## **ATTACHMENT J-10**

**ESPC Annual Measurement and Verification Report Outline**

**Contract # / Task Order # / Modification #** (include as appropriate):

**Post-Acceptance Performance Period Dates Covered:** \_\_\_\_\_\_\_\_\_\_\_ to\_\_\_\_\_\_\_\_\_\_\_\_\_

**Contract year #:** \_\_\_\_\_\_\_\_\_\_\_

**J-10.1 Executive Summary**

**J-10.1.1 Project Background** - Provide an overview of project background, including:

**A.** Contract # / Task Order # / Modification # (as appropriate)

**B.** Dates and descriptions of relevant contract / task order modifications

**C.** Post-acceptance performance period dates covered

**D.** Project acceptance date (actual or expected)

**J-10.1.2 Brief Project and ECM Descriptions** - Provide an overview including what was done and how savings are generated. Summarize the original M&V plan requirements by including Section J-8.1.3 Table 3 - M&V Plan Summary, as outlined in Attachment J-8.

**“J-8.1.3 Table 3 - M&V Plan Summary”**

|  |  |  |  |
| --- | --- | --- | --- |
| ECM No. | ECM Description | M&V Option Used\* | Summary of M&V Plan |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  | | | |
| Notes:  \*M&V options A, B, C, and D and methods proposed for each ECM shall comply with the latest version of the “DOE/FEMP M&V Guidelines: Measurement and Verification for Federal Energy Projects,” and the current version of the IPMVP. | | | |

**J-10.1.3 Summary of Proposed and Verified Energy and Cost Savings, and Impacts Due to Performance and O&M Issues.** Compare verified savings for Performance Year # to Guaranteed Cost Savings for Year #. State whether guarantee is fulfilled for year. If not, provide detailed explanation.

**A.** Define post-acceptance performance period.

**B.** Include completed Table 1 - Proposed Annual Savings Overview from Section J-10.1.3. E.

**C.** Include completed Table 2 - Verified Savings for Performance Year # from Section J-10.1.3. F.

**D.** Include completed Table 3 – Summary Cost Savings Impact due to Performance and O&M Issues from Section J-10.1.3. G.

**E. Table 1 - Proposed Annual Savings Overview**

[Include all applicable fuels/commodities for project, such as: electric energy, electric demand, natural gas, fuel oil, coal, water, etc.]

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ECM** | **Total energy savings (MMBtu/yr)\*\*** | **Electric energy savings (kWh/yr)** | **Electric demand savings (kW/yr)\*** | **Natural gas savings (MMBtu/yr)\*\*** | **Water savings (gallons/yr)** | **Other energy savings (MMBtu/yr)\*\*** | **Total energy and water cost savings, Year # ($/yr)** | **Other energy-related O&M cost savings, Year # ($/yr)** | **Total cost savings, Year # ($/yr)** |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Total Savings** |  |  |  |  |  |  |  |  |  |
| Notes: MMBtu = 106 Btu.  \*Annual electric demand savings (kW/yr) is the sum of the monthly demand savings.  \*\*If energy is reported in units other than MMBtu, provide a conversion factor to MMBtu for link to cost schedules (e.g., 0.003413 MMBtu/kWh).  🡺 Guaranteed cost savings for the project are defined in TO Schedule 1 (final) of the task order. The proposed savings for each ECM are included in TO Schedule 4 of the task order. | | | | | | | | | |

**F. Table 2 - Verified Savings for Performance Year #**

[Include all applicable fuels/commodities for project, such as: electric energy, electric demand, natural gas, fuel oil, coal, water, etc.]

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ECM** | **Total energy savings (MMBtu/yr)\*\*** | **Electric energy savings (kWh/yr)** | **Electric demand savings (kW/yr)\*** | **Natural gas savings (MMBtu/yr)\*\*** | **Water savings (gallons/yr)** | **Other energy savings (MMBtu/yr)\*\*** | **Total energy and water cost savings, Year # ($/yr)** | **Other energy-related O&M cost savings, Year # ($/yr)** | **Total cost savings, Year # ($/yr)** |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Total savings** |  |  |  |  |  |  |  |  |  |
| Notes: MMBtu = 106 Btu.  \*Annual electric demand savings (kW/yr) is the sum of the monthly demand savings.  \*\*If energy is reported in units other than MMBtu, provide a conversion factor to MMBtu for link to cost schedules (e.g., 0.003413 MMBtu/kWh). | | | | | | | | | |

**G. Table 3. Summary of Cost Savings Impact due to Performance and O&M Issues**

[Table 3 is to summarize the variance to guaranteed savings as verified per the M&V plan and Risk and Responsibility Matrix. It also shows an estimated net variance to the guarantee when including impacts to cost savings due to Government actions that are outside the contractor’s (ESCO) responsibility. Government impacts to savings may include, but are not limited to, changes to operational hours, heating/cooling set point deviations, physical alterations, and removal of equipment.]

