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Purpose of the Investment Grade Audit and this Scope of Work Exhibit

The purpose of the Investment Grade Audit (IGA) is to review the Principal Representative’s facilities and infrastructure with the intent to present an IGA audit report and an Energy Performance Contract (EPC) Project Proposal. This Scope of Work exhibit is a general outline of the process from the initial Pre-Audit Conference to an accepted IGA report and an EPC Project Proposal. The Scope of Work outlines the information collected, how it is analyzed, the methodology used for calculations, an initial but not exclusive list of Energy Conservation Measures and other Facility Improvement Measures to consider, a proposed financing performance, and a format for the report. The EPC Project Proposal should include proposed equipment (or equal) to be installed, proposed facility modifications, expected utility savings, expected project costs, proposed project design and construction schedule, a potential measurement and verification plan, and long-term Energy Service Company (ESCO) and principal representative maintenance requirements.

The ESCO shall conduct all necessary conference(s) and produce associated documentation to initiate and complete Work under the IGA Contract. The ESCO will facilitate all reviews and collect all the comments starting with the Pre-Audit Conference (reference this **§2**) through the Post-Audit Conference (reference **§8**). The ESCO will develop the draft and final Investment Grade Audit report and develop the Energy Performance Contract Project Proposal.

If the Principal Representative (State Department, Institution of High Education, or Colorado Political Subdivisions) and the ESCO (with CEO review) determine that any of the following services detailed below are not required for a given project, the Scope of Work can be modified by the Principal Representative by striking through the identified services.

SECTION 1. Energy Performance Contract Definitions and Terms

The following terms as used in the Investment Grade Audit and Project Proposal Contract. The Energy Performance Contract shall be construed and interpreted as follows:

A. Adjusted-baseline energy

“Adjusted-Baseline Energy” means the energy use of the baseline period, adjusted to a different set of operating conditions.

B. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)

“American Society of Heating, Refrigeration, and Air Conditioning Engineers” or “ASHRAE” means the recognized professional organization with standards and guidelines that may be referenced for additional definitions, procedures, and technical information as necessary in this Scope of Work and the IGA Project Proposal Report.

C. Baseline Energy

“Baseline Energy” means the energy use (units) occurring during the Baseline Period without adjustments.

D. Baseline Period

“Baseline Period” means the period of time chosen to represent operation of the facility or system before implementation of an ECM or any applicable FIM. This period may be as short as the time required for an

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instantaneous measurement of a constant quantity, or long enough to reflect one full operating cycle of a system or facility with variable operations.

E. Baseline

“Baseline” means and pertains to the baseline period.

F. Commissioning

“Commissioning” means a process for achieving, verifying and documenting the performance of equipment to meet the operational needs of the facility within the capabilities of the design, and to meet the design documentation and the principal representative's functional criteria, including preparation of operating personnel. Retro-commissioning is the application of the Commissioning process to existing buildings.

G. Cost-Weighted Average Service Life

“Cost-Weighted Average Service Life” means the calculation is based upon the service life of the equipment (ASHRAE Handbook - HVAC Applications or other approved source), the cost of each ECM (excluding the audit cost and principal representative’s contingency), and the total cost of all the ECMs. The formula is the sum of each ECM cost divided by the total cost multiplied by its service life. Cost-Weighted Average Service Life = $\sum \text{each ECM} \div \text{total cost} \times \text{service life}$.

H. Energy

“Energy” means electricity (both usage and demand), natural gas, steam, water (potable or non-potable), or any other Utility charged service.

I. Energy Conservation Measure (ECM)

“Energy Conservation Measure” or “ECM” means an Energy Cost-Savings Measure as defined in **§24-30-2001(1.3), C.R.S.** An ECM is activity or set of activities designed to increase the efficiency (energy, water, or other utility) of a facility, system or piece of equipment. ECMs may also conserve energy without changing efficiency. An ECM may involve one or more of: physical changes to facility equipment, revisions to operating and maintenance procedures, software changes, or new means of training or managing users of the space or operations and maintenance staff. An ECM may be applied as a retrofit to an existing system or facility, or as a modification to a design before construction of a new system or facility. An ECM is a Utility Cost-Savings Measure as defined.

J. Energy Cost-Savings Contract

“Energy Cost-Savings Contract” means a Utility Cost-Savings Contract or a Vehicle Fleet Operational and Fuel Cost-Savings Contract **24-30-2001(1) C.R.S.**

K. Energy Cost-Savings Measure

“Energy Cost-Savings Measure” means a Utility Cost-Savings Measure or a Vehicle Fleet Operational and Fuel Cost-Savings Measure **24-30-2001(1.3) C.R.S.**

L. Energy & Environment Program

“Energy & Environment Program” or “EEP” is a program within the Office of the State Architect. It shall refer to the division of the executive department of State government responsible for the “High Performance Certification Program”, the “Energy Performance Contract Program”, and the “Buy Clean Colorado Act”. The abbreviation EEP is used to indicate OSA forms that have been modified for and are only applicable in an Energy Performance Contract.

