly protect the cable from damage and contact by placement in conduit rated for above ground applications. If the cable will otherwise be protected and is not required to be in conduit per NESC or NEC, please clearly call this out as an exception in the design package.**

12. Site lighting: Site lighting is mentioned but not detailed. What site lighting is required?

**Answer: Please provide a lighting proposal that is sufficient for night time access for maintenance and sufficient for site security.**

13. Metering:

- a. The RFP details metering accuracy, but does not mention of where metering is required.

- i. Should this be at 12.47kV or at LV?

**Answer: Low voltage is acceptable**

- ii. Is the meter required at the POI?  
**Answer: No.**
- iii. Will the City provide the meter?  
**Answer: Yes.**
- b. Inverter metering is required to be “sufficient to permit measurement and calculation of plant losses”. Please confirm that this metering is not required to be “revenue-grade.”  
**Answer: A revenue grade meter is preferred.**
- c. What are the required metering cabinet specs/location?  
**Answer: Please follow the specifications from our Requirements for Electric Service, section 6, page 52 found on the City of Loveland website:**  
<http://www.cityofloveland.org/index.aspx?page=556>

**Tables of Minimum Dimensions for CT Cabinets**

**NOTE:** CT Type = Bar (B) or Window (W). When ordering a cabinet for window-type CT's, customer is required to supply bars and mounting brackets.

- All dimensions are in inches -

Amps	Height	Width	Depth	CT Type
400 <sup>1</sup>	N/A	N/A	N/A	N/A
600	40	24	9	B
800	48	30	11	B
1200 <sup>2</sup>	60	33	13	B
1600	60	33	13	B

<sup>1</sup> Class 320 socket used for 400A single phase  
<sup>2</sup> 48x48x12 may also be used

Amps	Height	Width	Depth	CT Type
400	30	30	9	B
600	40	30	9	B
800	48	30	11	B
1200	48	33	11	B
1600	60	33	11	B
2000	60	39	15	W
3000	75	39	24	W

Amps	Height	Width	Depth	CT Type
400	40	30	9	B
600	48	30	11	B
800	48	36	11	B
1200	60	33	11	B
1600	60	39	15	B
2000	75	39	24	W
3000	90	39	24	W

Amps	Height	Width	Depth	CT Type
400	48	36	15	B
600	48	36	15	B
800	48	36	15	B
1200	60	51	24	B
1600	75	63	24	B
2000	75	63	24	W
3000	75	63	24	W

**Switchgear Metering Notes:**

- Whenever switchgear metering is desired, cut sheets must be submitted to the Electric Meter Supervisor for approval prior to purchase. Unapproved switchgear will not be accepted.
- Switchgear CT compartments must have barriers on all 4 sides of compartment and hinged sealable doors. All panels providing access to unmetered conductors shall have fasteners that cannot be removed from the exterior.
- 277/480V switchgear shall be manufactured with factory-installed provisions for unobstructed mounting of PT's inside the same compartment as CT's.

- d. Is inverter direct monitoring sufficient for calculating line losses?  
**Answer: More information on the capabilities of the direct monitoring will be required to provide guidance.**
  - e. Will the City be providing metering CTs/PTs?  
**Answer: The City will provide CT/PT**
  - f. Will the City be providing the meter  
**Answer: Yes.**
14. Substation: Given the collaboration required for the interconnection of the system to a City substation yet to be constructed, are there any existing plans for the substation that could inform our design?  
**The substation connection will be made by the City of Loveland after the construction of the substation is complete. The connection point will be at a switch point outside of the solar facility and will initially connect directly onto a feeder in the interim between the completion of the solar facility and the substation. For the purposes of the RFP, please make the interconnection point on the north side of the facility adjacent to the area for the substation.**
15. Site Visit: There is no mention of a site visit. Can we schedule a site visit?  
**Answer: Yes, you can schedule a site visit. Please contact Briana Reed-Harmel at 970-962-3592 or [Briana.Reed-Harmel@cityofloveland.org](mailto:Briana.Reed-Harmel@cityofloveland.org)**
16. Will the large rock outcropping on the site need to be moved or worked around?  
**Answer: The entire site is currently undergoing a review for a site development plan, which will include leveling of the rock pile and drainage. For the purposes of the RFP, please assume that the rock area will be removed and leveled.**
17. Will the current dirt roads on the property need to be worked around and will they need to stay?  
**The roads currently on the site are not staying and will not be part of the final site needs. There will be a road built on the east side of the property line connecting the road Rio Blanco from 22<sup>nd</sup> St to 29<sup>th</sup> St.**
18. The RFP states that the site needs to allow for the expansion of the site in the future. Will this future expansion be in the same footprint outlined on the RFP?  
**Potential future expansion will be within the foot print outlined in the RFP.**

## **End of Addendum**