Energy Management System Short Guides

A Supplement to the EPA Energy Management Guidebook for Drinking Water and Wastewater Utilities (2008)

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Foreward

Energy management requires a positive environment where utilities can work toward clear targets and objectives. The following set of 11 Energy Management System Short Guides was developed to help utilities with additional information on key energy management system elements. It is anticipated that these short guides will be a useful supplement to the EPA's Energy Management Guidebook for Drinking Water and Wastewater Utilities (*Guidebook*). They can stand alone or with the *Guidebook.* They do not have to be completed in sequence, however, they should be considered as a set of practices that

work together. An icon shows where in the *Guidebook* each key element can be found.

Each short guide gives, (1) a brief background on the key element, (2) a checklist showing exactly what to do to get started, and (3) a template for writing down the procedure. Utilities are free to tailor the entire templates to suit their needs. Highlighted areas show where utility-specific information is most likely.

Key Elements Addressed by the Short Guides

1. Energy Policy
2. Activities and Operations
3. Legal and Other Requirements and Compliance Status
4. Objectives and Targets
5. Operational Controls
6. Awareness and Competency Training
7. Communication to Internal and External Parties
8. Document and Record Control
9. Key Requirements and Compliance Tracking
10. Monitoring and Measurement
11. Corrective Action
12. Management Review and Team Meetings

The short guides are the result of 11 training sessions by Global Environment Technology Foundation (GETF) to drinking water and wastewater utilities that participated in the Indiana Energy Management Pilot. GETF identified the 11 items as key elements in the *Guidebook* and drafted short guides to train utilities at monthly conference calls. The final short guides and templates that appear in this report incorporate suggestions from the utilities during those calls.

Energy Policy

Background

> **ENERGY POLICY:** A utility's formal statement defining its intentions and principles in relation to the management of energy resources. It provides a framework for setting specific energy improvement goals and milestones and describes the organization's commitment to compliance and to continual improvement.

It is highly recommended that as utilities begin to implement an energy management system, they develop an energy policy. An energy policy establishes expectations for performance improvement and publically expresses management's commitment to energy efficiency. All employees must understand the utility's interest in energy efficiency and environmental protection, and an energy policy expresses that commitment as an environmental goal. Developing an energy policy that can be distributed and promoted within the utility and community helps communicate and reinforce management priorities. Ideally, management will visibly support energy management so that utility employees can confidently develop or propose specific energy management objectives and goals.

Checklist

Use the following checklist to guide development and implementation of an energy policy.

☐ 1. **REVIEW CURRENT POLICIES:** Review existing policies or language about energy commitments or improvements. Review other business priorities and commitments that might integrate with the energy mission and vision.

☐ 2. **WORK AS A TEAM:** Discuss the purpose of your Policy. Share examples and sample language. Then develop a draft for discussion and revision.

☐ 3. **GET INPUT:** Seek input from top management and from employees. Review the current business or level of service commitments and/or organizational and energy goals. It is important that the Policy reflect the organizational culture and that it is appropriate to all levels of the organization.

☐ 4. **DRAFT THE ENERGY POLICY:** Share the Policy widely inside the organization; get feedback from a variety of internal and external stakeholders, make revisions and improvements before submitting it to Senior Management for final approval.

☐ 5. **DEMONSTRATE SENIOR MANAGEMENT'S COMMITMENT:** Top management visibility, commitment, and involvement in developing and implementing the Energy Policy are the #1 key to success. Make sure to include their signatures in a prominent place on the

Policy.

6. **DEVELOP A COMMUNICATION PLAN:** Discuss with the Energy Team how best to communicate the Energy Policy. Determine if it would be appropriate to translate your Policy into languages other than English.

Refer to Session 3, Module 1 pages 34-35 in the *Energy Management Guidebook* for more information on this topic.

Some Ideas for Communicating your Energy Policy

- Post the policy in prominent a location in the utility as a visual reminder of the statement and its importance.
- Use identification badges and/or wallet cards
- Develop Energy Management System training and include the policy as well as new procedures.
- Refer to the policy at staff or all-hands meetings.
- Highlight it on the Web (intranet and internet).
- Use it as 'taglines' in email messages, memos, and publications.
- Create a "banner".

