



UMass Green Building Committee
University of Massachusetts Amherst

**Guideline for Developing a
Measurement & Verification Request for Proposal**

This document is not an official UMass RFP; this document is a guideline for external agencies who are soliciting for M&V agents for UMass Amherst projects

The University of Massachusetts Amherst (“UMA”) is soliciting proposals for a third party to perform Measurement and Verification (“M&V”) services for the [enter project name] at [enter project location] in accordance with LEED-[enter LEED rating system to be used] criteria. UMA requires that this service be responsive to energy and environmental design considerations in order to reduce annual energy and water consumption, greenhouse gas emissions, building operating costs, and to provide a visible expression of sustainable development and design on campus.

The selected provider shall be responsible for the project’s M&V Plan development, M&V project coordination, and overall M&V implementation. The Commissioning Agent and the selected M&V Provider may be the same entity. In addition, UMA requires that the M&V provider is a separate entity from the Design Team and Contractor. The university’s Design and Construction Management and building/facilities operations staff will oversee implementation of the M&V Plan. Additional resources including UMA’s role in the M&V process and UMA’s M&V Guideline can be found at the University Green Building Subcommittee webpage (<http://www.umass.edu/sustainability/get-involved/green-building-subcommittee>).

The Measurement and Verification Plan for [enter project name] at the University of Massachusetts, Amherst, MA shall follow International Performance Measurement & Verification Protocol (IPMVP/EVO) consistent with [enter option to be used, Option D will be the most common choice].

The selected M&V Provider is responsible for:

1. Developing the official M&V Plan for the project
2. Managing and/or performing a pre-M&V period calibration of the proposed energy model by incorporating air/water balance results and any equipment substitutions etc. (Construction changes that change the performance ratings of the systems vs. as-designed scenarios)
3. Spot metering (if needed), installation of supplemental data collection devices (if needed), and collection, tracking and archiving of performance data during M&V period
4. Utilizing the Campus BAS (JCI Metasys) to obtain required operating data as needed
5. Documenting any system operating adjustments
6. Generating an M&V Report at the end of the M&V period, with recommendations for further adjustments to optimize the building systems

The selected provider will direct and coordinate the M&V tasks outlined within the University of Massachusetts, Amherst Measurement & Verification Guidelines & Template Plan during the M&V process. This effort should be communicated to UMA facilities personnel so they are well prepared to assume and continue M&V tasks after the M&V period is complete.

The Scope of work must include the following:

Task 1 - During Construction and Move-In

- 1.1. Assist UMA building facility personnel in setting up the required trends outlined in University of Massachusetts Amherst Measurement & Verification Guidelines & Template Plan Table 1 (refer in this document as UMA's M&V Guideline Table 1, See Appendix A), including the sampling intervals, trending time period, and trend duration

- 1.1. Inspect the completed installation of the components outlined in UMA's M&V Guideline Table 1, and take spot measurements of power, temperature, or flow on selected equipment as necessary
- 1.2. Analyze the collected trend data to assess and verify the performance of the components outlined in UMA's M&V Guideline Table 1
- 1.3. Determine adjustment factors and implement these adjustments into the Baseline and Design Models as appropriate (After the M&V monitoring is established in the Project)
- 1.4. Deliver a report on Task 1 activities to UMA Project Management

Task 2 - After Monitoring Period is Available

- 2.1. Revise and calibrate the Design Model as necessary, based on utility billing information, as well as the results of the system inspections and trended data analysis to reflect actual building operation
- 2.2. Calculate the verified energy "savings" (performance) using the Calibrated Baseline Model and Calibrated As-Built Model
- 2.3. Develop a report that presents the results of the investigation, data analysis, and verified energy use and energy saving performance measures. The report should also provide insight into methods to improve energy performance of the building systems
- 2.4. Document any system operating adjustments made during the M&V period (typically as a result of suggestions by the Commissioning Agent during post-occupancy period analysis, or as part of the ongoing O&M adjustments carried out by UMA Physical Plant staff)
- 2.5. Develop a Corrective Action Plan (if needed) and assist UMA with the implementation of the necessary corrections

2.6. Develop instruction materials and train UMA facility personnel to perform periodic inspection (most likely quarterly) of the building's energy performance

	Fee
Task 1	
Task 2	
Total Lump Sum Fee	

The UMA is requesting a lump-sum proposal for this scope of service. Please also submit your hourly rate table, as well as the timeline, including a statement indicating your understanding of these RFP terms. Your proposal shall be submitted no later than **[enter time and date]**.

**Appendix A - University of Massachusetts Amherst Measurement & Verification
Guidelines & Template Plan Table 1**

M&V Activity	Responsibility Party
Baseline energy model	Designer
Recalibration Baseline energy model to reflect as-built conditions	M&V Agent
Identification of ECMs for inclusion in the M&V plan	Designer/CXA/M&V Agent
Development of M&V plan	Designer
Compilation of all occupancy, controls, and scheduling information during the M&V period	M&V Agent with assistance of UMA
Spot metering during M&V period (if needed)	M&V Agent
Installation of required sub-metering equipment (this should occur during construction)	Contractor
Installation of Supplemental Data Collection Devices & Equipment and the collection and archiving of performance data	M&V Agent
M&V Report	M&V Agent
Corrective Action Plan	M&V Agent
Corrective Action	UMASS FCS