M. Energy Performance Contract

“Energy Performance Contract” or “EPC” as defined in **§24-30-2001(1.5), C.R.S.**, it is a contract for evaluations, recommendations or implementation of one or more Energy Cost-Savings Measures designed to produce Utility Cost-Savings, Operation and Maintenance Cost Savings, or Vehicle Fleet Operational and Fuel Cost-Savings, which:

- i. Sets forth savings attributable to calculated Utility Cost-Savings or Operation and Maintenance Cost Savings for each year during the Contract Term;
- ii. Provides that the amount of actual savings for each year during the Contract Term shall exceed annual contract payments, including maintenance costs, to be made during such year by the State agency contracting for the Energy Cost-Savings Measures. Except that, "annual contract payments" does not include moneys received by the state from rebates, gifts, grants, or donations specifically designated by the gifting, granting, or donating party for the design or implementation of an Energy Cost-Savings Measure or State moneys that have been specifically appropriated in a distinct line item, or, in the case of the department of transportation, otherwise set aside in the department's budget, for the design or

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implementation of an energy cost-savings measure that is wholly addressed within the scope of the energy cost-savings contract;

- iii. Requires the party entering into the Energy Performance Contract with the State to provide a written guarantee that the sum of Energy Cost-Savings and Operation and Maintenance Cost Savings for each year during the first three years of the Contract period shall not be less than the calculated savings for that year;
- iv. Requires payments by a state agency to be made within twelve years after the date of the execution of the contract; except that the maximum term of the payments shall be less than the Cost-Weighted Average Service Life of energy cost-savings equipment for which the contract is made, not to exceed twenty-five years.

N. Energy Service Company

“Energy Service Company” or “ESCO” means the energy service company entity entering into a contract to design and construct the Project with the State of Colorado acting by and through the Principal Representative. The Energy Service Company may also be referred to as “Contractor” in this Contract or in related schedules, exhibits, attachments, contract modification or procedural documents.

O. Facility Improvement Measure

“Facility Improvement Measure” or “FIMS” is an activity or set of activities designed to improve the structural or operational conditions of a facility, system or piece of equipment. A FIM may be an activity associated with an Energy Cost-Savings Measure and funded as part of an EPC. A FIM maybe an activity requested by the Principal Representative, but is not an Energy Cost-Savings Measure, but funds have been budgeted, appropriated and otherwise made available to be included in an EPC. Within this Contract, FIMS and ECMs shall be interchangeable as necessary.

P. Federal Energy Management Program (FEMP) Measurement & Verification Guidelines

“Federal Energy Management Program (“FEMP”) M&V Guidelines” means the current M&V Guidelines prepared by the U.S. Department of Energy. The FEMP M&V Guidelines contains specific procedures for applying concepts originating in the IPMVP. The FEMP M&V Guideline represents a specific application of the IPMVP to EPC projects. It outlines procedures for determining M&V approaches, evaluating M&V plans and reports, and establishing the basis of payment for energy savings during the contract. These procedures are intended to be fully compatible and consistent with the IPMVP.

Q. Finance Agreement Term

“Finance Agreement Term” means the original term and all renewal terms of any Lease-Purchase Agreement or any other Principal Representative financing agreement.

R. Greenhouse Gas

“Greenhouse Gas” (GHG) includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃). **§25-7-140 (6) C.R.S.**

- i. Scope 1 emissions are direct GHG emissions from sources that are controlled or owned by the client. Scope 1 emissions are further divided into four categories: stationary combustion, mobile combustion, fugitive emission, and process emission.
- ii. Scope 2 emissions are indirect GHG emissions associated the purchase from a utility provider electricity, steam, heat, or cooling.
- iii. Scope 3 GHG emissions are the result of activities from assets not owned or controlled by the client.

S. Guarantee Period

“Guarantee Period” means a period of time commencing upon M&V Commencement Date and terminating on the termination of the M&V Term. The Guarantee Period is a mutually agreed to time period after the M&V Commencement Date, during which Guaranteed Annual Cost Savings resulting from the Project are measured and verified by the Contractor set forth in EPC Schedule D.

T. International Performance Measurement and Verification Protocol

“International Performance Measurement and Verification Protocol” or “IPMVP” means the current document prepared by the Efficiency Valuation Organization on the Effective Date of the IGA contract. It is the industry standard for current best practice techniques available for verifying results of energy efficiency, water efficiency, and renewable energy projects associated with the Investment Grade Audit Report and Energy Performance Contract Project Proposal (reference §7).

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U. kW

“kW” is Kilowatt (abbreviation)

V. kWh

“kWh” is Kilowatt-hour (abbreviation)

W. Measurement and Verification

“Measurement and Verification” or “M&V” means the process of using measurements to reliably determine and verify the actual savings created within buildings, infrastructure, or systems resulting from an energy management program. Savings cannot be directly measured, since they represent the absence of energy use. Instead savings are determined by comparing measured use before and after implementation of a project, making appropriate adjustments for changes in conditions. M&V follows the standards and definitions in the current International Performance Measurement and Verification Protocol (“IPMVP”), as may be amended prepared by the Efficiency Valuation Organization on the Effective Date of this contract. The CEO Measurement and Verification Policy may allow alternative verification standards as appropriate for select ECMs.

X. M&V Commencement Date

“M&V Commencement Date” means the first day of the month following the completion by Contractor and acceptance by the Principal Representative of the Project.

Y. M&V Fee

“M&V Fee” means an annual fee paid to Contractor by the Principal Representative for Contractor’s satisfactory performance of the M&V Services, as set forth in EPC contract **§13**. The M&V Fee is included as a part of the EPC Maximum Contract Price.

Z. M&V Plan

“M&V Plan” defines how savings will be calculated and specifies any ongoing activities that will occur during the Contract Term. The details of the M&V Plan are in EPC **Schedule D**.

AA. M&V Services

“M&V Services” means Services or activities relating to the measurement and verification by Contractor of the efficiency and effectiveness of the Project, pursuant to this Contract and the CEO Measurement and Verification Policy as applied.

BB. M&V Term

“M&V Term” has the meaning as described to it in EPC contract **§13**.