ENERGY MANAGEMENT SYSTEM PROCEDURE

UTILITY LOGO	NAME OF UTILITY ENERGY POLICY	CONTROLLED DOCUMENT

Subject:		Document No:	WW - xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Name of utility is committed to compliance and to continual improvement of its energy efficiency. name of utility will implement effective energy management programs that support all operations and customer satisfaction while providing a safe and comfortable work environment.

In order to increase our efficiency of energy and reduce associated greenhouse gas emissions, name of utility will:

- Adopt best energy management practices using our Energy Management System;
- Regularly monitor energy use across sites and organizational units;
- Report quarterly or identify frequency here on energy use to staff and at Management Board meetings or identify other executive Meetings as appropriate;
- Identify and implement ways to increase staff and contractor/vendor awareness regarding energy efficiency;
- Establish Energy Improvement Objectives and Targets and develop Energy Action Plans to reach the improvement targets.
- Ensure that new equipment and building projects are energy efficient;
- Review energy efficiency performance and Energy Action Plans annually or identify frequency here.

Scope This policy applies to all divisions and staff across name of utility

References List any other documents or information sources which may be needed in order to carry out the commitments and tasks identified in this policy.

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

Legal and Other Requirements and Compliance Status
Background

Energy management complements attention to legal requirements and compliance. All three require management commitment, employee involvement and attention to operation. An energy management procedure to address legal and other requirements and compliance status will help ensure energy conservation measures:

> **LEGAL REQUIREMENTS:** Federal, state, and local environmental laws and regulations applicable to the organization's activities and services.
>
> **OTHER REQUIREMENTS:** The rules and guidelines an organization follows that are not required as part of existing environmental laws or permits, but to which an organization is committed (e.g. trade association commitments or agreements, industry standards or

- Maintain compliance with water quality and service objectives.
- Consider how existing and new environmental laws and regulations are applicable to the facility activities.
- Identify how and when compliance with applicable laws, regulations and other requirements is periodically reviewed.
- Verify that the utility addresses instances of noncompliance if they occur.
- Ensure that proper procedures are in place to respond to noncompliance by identifying, managing, and preventing problems from reoccurring.

Checklist

Use the following checklist to develop a procedure for reviewing the utility's legal and other compliance status:

☐ 1. **REVIEW HOW APPLICABLE LEGAL AND OTHER REQUIREMENTS ARE CURRENTLY IDENTIFIED AND MAINTAINED:** Determine all legal and other requirements in the utility's operations. Determine the frequency that new and existing environmental requirements should be reviewed in order to remain in compliance.

☐ 2. **COMMUNICATE LEGAL AND OTHER REQUIREMENTS:** Ensure that adequate procedures and training provide employees with the requirements for legal and other requirements.

☐ 3. **IDENTIFY NEED FOR CHANGE:** Evaluate if there is a need to modify operational controls, SOPs, maintenance schedule, documentation, provide training, increase monitoring and measuring, corrective action, etc. If there is a need use the energy management system procedures to implement the changes.

☐ 4. **VERIFY COMPLIANCE STATUS:** Determine the best practice to verify environmental compliance and how to document that environmental

compliance status has been reviewed.

☐ 5. **IDENTIFY ANY CORRECTIVE ACTIONS:** The corrective action procedure is used to identify where there are environmental compliance issues or opportunities to improve. Identify the root cause and the corrective action which will mitigate and prevent the observation/finding from reoccurring. Track the corrective action to closure, update operational controls or written procedures as needed, and verify that the corrective action was effective.

☐ 6. **WRITE THE SYSTEM PROCEDURE:** Document the process for determining legal and other requirements and compliance status. The procedure needs to clearly describe the process, roles and responsibilities, frequency of compliance reviews, requirements for documentation and storage.

By documenting the answers to these questions, the facility will have created an effective legal and other requirements and compliance status procedure.

