



August 18, 2015

Ms. Jean Runnels  
City of Fresno  
Department of Finance  
Purchasing Division  
2600 Fresno Street  
Fresno CA 93721

Dear Ms. Runnels:

The purpose of this letter is to confirm our contractual commitments and responsibilities for key items related to our proposal for the **DESIGN-BUILD 2 MEGAWATT PHOTOVOLTAIC SYSTEM**, submitted to the City on May 5, 2015. MDE acknowledges that the substance of this letter is material to the contract, and subject to all terms and conditions of the contract executed with the City for the subject project.

1. MDE hereby acknowledges the Performance Guarantee that is defined in the Request for Proposals (RFP) in Section 01010, Paragraph 1.15. In accordance with the Performance Guarantee requirements, MDE will maintain an insurance policy, bond, or equivalent form of surety for 10 years as required.
  - a. The Performance Guarantee provides for a guaranteed minimum electrical power production equal to 90-percent of the total expected electrical power production capacity of the photovoltaic system.
  - b. MDE further guarantees that the annual power-generation degradation rate for the photovoltaic system will be 0.25 percent or less for 25 years as calculated in the attachment titled "Total Electrical Power Production Capacity, and Minimum Guaranteed Electrical Power Delivery" from the calculations in the MDE proposal on the page titled 2MW Solar Project Pro Forma City of Fresno.
  - c. MDE guarantees that the total electrical power production capacity of the photovoltaic power system in Year 1 will be 4,643,124 kilowatt-hours (kwh), and the guaranteed minimum electrical power production to be delivered to the City in Year 1 will be 4,178,812 kwh ( $0.90 \times 4,643,124$ ). Production guarantee is based on 30 year average weather (solar irradiance) as reported by local TMY. If average irradiance falls below the 30 year average, the production guarantee will be proportional to the available irradiance. For example; if TMY irradiance is 80% of normal, production guarantee will be  $.8 \times .9 = 72\%$ .
  - d. Finally, MDE guarantees that if MDE fails to deliver the annual electrical power production as presented in the attached Exhibit 1 in any of the first 10-years of operation, then MDE will reimburse the City the cost equal to the amount of electrical power not delivered to the City and purchased from PG&E. Payment to the City shall be based on the blended kwh PG&E rate exclusive of demand charges, facility charges and customer charges.



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2. With regard to warranties for equipment to be provided by MDE, MDE guarantees the following:
  - a. The workmanship and materials associated with photovoltaic modules are warranted for 25 years. During years 1 through 10, deficient, failed, or defective photovoltaic modules will be repaired or replaced at no cost (labor or materials) to the City, and during years 11 through 25, the warranty will cover materials only.
  - b. The workmanship and materials associated with the power inverter are warranted for 20 years. During years 1 through 10, deficient, failed, or defective power inverters will be repaired or replaced at no cost (labor or materials) to the City, and during years 11 through 20, the warranty will cover materials only.
  - c. The workmanship and materials associated the module-tilting mechanisms (Array Technologies tracker) are designed to last 25 years and are warranted for 10 years. During years 1 through 10, deficient, failed, or defective module-tilting mechanisms will be repaired or replaced at no cost (labor or materials) to the City, and during years 11 through 25, the product will be out of warranty.
3. MDE guarantees that it will provide 100-percent of the labor, equipment, materials, supplies and other costs required to monitor, inspect, operate, maintain, and repair (O&M services) the photovoltaic system for the first 10-years of operation.
  - a. During the first 10-years of operation, the City will not be required to provide any labor, equipment, materials, or supplies to support any O&M services required for the 2 MW photovoltaic system.
  - b. During the first 10 years of operation, MDE will provide all necessary and required O&M services for the photovoltaic system in accordance the manufacturer's recommendations and the preliminary O&M services schedule presented in Attachment 2. These services will be provided to ensure that the photovoltaic system is transferred to the City fully-functional and in good working order after 10 years.
  - c. During the first 10-years of operation, MDE will repair or replace any component of the photovoltaic system that fails to perform as per the manufacturer's specifications and MDEs performance guarantees.

Daniel J. Mitchell  
CEO/ President  
MD Energy, Inc.