CC. MMBtu

“MMBtu” means 1 Million British thermal unit (abbreviation).

DD. O&M

“O&M” means Operations and Maintenance (abbreviation).

EE. Operations and Maintenance Cost Savings

“Operation and Maintenance Cost Savings” as defined in **§24-30-2001(2), C.R.S., means** the measureable decrease in operation and maintenance (O&M) costs that is a direct result of the implementation of one or more Utility Cost-Savings Measures. Such savings shall be calculated in comparison with an established baseline of operation and maintenance costs.

FF. Rebate

“Rebate” means funds used for Contractor’s compensation which are not Principal Representative funds and which are not funds from a Third-Party Lessor, and shall include solar Renewable Energy Credits (REC’s) and utility rebates, and as described in EPC appropriate contract Schedule.

GG. Repair and Replace

“Repair or Replace” means to repair or replace equipment or components as necessary based upon the age, usage, O&M cost, potential efficiency improvement, etc.

HH. Savings Calculations

“Savings Calculations” means the manner in which Savings is calculated, as set forth in EPC contract Schedule C.

II. Simple Payback

“Simple Payback” means the length of time, typically presented in years, required to recover the cost of a measure or project.

JJ. Third-Party Lessor

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“Third-Party Lessor” means a third-party lender to the Principal Representative for the purchase of Equipment and Services pursuant to this Contract.

KK. Utility or Utilities

“Utility” or “Utilities” means the water, sewer services, electricity, payments to energy service companies, purchase of energy conservation equipment, and all heating fuels set forth in **§24-75-112(q), C.R.S.**, as amended. Utility may include compressed air, chilled water, or other systems or services as agreed to with the Principal Representative.

LL. Utility Cost Savings

“Utility Cost Savings” means the definition set forth in **§24-30-2001(5), C.R.S.**, is the combination of either or both of the following:

- i. A cost savings caused by a reduction in metered or measured physical quantities of a bulk fuel or Utility resulting from the implementation of one or more Energy Conservation Measures when compared with an established baseline of usage; or
- ii. A decrease in utility costs as a result of changes in applicable utility rates or utility service suppliers. The savings shall be calculated in comparison with an established baseline of utility costs.

MM. Utility Cost-Savings Contract

“Utility Cost-Savings Contract” means an Energy Performance Contract or any other agreement in which Utility Cost Savings are used to pay for services or equipment.

NN. Utility Cost-Savings Measure

“Utility Cost-Savings Measure” means the definition set forth in **§24-30-2001(7), C.R.S.**, is the installation, modification or service that is designed to reduce energy and water consumption and related operating costs in buildings and other facilities and includes, but is not limited to, the following:

- i. Insulation in walls, roof, floors and foundations, and in heating and cooling distribution systems;
- ii. Heating, ventilating or air conditioning and distribution system modifications or replacements in buildings or central plants;
- iii. Automatic energy control systems;
- iv. Replacement or modification of lighting fixtures;
- v. Energy recovery systems;
- vi. Renewable energy and alternate energy systems;
- vii. Cogeneration systems that produce steam or forms of energy, such as heat or electricity, for use primarily within a building or complex of buildings;
- viii. Devices that reduce water consumption or sewer charges;
- ix. Changes in operation and maintenance practices;
- x. Procurement of low-cost energy supplies of all types, including electricity, natural gas and other fuel sources, and water;
- xi. Indoor air quality improvements that conform to applicable building code requirements;
- xii. Daylighting systems;
- xiii. Building operation programs that reduce utility and operating costs including, but not limited to, computerized energy management and consumption tracking programs, staff and occupant training, and other similar activities;
- xiv. Services to reduce utility costs by identifying utility errors and optimizing existing rate schedules under which service is provided; and
- xv. Any other location, orientation, or design choice related to, or installation, modification of installation or remodeling of, building infrastructure improvements that produce utility or operational cost savings for their appointed functions in compliance with applicable state and local building codes.

OO. Vehicle Fleet Operational and Fuel Cost Savings

“Vehicle Fleet Operational and Fuel Cost Savings” means a measurable decrease in the operation and maintenance costs of State vehicles that is associated with fuel or maintenance based on higher efficiency ratings or alternative fueling methods, including but not limited to savings from the reduction in maintenance requirements and a reduction in or the elimination of projected fuel purchase expenses as a direct result of investment in higher efficiency or alternative fuel vehicles or vehicle or charging infrastructure.

PP. Vehicle Fleet Operational and Fuel Cost-Savings Contract

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“Vehicle Fleet Operational and Fuel Cost-Savings Contract” means the definition set forth in **§24-30-2001(9), C.R.S.**, means an Energy Performance Contract or any other agreement in which Vehicle Fleet Operational and Fuel Cost Savings are used to pay for the cost of the vehicle or associated capital investments.

QQ. Vehicle Fleet Operational and Fuel Cost-Savings Measure

“Vehicle Fleet Operational and Fuel Cost-Savings Measure” is defined in **§24-30-2001(10), C.R.S.**, means any installation, modification, or service that is designed to reduce energy consumption and related operating costs in vehicles and includes, but is not limited to, the following:

- i. Vehicle purchase or lease costs either in full or in part;
- ii. Charging or fueling infrastructure to appropriately charge or fuel alternative fuel vehicles included in an energy cost-savings contract.

SECTION 2. Pre-Audit Conference

The Pre-Audit Conference is the initial meeting including the Principal Representative’s key staff, the Colorado Energy Office (CEO) representative, and all critical ESCO staff to present and discuss the Investment Grade Audit (IGA) approach, its activities, individual and mutual responsibilities, and proposed schedule.