Refer to Session 6, Module 6 page 71 in the *Energy Management Guidebook* for more information on this topic.

ENERGY MANAGEMENT SYSTEM PROCEDURE

UTILITY LOGO HERE

NAME OF UTILITY

CONTROLLED DOCUMENT

LEGAL AND OTHER REQUIREMENTS AND COMPLIANCE STATUS

Subject:		Document No:	WW - xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Purpose

This Procedure describes how Name of Your Utility Here identifies the environmental laws and regulations applicable to its operations and activities, and how this information is kept up to date. With respect to its compliance status, the procedure describes how Name of Your Utility Here periodically evaluates its compliance with legal and other requirements, addresses instances of noncompliance, and ensures that proper procedures are in place to identify, manage, and prevent problems from reoccurring.

Scope

This procedure applies to all employees and external stakeholders in Define your Project Fenceline Here when engaged in utility work-related activities.

Definitions

As you feel necessary, list the abbreviations or potentially confusing terminology used in this document. E.g., defining what you mean by "other requirements" might be useful here.

Procedure (Include reporting requirements in this section)

ACCOUNTABILITY	RESPONSIBILITY
	1. IDENTIFYING LEGAL AND OTHER REQUIREMENTS
	Define appropriate frequency, e.g., annually, identify and maintain information about the legal and other requirements that apply to our operations and activities.

ACCOUNTABILITY	RESPONSIBILITY
	Evaluate if working toward our energy improvement targets has involved equipment or operational changes that could affect our compliance.
	If yes, evaluate if there is any need to change operational controls, SOPs, maintenance schedule, documentation, provide training, increase monitoring and measuring, etc.
	Use our Corrective Action Procedure to implement, track, and maintain appropriate changes.
	Use our Communication Procedure to disseminate information about legal and other requirements and any associated changes so that appropriate stakeholders and personnel whose work is affected by the changes understand what this mean to how they do their jobs every day.
	2. COMPLIANCE STATUS
	Define appropriate frequency, e.g., annually, verify our Compliance Status, prepare a report of the assessment and deliver the report to Define appropriate recipient.
	Verify that previous instances of noncompliance have been corrected and prevented from reoccurring.
	Communicate information about our compliance status to Define appropriate recipients.
	Using our Corrective Action Procedure, identify any needed corrective actions, track them to closure, and report the effectiveness to Define appropriate recipients.

References

List any other documents or information sources which may be needed in order to carry out the tasks identified in this document. For example, this procedure might reference Objectives and Targets, Operational Controls, Training and Awareness, Communication, Documents and Records, Monitoring and Measurement, Corrective Actions, Permits, Key External Stakeholder Analysis.

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

Activities and Operations
Background

Because energy management involves facility-specific energy conservation measures, it is crucial to understand and document the utility's activities and operations. Regardless of whether an energy audit is performed, in-house utility staff should be involved. Staff understand current equipment and operating procedures, and often have professional experience to recommend or take ownership of energy improvements. During facilitated discussions at staff meetings or energy team meetings, in-house utility staff can document activities and operations, and set priorities.

Blucher Poole Wastewater Treatment Plant Bloomington, Indiana

Checklist

The following checklist can be used to guide development of a procedure for identifying energy using activities and operations:

☐ **1. IDENTIFY THE PLANT FENCELINE:** Identify the activities and operations to be included in the energy management system. In most instances, the fenceline is the physical boundary of the treatment plant. However, it may be an isolated operation such as pumping or aeration.

☐ **2. IDENTIFY ENERGY INPUTS:** Flow chart each step of the plant's operation such as preliminary treatment, primary treatment, secondary treatment, etc. for wastewater or pumping, filtration, etc. for drinking water. List all activities within each operation that use energy as an "input," like pumps or motors. Create a separate flow chart for each step of the plant operation.

☐ **3. PRIORITIZE ENERGY INPUTS:** Transfer "inputs" listed on the flow charts to a spreadsheet. Label the top of the inputs column as "Activity." Then label the next column as "Operation" and list the flow chart page, or operation, from which each input is derived.

