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| REQUEST FOR QUOTATION | | | |
|  |  | **Copenhagen, July 7th , 2015** | |
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| Andrius Sugintas  E-Mail: [andrius.sugintas@undp.org](mailto:andrius.sugintas@undp.org)  United Nations Development Programme  UNDP, 4th floor  Marmorvej 51,  2100 Copenhagen Ø, Denmark | | | |

1. **Introduction**

As part of a global United Nations Development Programme (UNDP) initiative to reduce the carbon footprint of UNDP Country Offices, through the reduction of energy demand as well as through the supply of renewable energy, UNDP hereby invites suitable bids for supply of Power Consumption Measurement and Monitoring (PCMM) systems.

The objective of the PCMM solution is to improve the understanding of the power consumption of UN buildings (including office buildings, medical clinics, schools and others), through the collection and analysis of appropriate data. The information obtained from the PCMM system should facilitate the optimisation and reduction of electrical power consumption in buildings, as well as aid the design of building-integrated solar PV systems in various locations.

1. **System specifications**

The PCMM solution should satisfy the following technical specifications:

a) Required

1. Measure voltage, current and power on single-, two- and three-phase AC building mainlines.
2. Be able to take the above measurements on electrical lines carrying loads with 200A, 400A, 600A, 800A, 1000A and >1000A (other increments are acceptable) of current per phase on mainlines respectively, as specified in the separate lots in Section 3 of this document.
3. Measure power on up to at least 10 individual building circuits simultaneously. This can be achieved in a modular arrangement, where smaller measuring units are combined to match the number of relevant circuits on a given site.
4. Be able to measure power on electrical lines carrying loads with 10A, 20A, 50A, 100A (other increments are acceptable).
5. Measure the power consumption of at least 5 individual electrical appliances drawing from power building circuits.
6. Be compatible with all combinations of grid voltage, frequency and socket types that are common around the world
7. Allow for simple installation, removal, transportation and reuse.
8. Include a data service, in which the monitoring system uploads all data (from mains, circuits and individual appliances) automatically to the internet, where data can be accessed in real-time through a single online portal. In this portal:
   * data should be visualised efficiently
   * data analysis on real-time and historical electrical loads and energy consumption should be provided
   * all data should be exportable to .csv format
9. Come as a single, unified solution, including hardware and software/cloud services

b) Optional

1. Be able to take measurements during power and internet outages.
2. Measure and store solar irradiance data, and estimate solar yield per unit installed capacity of a hypothetical solar PV system at a given location. Data should be visualised through the same portal as mentioned in item ix above.
3. Measure the power output and energy generated from any installed solar PV systems, wind turbines and other renewable energy generators on site. Data should be visualised through the same portal as mentioned in item ix above.
4. **Price Schedules**

The pricing of the PCMM solution is split into separate lots, one for each PCMM system with a given mainline current capacity, and one for optional modules. Lots 1-6 are required and Lot 7 is optional. Thus, each lot is considered one system, and a separate price schedule should be provided for each lot. The Price Schedule must provide a detailed cost breakdown of **all** constituent components and related services within each lot to be provided in `unit prices’. Separate figures must be provided for each functional grouping or category, if any. The requested quantity is specified for each lot, however it should be noted that the quotation is non-committal.

The following is an **example** of the components that could be entered in the Price Schedule of a particular PCMM Lot:

1. Central Hub connecting current transformer (CT) clamps and Data Transmitter;
2. CT clamps for mainlines (current capacity as specified in title of Lot);
3. CT clamps for individual circuits – 10A;
4. CT clamps for individual circuits – 20A;
5. CT clamps for individual circuits – 30A;
6. CT clamps for individual circuits – 50A;
7. CT clamps for individual circuits – 100A;
8. Data Transmitter
9. Subscription for Online Data Service;
10. Socket plugs for measuring power consumption of individual appliances

**Lot 1 – PCMM system with mainline current capacity: 200A per phase**

* Quantity requested: 20

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| **No** | **Item Description** | **Qty** | **Unit price** | **Total** | **Comments** |
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|  | **Total Cost** |  |  |  |  |
|  | **Grand Total** |  |  |  |  |

**Lot 2 – PCMM system with mainline current capacity: 400A per phase**

* Quantity requested: 5

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| **No** | **Item Description** | **Qty** | **Unit price** | **Total** | **Comments** |
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|  | **Total Cost** |  |  |  |  |
|  | **Grand Total** |  |  |  |  |

**Lot 3 – PCMM system with mainline current capacity: 600A per phase**

* Quantity requested: 5

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| **No** | **Item Description** | **Qty** | **Unit price** | **Total** | **Comments** |
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|  | **Total Cost** |  |  |  |  |
|  | **Grand Total** |  |  |  |  |

**Lot 4 – PCMM system with mainline current capacity: 800A per phase**

* Quantity requested: 5

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| **No** | **Item Description** | **Qty** | **Unit price** | **Total** | **Comments** |
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|  | **Total Cost** |  |  |  |  |
|  | **Grand Total** |  |  |  |  |

**Lot 5 – PCMM system with mainline current capacity: 1000A per phase**

* Quantity requested: 5

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| **No** | **Item Description** | **Qty** | **Unit price** | **Total** | **Comments** |
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|  | **Total Cost** |  |  |  |  |
|  | **Grand Total** |  |  |  |  |

**Lot 6 – PCMM system with mainline current capacity: >1000A per phase**

* Quantity requested: 2

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| **No** | **Item Description** | **Qty** | **Unit price** | **Total** | **Comments** |
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|  | **Total Cost** |  |  |  |  |
|  | **Grand Total** |  |  |  |  |

**Lot 7 – Optional: Module for measurement of solar irradiance and/or power output from on-site renewable energy generators**

* Quantity requested: 5

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| **No** | **Item Description** | **Qty** | **Unit price** | **Total** | **Comments** |
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|  | **Total Cost** |  |  |  |  |
|  | **Grand Total** |  |  |  |  |

**Delivery terms (Incoterms 2010):**

* Delivery At Place (DAP) at UNDP Country Offices in the capitals of: *Denmark,* *Uruguay, Turkey, Mali, Jordan, Timor-Leste*

**Please note:**

* Any Purchase Order issued as a result of this Request for Quotation shall be governed by UNDP General Terms and Conditions which are available on [www.undp.org](http://www.undp.org)
* Payment Terms: 30 days net upon receipt of invoice and supporting documentation (non-negotiable).
* Price to include export packing by sea/airfreight according to best commercial practice and the nature of the products and in the most economical and protective way to assure the integrity of the contents suitable up to final destination.
* All documentation shall be in English.
* UNDP is a tax-exempt entity. All quotations must be submitted net of any taxes or customs duties.

**Please include in your offer:**

* Validity of quotation – minimum 60 days.
* Accurate Expected Delivery and arrival time in the capitals of *Denmark, Uruguay, Turkey, Mali, Jordan, Timor-Leste*
* Approximate shipping weight/volume (kg/m3).
* Warranty conditions and full contact details of local service agent (where applicable).
* Quotation should be submitted in US Dollars (USD).

We look forward to receiving your offer.

Best regards,

Andrius Sugintas

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2100 Copenhagen Ø, Denmark