ESCO shall prepare an agenda and conference record to include, but not be limited to, the following agenda outline and topics:

A. Introductions/Roles

- i. Roles of key representatives
- ii. Preferred means of communication and protocols
- iii. Contact Information

B. Objectives and Goals

- i. Principal Representative’s interests, goals, objectives and priorities (owner’s project requirements-OPR)
- ii. Level of management, facility, and staff support
- iii. Discussion by ESCO of their approach to the project
- iv. Review of CEO program support documents, process, forms (CEO IGA/EPC Review Matrix, Record of Review, M&V Policy, other items)

C. Technical Expectations

- i. General discussion on EPC scope, buildings and potential ECMs/FIMs to be considered
- ii. Discussion of any Federal, State, Local, or Principal Representative environmental, occupancy, construction specifications, performance or other reporting or certification requirements
- iii. Long-term plans at the facilities including additional capacity, demolition, new construction, any
- iv. Operations and maintenance, training and educational needs and expectations
- v. Commissioning (Cx) and Retro-Commissioning (RCx) priorities for EPC scope and the existing facilities.
- vi. Controlled maintenance and deferred maintenance project priorities of the facilities.
- vii. Code Compliance: Either the State Buildings Program – Building Code Compliance Policy (OSA Building Code web site, (www.colorado.gov/pacific/osa/bldgcodes) or local jurisdiction code requirements as applicable.
- viii. Hazardous materials and other considerations/issues
- ix. Other studies, reports information available

D. Project Financial Parameters

- i. Simple payback, contract term, utility escalation rates, inflation rate, capital and other financial contributions, and other investment parameters
- ii. Potential cost of State’s Maintenance Responsibilities (as indicate in a EPC schedule) or any other long-term Operation and Maintenance (O&M) services as applicable and the principal representative’s desire or ability to support these cost
- iii. M&V savings verification options and extent
- iv. Rebates and other financial incentives

E. Investment Grade Audit Process and Schedule

- i. Logistics and access; testing/metering to be accomplished
- ii. Security and access requirements to restricted areas, escorts, tool control, etc.

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- iii. Safety requirements, training, hazards
- F. Schedule/timeline with significant milestones**
 - i. Action Items & Next Steps
 - ii. Recap of action items including directives from the principal representative
 - iii. Set next meeting or conference call time.

SECTION 3. Data Collection and Building/Equipment Schedules

ESCO shall coordinate collection of principal representative provided facility data and additional information with the goal of developing the existing conditions, operating schedules and utility usage/cost to determine the Principal Representative's accepted baselines. The Principal Representative shall provide the necessary and available information referenced in this §3 or as required for ESCO to perform Work under the IGA Contract, concerning facility operation and energy use.

- A. Building Data** (by Building/infrastructure as listed in IGA Exhibit B):
 - i. Construction date(s) of buildings and major additions including building envelope.
 - ii. Infrastructure information as necessary (tunnels, steam lines, chiller water lines, irrigation systems, water treatment plants, etc).
 - iii. Inventory and description of the existing facilities and their major mechanical, electrical, on-site renewable systems, water systems and any others systems as necessary (itemized by energy source, equipment type, capacity, services years, and condition.
 - iv. Building and infrastructure operation/occupancy schedules, equipment operation schedules (including weekly and seasonal use schedules, unoccupied buildings and areas).
 - v. Drawings of mechanical, plumbing, electrical, building automation and temperature controls, structural, architectural, infrastructure, modifications and remodels, etc., as available.
 - vi. Original construction submittals and factory data such as, equipment specifications pump curves, etc., as available.
 - vii. Operating engineer logs, maintenance work orders, etc., as available.
 - viii. Records of maintenance expenditures on energy-using equipment, including service contracts.
 - ix. Prior energy audits or studies.
- B. Utility Data:**

Principal Representative shall provide at a minimum, one year of actual historical utility invoices and provide access to utility service providers for historical energy and water use (by energy source provider and master, sub-metered areas, on-site electrical energy, any utility provider purchased renewable energy, any non-potable water used), for the designated three years (last three years or selected number of years by mutual agreement, as available.
- C. Energy Management:**
 - i. Description of energy management program
 - ii. Description of any building automation systems and other control systems/procedures.
 - iii. Description of any energy or water-related improvement projects, completed or in progress.
 - iv. Description of any changes in the facility or energy-using or water-using equipment.
- D. Capital Construction Projects:**
 - i. Description of existing capital construction projects.
 - ii. Description of future plans regarding building modifications, renovations, repairs, decommissioning, or equipment modifications, replacements.
- E. Interviews:**

ESCO shall coordinate and conduct in conjunction with the Principal Representative the interviews. The Principal Representative shall make available individuals with knowledge of the facility such as the facility or plant manager, maintenance staff, and occupants of each building regarding:

 - i. Facility operation, including energy management systems and procedures.
 - ii. Equipment maintenance problems including deferred and un-scheduled maintenance.
 - iii. Occupant comfort problems and standards of comfort requirements.
 - iv. Equipment reliability including frequency of un-scheduled or emergency maintenance and potential loss-of-use of facility, building, or portions thereof.
 - v. Projected equipment needs including upgrade, replacement, and/or repairs.

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- vi. Occupancy and weekly use schedules for the facility and specific equipment.
- vii. Facility improvements – past, planned and desired.