|  |  |  |  |
| --- | --- | --- | --- |
| **I. Per M&V Plan and Risk, Responsibility, and Performance Matrix** | **Energy (MMBtu)** | **($)** | **Responsibility** |
| a. Proposed Cost Savings |  |  | ESCO |
| b. Verified Cost Savings |  |  | ESCO |
| c. Guaranteed Cost Savings | N/A |  | ESCO |
| d. Variance (Verified – Guaranteed) | N/A |  | ESCO |
|  | | | |
| **II. Estimated Government Impact to Savings** | | | |
| e. Lost Cost Savings Opportunity due to Agency Impact on ECMs |  |  | Government (Ordering Agency) |
| f. Net Cost Savings to Agency (Verified- Agency Impact) |  |  |  |
| g. Net Variance (Net Cost Savings – Guaranteed) | N/A |  |  |

**J-10.1.4 Savings Adjustments** - Provide a summary of any energy and/or cost savings adjustments required.

**J-10.1.5 Project Performance and O&M Issues**

**A.** Note impact of operating deficiencies or enhancements on generation of savings.

**B.** Note impact of maintenance deficiencies on generation of savings.

**C.** Detail any deficiencies that need to be addressed by the contractor (ESCO) or the Government (ordering agency).

**D.** Detail changes or impacts that have affected the ability of the project to generate energy savings including, but not limited to:

1. Facility, building or equipment operational changes;

2. Occupancy changes;

3. Alteration, replacement, or removal of equipment;

4. Building additions; and

5. Building (partial or whole) demolitions.

**E.** Include completed Table 4, Detail of Cost Savings Impact due to Performance and O&M Issues, from Section J-10-1.5.F.

**F. Table 4. Detail of Cost Savings Impact due to Performance and O&M Issues**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ECM#** | **Impact to Energy Savings (MMBtu)** | **Impact to Cost Savings ($)** | **ECM Location** | **Cause of Savings Impact** | **Responsibility**  **(ESCO/Government)** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**J-10.1.6 Energy, Water, and O&M Rate Data**

**A.** Detail energy and water rates used to calculate cost savings for this period.

**B.** Provide post-acceptance performance period rate adjustment factors for energy, water and O&M, if used.

**C.** Report actual energy and water rates at site for same period (optional).

**J-10.1.7 Verified Savings To Date** **-** Include completed Table 5, Verified Savings for Post-Acceptance Performance Period to Date, from Section J-10.1.7.A**.**

**A.** Table 5. Verified Savings for Post-Acceptance Performance Period to Date

[Include all applicable fuels/commodities for project, such as: electric energy, electric demand, natural gas, fuel oil, coal, water, etc.]

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year #** | **Total energy savings (MMBtu/yr)\*\*** | **Electric energy savings (kWh/yr)** | **Electric demand savings (kW/yr)\*** | **Natural gas savings (MMBtu/yr)\*\*** | **Water savings (gallons/yr)** | **Other energy savings (MMBtu/yr)\*\*** | **Total energy and water cost savings, Year # ($/yr)** | **Other energy-related O&M cost savings, Year # ($/yr)** | **Total cost savings, Year # ($/yr)** | **Guaranteed cost savings for year** |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Total savings** |  |  |  |  |  |  |  |  |  |  |
|  | | | | | | | | | | |
| Notes: MMBtu = 106 Btu.  \*Annual electric demand savings (kW/yr) is the sum of the monthly demand savings.  \*\*If energy is reported in units other than MMBtu, provide a conversion factor to MMBtu for link to cost schedules (e.g., 0.003413 MMBtu/kWh). | | | | | | | | | | |

**B.** Current TO Schedules – Provide, as Appendix A, a copy of the TO Schedules which are current for the project.

**C.** Review Comments – Provide, as Appendix B, a list of the Government’s (ordering agency) review comments and responses, along with a running list of each previous year’s comments and responses.

**J-10.2 Details for Each ECM**

Develop section for each ECM.

**J-10.2.1 Overview of ECM, M&V Plan, and Savings Calculation for ECM**

**A.** Summarize the scope of work, location, and how cost savings are generated. Describe source of all savings including energy, water, O&M, and other sources (if applicable).

**B.** Discuss any changes in scope/results recorded in post-installation M&V report.

**C.** State the M&V guideline and option used.

**D.** Provide an overview of M&V Activities for ECM. Explain the intent of M&V plan, including what is being verified.

**E.** Provide an overview of savings calculation methods for ECM. Provide a general description of analysis methods used for savings calculations.