Attachment 1: Total Annual Electrical Power Production and Minimum Guaranteed Electrical Power Delivery

Attachment 2: O&M Services Schedule



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### Attachment 1

Total Electrical Power Production Capacity, and  
Minimum Guaranteed Electrical Power Delivery

Year	Total Electrical Power Production (mWh/Year)	Minimum Guaranteed Electrical Power Delivery (mWh/Year)
1	4,643,124	4,178,812
2	4,631,516	4,168,365
3	4,619,937	4,157,944
4	4,608,388	4,147,549
5	4,596,867	4,137,180
6	4,585,374	4,126,837
7	4,573,911	4,116,520
8	4,562,476	4,106,229
9	4,551,070	4,095,963
10	4,539,692	4,085,723
11	4,528,343	4,075,509
12	4,517,022	4,065,320
13	4,505,730	4,055,157
14	4,494,465	4,045,019
15	4,483,229	4,034,906
16	4,472,021	4,024,819
17	4,460,841	4,014,757
18	4,449,689	4,004,720
19	4,438,565	3,994,708
20	4,427,468	3,984,722
21	4,416,400	3,974,760
22	4,405,359	3,964,823
23	4,394,345	3,954,911
24	4,383,359	3,945,023
25	4,372,401	3,935,161
26	4,361,470	3,925,323
27	4,350,566	3,915,510
28	4,339,690	3,905,721
29	4,328,841	3,895,957
30	4,318,019	3,886,217



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**ATTACHMENT 2  
PRELIMINARY  
10 YEAR OPERATION AND MAINTENANCE AGREEMENT**

*This preliminary schedule of O&M Services may be modified and adjusted during the course of design and construction with the mutual consent of MD Energy and the City of Fresno.*

1. Preventive Maintenance Site Visits: Every 6 months, or when monitoring equipment identifies a problem,
  - System testing (string voltage/amperage)
  - System visual inspection
  - Routine system maintenance to include correction of loose electrical connections, ground connections, replacement of defective modules found during testing, other minor maintenance repair work. Landscaping works not included.
  - Routine DAS maintenance to include sensor calibration and data integrity check
  - Routine sensor calibration
2. Troubleshooting and repairs
  - Dispatch of PL resources (48 hour response) for repairs
  - Major system repairs, not to include inverters, mid-voltage switchgear or transformers
3. Service Support
  - Technical support line (8a.m.-5p.m. local M-F)
4. Major components
  - Customer advocacy with vendors (PV. Inverter)
5. Reporting
  - Annual and Quarterly Performance reports
  - O&M Manual updates
6. Other System Services
  - Facility staff training , one time
  - O&M Manuals – additional copies, as needed
  - Management of long term service and warranty agreements, ongoing
7. 24 Hour real time system monitoring:
  - System testing (string voltage/amperage)
  - System visual inspection



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- Routine system maintenance to include correction of loose electrical connections, ground connections, replacement of defective modules found during testing, other minor maintenance repair work. Landscaping works not included.
  - Routine DAS maintenance to include sensor calibration and data integrity check
  - Routine sensor calibration
8. Production Guarantee
- Dispatch of PL resources (48 hour response) for repairs
  - Major system repairs, not to include inverters, mid-voltage switchgear or transformers
9. Service Support
- Technical support line (8a.m.-5p.m. local M-F)
10. Major components
- Customer advocacy with vendors (PV. Inverter)
11. Reporting
- Annual and Quarterly Performance reports
  - O&M Manual updates
12. Other System Services
- Facility staff training , one time
  - 2 annual cleaning/washing of the PV panels (for years 1-5) or as needed to maintain performance within 5% of expected output design. Cleaning Manual and Safety Instructions will be provided as part of the close out documents)
  - O&M Manuals – additional copies, as needed
  - Management of long term service and warranty agreements, ongoing
13. Weed Control / Vegetation
- Annually or as required for preventive shading.
14. Pest Control
- Identify intrusions and or infestations annually
15. Manufactures inspections testing and routine service annually per manufacture recommendations
16. Visual Inspections
- Identify new shading concerns
  - Insure penetrations are water tight
  - Ground erosion and corrosion near supports for ground mount systems
  - Confirm electrical enclosures are secured with locks and have restricted access
  - Check and document any corrosion issues



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- Inspect equipment pads for cracking and wear
  - Inspect PV modules for defects
  - Inspect racking system for rust corrosion sagging or missing and broken clips or bolts
  - Inspect conduits for proper support and expansion joints
  - Inspect disconnects for corrosion or damage
  - Inspect Inverter interior and exterior for water ingress rodents, pests, or dust intrusion
  - Verify weather sensor placements and cleanliness

#### 17. Testing

- Verify torque settings for major equipment
- Voltage and current testing at Inverters and string level
- Sensor calibration

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CEO/President  
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