F. Systems Survey:

Principal Representative shall provide site-knowledgeable escorts and facility access to ESCO who shall identify major utility-impacting components, which may include, but is not limited to, lighting both indoor and outdoor; heating and heat distribution systems, cooling systems and related equipment, central plants, automatic temperature control systems and equipment, air distribution systems and equipment, outdoor ventilation systems and equipment; exhaust systems and equipment; hot water generation and distribution systems, electric motors, transmission and drive systems, special systems such as kitchen/dining equipment, laundry equipment, renewable energy systems, other energy using systems, water consuming systems, such as restroom fixtures, water treatment plant, wastewater treatment plant, water features and irrigation systems; and building envelope.

SECTION 4. Establish Baseline Period Consumption

Establish appropriate baseline period consumption by evaluation of appropriate utility meter data, and utility bills (reference §3) for electricity, natural gas, propane, steam, water, and any other applicable utilities. Compile baseline period consumption in terms of:

A. Utility provider accounts:

Prepare summary of all utility bills for all fuel types and water. Develop description and itemization of current accounts, billing rates, schedules, riders, and related terms or agreements that affect consumption and energy costs. Consult with Principal Representative to account for any anomalous schedule or operating conditions on billings that could skew the Baseline. ESCO shall account for periods of time when equipment was broken or malfunctioning in calculating the Baseline Period, provided this information is available from the Principal Representative.

- i. Energy and Water Units: Units of energy in kWh, kW, ccf, “Therms”, thousand gallons, or other units used in bills. List appropriate, supplier verified conversion factors and convert natural gas, methane, fuel oil, biomass, and propane to MMBtu; show electricity in both kW and kWh and the MMBtu equivalent. Units of water (kgal).
- ii. Energy and Water Units per building square foot per year, and
- iii. Energy Cost (in dollars) per building square foot per year.
- iv. Carbon emissions for Scope 1 and 2 (but not scope 3) by year (for a client defined baseline year)

B. Describe the process used to determine the baseline period and baseline energy.

C. Describe the process to reconcile the proposed utility baseline information with the actual consumption.

SECTION 5. Preliminary Analysis and Discussion of Energy Conservation Measures and other ESCO Services

ESCO shall prepare and present a preliminary analysis of all ECMs considered, initial construction cost estimates and schedule, initial utility and other savings, initial measurement and verification plan, initial training, initial operation and maintenance cost impacts, and other items as requested (mutual agreement between Principal Representative/ESCO) to determine ECM prioritization for the draft EPC Project Proposal. A draft financial package should be reviewed that includes potential interest rates and potential financing terms, grants, rebates, Principal Representative capital contributions (one-time or annually), and other potential project funding sources.

A. Preliminary Energy Conservation Measures list

- i. Consider technologies in a comprehensive approach including, but not limited to: lighting systems, heating/ventilating/air conditioning equipment and distribution systems, controls systems, building envelope, motors, kitchen equipment, pools, renewable energy systems, other special equipment, irrigation systems, other infrastructure systems (steam, chilled water, compressed air, etc), and water saving devices.
- ii. Consider services that modify existing equipment/systems/procedures through programs including, but not limited to: commissioning, deep retrofits, ENERGY STAR rating, an existing buildings registration/certification program, or another verification or certification program.
- iii. Include services to complete applications/forms for compliance with State statute or policies, for compliance with applicable executive orders, or any other Principal Representative reporting requirements (if requested by Principal Representative).

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B. Review the Project Financial Parameters

At this stage in the development of the Investment Grade Audit, the project financial parameters need to be reviewed and updated prior to refining the list of energy conservation measures and facility improvement measures for further analysis. To keep the project on schedule and control the number of re-analysis of the project's financial performance it is to the benefit of the project that the financial parameters be refined. To sufficiently change the project financial parameters after the detailed analysis is presented by the ESCO could add sufficient time to the delivery of an acceptable report.

- i. Discuss the capability of Principal Representative to make capital contributions to the project to improve the Project's Financial Performance. Capital contribution could be from a onetime addition of appropriated funds.
- ii. Discuss an acceptable range on the financial term and interest rate.
- iii. Discuss an acceptable escalation rate for each utility for each year. Reference the CEO/OSA Escalation Policy.
- iv. Discuss an acceptance of any operation or maintenance savings. Discuss how these would be determined, escalated, and the maximum number of years allowed.
- v. List any known utility rebates, federal or state grants, or other financial incentives that effect cost of insulation or final maximum project cost.

C. Preliminary Measurement and Verification Plan Discussion

The goal of measurement and verification is to reduce the risk to Principal Representatives by providing a mechanism to evaluate the performance of a project throughout the term of the contract. The challenge of M&V is to balance M&V costs with the value of increased certainty in the cost savings from the conservation measure. At the heart of a performance contract is a guarantee of a specified level of cost savings and performance. One of the primary purposes of M&V is to reduce the risk of non-performance to an acceptable level, which is a subjective judgment based on the Principal Representative's priorities and preferences.

- i. ESCO should provide a presentation on measurement and verification. The presentation should cover important project risks, assess their potential impacts, and clarify the party responsible for managing the risk. The presentation should discuss the CEO Measurement and Verification Policy. The presentation should cover the four IPMVP M&V options and their advantages and disadvantages.
- ii. For each potential ECM, the ESCO shall present the initial M&V options. The ESCO shall provide sufficient information to understand the risk, cost, and responsibilities for each ECM M&V option.
- iii. ESCO shall record for the final M&V plan and post construction M&V discussion, the Principal Representative's and ESCO's M&V initial responsibilities.