**J-10.2.2 M&V Activities Conducted This Period** - Detail measurements, monitoring and inspections conducted this reporting period in accordance with M&V plan (include all that apply for each one):

**A.** Measurement equipment used.

**B.** Equipment calibration documentation.

**C.** Dates/times of data collection or inspections, names of personnel, and documentation of Government witnessing.

**D.** Details to confirm adherence to sampling plan.

**E.** Include all measured values for this period. Include periods of monitoring and durations and frequency of measurements. (Use appendix and electronic format as necessary.) Include description of data format (headings, units, etc.).

**F.** Describe how performance criteria have been met.

**G.** Detail any performance deficiencies that need to be addressed by the contractor (ESCO) or the Government (ordering agency).

**H.** Note impact of performance deficiencies or enhancements on generation of savings.

**J-10.2.3 Verified Savings Calculations and Methodology**

**A.** Provide detailed description of analysis methodology used.Describe any data manipulation or analysis that was conducted prior to applying savings calculations.

**B.** Detail all assumptions and sources of data, including all stipulated values used in calculations.

**C.** Include equations and technical details of all calculations made. (Use appendix and electronic format as necessary.) Include description of data format (headings, units, etc.).

**D.** Include details of any baseline or savings adjustments made.

**E.** Detail energy and water rates used to calculate cost savings.

1. Provide post-acceptance performance period energy and water rate adjustment factors, if used.

2. Report actual energy and water rates at site for same period (optional).

**F.** Detail verified savings for this ECM for performance year. Include completed Table 6, Verified Annual Savings for ECM for Performance Year #, from Section J-10.2.3.G.

**G.** Table 6 - Verified Annual Savings for ECM for Performance Year #

[Include all applicable fuels/commodities for project, such as: electric energy, electric demand, natural gas, fuel oil, coal, water, etc.]

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total energy use (MMBtu/yr)\*\*** | **Electric energy use (kWh/yr)** | **Electric energy cost, Year # ($/yr)** | **Electric demand (kW/yr)\*** | **Electric demand cost, Year # ($/yr)** | **Natural gas (MMBtu/yr)\*\*** | **Natural gas cost, Year # ($/yr)** | **Water use (gallons/yr)** | **Water cost, Year # ($/yr)** | **Other energy use (MMBtu/yr)\*\*** | **Other energy cost, Year # ($/yr)** | **Other energy-related O&M costs, Year # ($/yr)** | **Total costs, Year # ($/yr)** |
| Baseline use |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Performance Year # use |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Savings |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | | |
| Notes: MMBtu = 106 Btu.  \*Annual electric demand savings (kW/yr) is the sum of the monthly demand savings.  \*\*If energy is reported in units other than MMBtu, provide a conversion factor to MMBtu for link to cost schedules (e.g., 0.003413 MMBtu/kWh). | | | | | | | | | | | | | |

**J-10.2.4 Details of O&M Savings (if applicable)**

**A.** Describe source of savings, if applicable.

**B.** Describe verification activities.

**C.** Provide post-acceptance performance period O&M cost savings adjustment factors, if applicable.

**J-10.2.5 Details of other savings (if applicable)**

**A.** Describe source of savings. if applicable.

**B.** Describe verification activities.

**C.** Provide post-acceptance performance period adjustment factors, if applicable.

**J-10.2.6 O&M Activities**

**A.** Operating requirements

1. State organization(s) responsible for equipment operations. If appropriate, detail how responsibilities are shared.

2. Summarize the key operating procedures and any related verification activities.

3. Detail any deficiencies that need to be addressed by the contractor (ESCO) or the Government (ordering agency).

4. Note impact of operating deficiencies or enhancements on generation of savings.

**B.** Preventive Maintenance requirements

1. State organization(s) responsible for performing maintenance. If appropriate, detail how responsibilities are shared.

2. Include a verification of scheduled maintenance items completed by the contractor (ESCO) and/or the Government (ordering agency).

3. Detail any deficiencies that need to be addressed by the contractor (ESCO) and/or the Government (ordering agency).

4. Note impact of maintenance deficiencies on generation of savings.

**C.** Repair and replacement requirements

1. State organization(s) responsible for repair and replacement activities. If appropriate, detail how responsibilities are shared.

2. Summarize the activities conducted this period by the contractor (ESCO) and/or the Government (ordering agency).

3. Detail any deficiencies that need to be addressed by the contractor (ESCO) and/or the Government (ordering agency).

4. Note impact of maintenance deficiencies on generation of savings.

**J-10.3 Appendices**

**Appendix A** - Provide a copy of the current TO Schedules.

**Appendix B** - Provide a list of the Government’s (ordering agency) review comments and responses, along with a running list of each previous year’s comments and responses.

[END OF ATTACHMENT J-10]