D. Develop a list of recommended measures for further analysis.

Describe how the projected project economics meet the Principal Representative's Project Financial Goals for completing the final Investment Grade Audit report and the Energy Performance Contract Project Proposal. Discuss assessment of energy use, savings potential, project opportunities, and potential for developing an energy performance contract. The Principal Representative shall at its discretion have the option to reject any presented calculation of savings; potential savings allowed or project recommendations.

SECTION 6. Detailed Analysis of Energy Conservation Measures and other ESCO Services

ESCO shall conduct detailed analysis of recommended measures for further analysis, including construction cost and schedule, utility and other savings, code compliance estimate and permit costs, measurement and verification plan, training, operation and maintenance cost impacts, and other items as requested (mutual agreement between Principal Representative/ESCO) to complete the final Investment Grade Audit report and the negotiated Energy Performance Contract Project Proposal. A financial package should be prepared that includes potential interest rates and financing terms, grants, rebates, Principal Representative capital contributions (one-time or annually), and other potential project funding sources. State Executive Department's Principal Representatives will need to work with the Colorado Department of the Treasury to review financial options.

ESCO shall evaluate facility and equipment schedules and baseline utility use and costs relative to Work and EPC Project Proposed associated with this IGA Contract including, but not limited to:

A. Weekly Use and Operational Schedule:

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ESCO to perform "late-night", weekend trend monitoring devices, and field surveys outside of normal business hours or on weekends to confirm building system and occupancy schedules "impacting measures for further analysis".

B. Evaluate actual operation schedules, conditions for the facilities, equipment and buildings (hours, temperatures, air flows, humidity, etc.).

- i. Estimate loads as necessary and applicable. Equipment loads can change over time. Changes in load can show up as increases or decreases in "savings" depending on the M&V Services. Clarify whether equipment loads are to be measured or stipulated and what the impact will be if they change.
- ii. Where loading or usage are highly uncertain (including variable loads such as cooling), ESCO will use its best judgment, spot measurements or short-term monitoring. ESCO should not assume that equipment run hours equal the operating hours of the building(s) or facility staff estimates.

C. Description of Energy Conservation Measures:

Provide a technical description for each Energy Conservation Measure. Consider the following parameters for each system, component, and associated conservation measure:

- i. Comfort and maintenance problems,
- ii. Energy or water source, use, loads, proper sizing, efficiencies and hours of operation,
- iii. Current existing systems, controls, and operating condition,
- iv. Remaining service life,
- v. Feasibility of system replacement,
- vi. Hazardous materials and other environmental concerns,
- vii. Principal Representative's future plans for equipment replacement or building renovations,
- viii. Facility operation and maintenance procedures that could be affected, and
- ix. Procedure to measure and verify savings (M&V) (necessary M&V equipment including meters, sub-meters, data-loggers, and control system monitoring/reporting capabilities).

D. Cost Estimate Analysis:

ESCO shall identify and perform next-level analysis on measures which appear potentially cost-effective. The analysis may consider the following sources of data for design and construction cost, potential operation and maintenance costs or other categories as identified by ESCO or Principal Representative:

- i. Principal Representative list of acceptable/preferred manufacturers or vendors,
- ii. Principal Representative's construction specifications, requirements, standards.
- iii. ESCO's Subcontractor material and labor cost estimates,
- iv. ESCO's Subcontractor professional design firm's cost estimates,
- v. ESCO's pricing information from historical projects,
- vi. ESCO's product specification information,
- vii. ESCO's or Principal Representative's pricing information for hazardous/environmental work.

E. Cost Savings Analysis:

For each potentially cost-effective measure, prepare an estimate of energy and operational cost savings including description of analysis methodology, supporting calculations and assumptions used to estimate savings.

- i. Follow the methodology of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) or other nationally-recognized authorities following the engineering principle(s) identified for each retrofit option
- ii. Utilize assumptions, projections and the baseline period energy consumption and/or the mutually agreed-upon adjusted baseline energy, whichever best represents the value of future energy or operational savings.
- iii. Include accurate energy unit costs at the time the analysis is performed, documentation of material and labor cost savings, adjustments to the baseline to reflect current conditions at the facility, and calculations which account for the interactive effects of the recommended measures.
- iv. Use best judgment regarding the employment of instrumentation and recording durations so as to achieve an accurate and faithful characterization of energy use.
- v. Develop a preliminary measurement and verification plan for each measure.

F. Finalize Project Financial Parameters

Exhibit A – Scope of Work

- i. Discuss the willingness and capability of Principal Representative to make capital contributions to the project to improve the Project's Financial Performance. Capital contribution could be from a onetime addition of funds, monetized value of capital cost avoidance from equipment replacement, or any other Principal Representative acceptable contribution.
- ii. Discuss an acceptable financial term and interest rate or a range on term and interest rate.
- iii. Discuss an acceptable escalation rate for each utility for each year. The escalation rates may be different each year. Reference the CEO/OSA Escalation Policy.
- iv. Discuss an acceptance of any operation or maintenance savings. Discuss how these would be determined, escalated, and the maximum number of years allowed.
- v. List any known utility rebates, grants, or other financial incentives that effect cost of insulation or final maximum project cost.

SECTION 7. Draft Investment Grade Audit Report

ESCO shall prepare a draft IGA Report. The Draft and Final IGA Report shall follow this outline format including, but not limited to:

A. Executive Summary:

- i. Project Background and Introduction
- ii. Principal Representative's Project Requirements (OPR) (accepted changes to original)
- iii. Summary of Recommended Facility Improvement Measures
- iv. Summary of Total Savings (energy, (units and cost by utility) water, maintenance or other Principal Representative approved items)
- v. Summary of Scope 1 and 2 carbon emission reductions.
- vi. Summary of Project Financials including initial total project cost, potential interest rates (from recent projects or current industry rates), capital contributions (projected or identified), and financing term (per Principal Representative's requirements). Total project cost is the maximum, not-to-exceed amount Principal Representative shall pay for the project and ESCO's services.
- vii. Conclusions and Recommendations

B. Facility and Building Data:

For each facility identified in Exhibit B, the ESCO shall provide a brief building description, including the use, square footage, hours of operation and lighting, mechanical and water systems and building envelope/construction;

C. Baseline Period Utility Consumption:

Compile and provide a concise and well organized analysis and written report of the data gathered and necessary to provide baseline utility consumption pursuant to the baseline period consumption §4 of this Exhibit A which may include, but not limited to:

- i. Description and itemization of current billing rates, including schedules and riders;
- ii. Summary of all utility bills for all energy types;
- iii. Summary of Scope 1 and 2 carbon emissions;
- iv. Identification and definition of baseline energy and period and description of how established;
- v. Reconciliation of estimated end use consumption (i.e. lighting, cooling, heating, fans, plug loads, etc) with base year (include discussion of any unusual findings).

D. Energy Conservation Measures:

Update, compile, and provide comprehensive analysis of recommended Energy Conservation Measures and other Facility Improvement Measures for consideration, review and comments by the Principal Representative which include, but are not limited to the following:

Conservation Measure List – Prepare a summary, in table format of recommended Energy Conservation Measures as referenced in §6 of this Exhibit A. The summary shall include an itemization for each measure of total design and construction cost, annual operation and maintenance costs, the first year savings (cost avoidance), (in dollars and appropriate utility units), Simple Payback and major equipment service life. The summary shall further include tabulated utility consumption savings per system, building, or facility separated out by contributing ECM. For each recommended energy and utility saving conservation measures, provide a summary of the following:

Exhibit A – Scope of Work

- a. **Existing Conditions** Describe existing conditions, systems, etc. to be affected by the proposed utility conservation measures, and the specific benefits of each to modify each condition, including but not limited to, energy, water or resource conservation, capital improvement, deferred maintenance, long-term performance and reduction of operating costs, etc.
- b. **Project Scope of Work:** Description of improvements, equipment, etc. to be installed and how it shall function.
- c. **O&M Procedures:** Include discussion of facility operations and maintenance procedures that shall be affected by installation or implementation.
- d. **Implementation Plan:** Present a conceptual plan for the proposed EPC project indicating design and construction timeframes for the ECMs. Indicate any potential installation time constraints or critical start/completion dates.
- e. **Utility Savings Calculations:**
 - a) **Base -Year Consumption:** base year utility use and cost and carbon emissions.
 - b) **End-Use Consumption Estimate:** Post-retrofit utility use and cost and carbon emissions.
 - c) **Annual Savings Estimates:** The Utility Cost Savings and Operation and Maintenance Cost Savings shall be determined for each year during the contract period. Savings shall be achieved by the implementation of such measures on an annual basis. Savings shall be limited to savings allowed by the State Statute or Principal Representative.
 - d) **O&M Savings:** Operation and maintenance savings, including detailed calculations and description. Ensure that maintenance savings are only applied in the applicable years and only during the lifetime of the particular equipment. Operation and Maintenance Cost Savings if considered in the EPC Project Proposal will require Principal Representative approval and signature on the Record of Reviews.
 - e) **Methodology for Savings Estimates:**
 1. Savings estimates including the methodology used in analysis, supporting calculations and assumptions used. Analysis and methodology shall also include description and calculations for any proposed rate changes. Analysis shall further include an explanation of how savings between retrofit options are accounted for in calculations.
 2. If computer simulation is used, include a short description and indicate key input data. If requested by Principal Representative, access shall be provided to the program and all assumptions and inputs used. Printouts shall also be provided of all input files and important output files and included in the Investment Grade Audit with documentation that explains how the final savings figures are derived from the simulation program output printouts.
 3. If manual calculations are employed, formulas, assumptions and key data shall be stated.
 - f. **Conclusions and Analysis: Provide other observations, caveats, etc.**
- E. **M&V Plan:**

Summary of the Measurement and Verification Plan. Cost of the M&V services per year through the financing term.
- F. **Cost Estimate Analysis:**

Summary and update of cost assessment initiated under **§6.D** of this **Exhibit A**.
- G. **Cost Savings Analysis:**

Summary and update of analysis initiated under **§6.E** of this **Exhibit A**, including calculation of cost savings expected if all recommended measures are implemented and total percentage savings of total facility utility cost.
- G. **Excluded Measures:**

List all ECMS considered but not recommended with a short paragraph on why it was not included.
- H. **Principal Representative Review, Comments, and Prioritization:**

Summary of documentation or conference records of Principal Representative priorities, stipulations, and designated compliance with statute, requirements and policies.
- I. **Draft Investment Grade Audit Report:**

Pursuant to **§9** of this **Exhibit A** the Draft IGA Report shall be prepared in the format of the final IGA Report (as required in the IGA Contract and **§7** of this Exhibit A). The ESCO shall comply with the following items:

Exhibit A – Scope of Work

- i. Draft IGA Report shall be submitted in a format acceptable to the Principal Representative labeled to include the project title “Investment Grade Audit report and Energy Performance Contract Project Proposal”, the Principal Representative facility name, name of the ESCO, and date of issuance or revision. Provide additional sets of these documents as requested or required by the Project Representative.
- ii. Contents shall be formatted and tabbed in the exact form and alphanumeric sequence of the outline of §7.A. – §7.H of this **Exhibit A**, with additional outlined formats for other referenced sections of this **Exhibit A**. Content elements not otherwise referenced or required in this **Exhibit A**, if provided, shall appear at the end of the IGA Report under its own tab(s) or in separate document(s).
- iii. Contents contained in the IGA Report shall be complete. ESCOs are encouraged to respond in a concise manner. The use of charts and spreadsheets to summarize certain information is especially encouraged; said information may be accompanied by an explanatory narrative.
- iv. An electronic version of the draft IGA Report and any additional provided or requested information shall be submitted with the written report.

SECTION 8. Post Draft Investment Grade Audit Report Conference

- A. The ESCO shall prepare an agenda consistent with the format of the Pre-Audit Conference in §2 of this **Exhibit A**, including any modifications as a result of the Pre-Audit Conference. ESCO shall conduct all necessary conference(s) and produce associated documentation to engage the Principal Representative to review the recommendations, savings calculations and impact of the measures on the operations of the facility. Describe how the projected project economics meet the Principal Representative’s terms for completing the IGA Report. Revise audit as directed by Principal Representative.
- B. **Principal Representative Review and Comments**
 - i. ESCO shall provide all services and deliverables to include, but not be limited to, draft, project proposal(s), supplemental documents and ESCO’s responses, etc. necessary to support written acceptance by Principal Representative.
 - ii. The Principal Representative and CEO shall perform concurrent reviews and all comments are shared by all parties, including CEO third party reviews.
 - iii. The Principal Representative and CEO may submit written comments at any time during the IGA Contract and the ESCO shall provide supplemental responses.
- C. **Finalize Principal Representative Financial Targets:** Capital contribution, maximum financial term and interest rate, utility escalation rates, and operation and maintenance information.
- D. **Responses to Principal Representative Comments** – Revise IGA Report as directed by Principal Representative which shall be included in the final Energy Performance Contract Proposal.

SECTION 9. Final Investment Grade Audit Report and Energy Performance Contract Project Proposal

- A. **Present Final IGA Report.** ESCO to complete and deliver final documents defined in this §7 to Principal Representative for approval.
- B. **EPC Project Proposal.** Pending approval of the Final IGA Report, and the execution of the IGA Notice of Acceptance, prepare an Energy Performance Contract using CEO’s Energy Performance Contract documents, subject to IGA Contract terms and provisions, and subject to negotiation and agreement between the Parties pursuant to applicable Federal and State regulatory requirements and the CEO Standards for Success. ESCO shall prepare the applicable schedules to be incorporated in an Energy Performance Contract that includes the following:
 - i. Total Project Cost Proposal: the maximum, not-to-exceed amount Principal Representative shall pay for the project and ESCO’s services. Costs shall be consistent with mutually agreed to markups and fees established in IGA **Exhibit C**.
 - ii. Cost Estimate: Include all information required under **§24-30-2002, C.R.S.**, as well as a detailed scope of the construction work suitable for cost estimating. Include all anticipated costs associated with installation, implementation, and categories outlined in IGA **Exhibit C**. Provide preliminary specifications for major mechanical components as well as detailed lighting and water fixture counts. The following shall also be included:
 - a. Engineering/design costs;

Exhibit A – Scope of Work

- b. ESCO/vendor estimates for labor, materials, and equipment; include special provisions, overtime, and all other appropriate items, as needed to accomplish the work with minimum disruption to the operations of the facilities;
- c. Code compliance estimate and permit costs
- d. Costs (disposal, avoided emissions, handling of hazardous materials, and any other related costs) as relates to handling and disposal of hazardous lighting materials, but not as relates to remediation or abatement work;
- iii. Base-Year Consumption: Disclose baseline basis for cost savings. Summary of annual utility use by type and costs of existing or base year condition.
- iv. Cost Savings Calculations: Calculation of cost savings expected if all recommended utility conservation measures are implemented and total percentage savings of total facility utility cost.
- v. End-Use Consumption Estimate: Outline the proposed utility use reduction and end use consumption for the system or facility.
- vi. Contract Term: Years of the Energy Performance Contract.
- vii. Utility Rate Escalation Factor: Escalation or decline based on historical trends, utility provider rate forecasts, and economic forces of supply and demand (global, national, local or regional), natural resource availability, technology, utility capital investment, and environmental requirements. (Consisted with CEO/OSA Utility Escalation Policy)
- viii. Financial Terms: Description of how the project may be financed including available indicative interest rates and potential financing terms, based on interest rates likely available to Principal Representative at this time and based on interest rate lock options available. Analysis of annual cash flow for Principal Representative during the contract term.
- ix. Weather Adjustments: If applicable, proposed modification to how the savings shall be calculated and adjusted due to weather (such as heating and cooling degree days), occupancy or other factors.
- x. Measurement and Verification: Proposal consistent with the CEO Measurement and Verification Policy at time this contract is made:
- xi. Commissioning Plan: Preliminary Commissioning plan:
- xii. Operations and Maintenance Plan:
- xiii. Implementation Plan and Schedule:

The ESCO shall propose a milestone schedule with activity durations of all Energy Performance Contract phases, including, but not limited to, ESCO services, commissioning, M&V activities, etc. to include written acceptance by the Principal Representative, as follows:

 - a. The ESCOs shall submit an implementation plan for all Utility Savings and Cost Savings measures with a narrative describing design-build and bidding strategies and recommended delivery options;
 - b. Training, operation and maintenance activities, interim and milestone responsibilities for maintenance, etc.

END OF EXHIBIT A – SCOPE OF WORK