☐ **4. DEVELOP RATING CRITERIA:** Determine criteria to rank or prioritize each of the inputs. Suggested criteria include frequency of use, potential for energy savings, cost of implementing energy savings, and energy intensity. Add a column to the spreadsheet for each criterion selected.

☐ **5. DEFINE RATING CRITERIA:** Select a numerical ranking system, like 1, 5, 10 or 2, 4, 6, and define each numerical rating for each of the rating criteria

developed. Do not use zero in the numerical ranking system. For example, using the criterion of "frequency of use" with a numerical ranking of 2, 4, and 6 where 2 equals *infrequent use* (i.e., less than once per day), 4 equals *moderate use* (i.e., greater than once per day), and 6 equals *frequent use* (i.e., 24 hours per day, seven days per week). Define the ranking system selected for each of the criteria being used.

☐ **6. PRIORITIZE ENERGY INPUTS:** Using the numerical rating system and rating criteria previously developed, rate each of the energy using inputs and record this number in the spreadsheet in the appropriate criterion column. Determine the significant energy inputs by *multiplying* the rating of each criteria column for a total score. Record this total score in a new spreadsheet column labeled "Total Score."

☐ **7. RECORD THESE STEPS AS A PROCEDURE:** Record the process that was used along with the rating criteria, numerical ranking system, and numerical definitions in a step-by-step instructional format. The instructions should be written so that someone who was not involved with this process could understand how to complete these steps again.

By documenting the steps taken, you have created an effective procedure for Identifying Energy Using Activities and Operations for your utility.

Refer to Session 3, Modules 2 and 3 pages 36-43 in the *Energy Management Guidebook* for more information on this topic.

Template

A template was not been completed for this procedure.

Objectives and Targets
Background

Once the faclility has identified 'significant' or priority activities and operations, the next step is to decide what goals to set, the timeframe to achieve the goals, and how to measure progress. Objectives and targets are clear expressions of improvements the organization is working to accomplish in the next year to five years. As tangible goals, objectives and targets are what drive strategies and actions. For this reason, they should be carefully expressed and broadly communicated. In addition, senior management endorsement and input from staff affected by the objective are critical in developing targets that

> **OBJECTIVE**: The internal goal your facility establishes to improve its energy performance.

> **ACTION PLANS**: A structured program with a set of specific identifiable actions providing the direction for objectives and targets to be achieved and tracked. Your Action Plans should assign tasks, resources, responsibilities, and timeframes for achieving your objectives and targets.

> **PERFORMANCE INDICATOR:** A measurement tool that can be used to evaluate and measure energy performance in relation to a specific target.

> **TARGET:** A measurable performance requirement that arises from your objective.

are meaningful and practical. Once objectives and targets are established and approved, it's time to develop energy improvement action plans that define how the organization intends to reach the objectives and targets. The energy improvement action plans describe how the organization will translate goals into concrete tasks and activities so that energy objectives and targets are achieved. They list the individual tasks; assign responsibility for achieving goals; establish deadlines for individual tasks; and estimate resources (staff time and cost). Periodic review of objectives and targets and the progress of energy improvement action plans provides a good opportunity to gauge progress, evaluate cost savings, and review improved energy performance.

Checklist

The following checklist can be used to develop system procedures for objectives and targets.

☐ 1. **REVIEW THE PRIORITY ACTIVITIES AND OPERATIONS TO CONSIDER FOR SETTING OBJECTIVES & TARGETS:** Review the existing process for setting objectives and targets related to energy improvements. Confirm that the procedure is working well or if the procedure should be revised.

☐ 2. **IDENTIFY WHO NEEDS TO BE INVOLVED:** Determine who should be included when setting Objectives and Targets within the organization. Determine the best time to implement the process and consider linking to an existing organizational process (like your annual strategic planning process).

☐ 3. **IDENTIFY YOUR PERFORMANCE INDICATORS:** Determine what you plan to measure to meet your energy targets. Is it $s, kWhs, % of renewables, etc.? Your performance indicators should be easily identified, measurable, and relevant to what your utility is trying to

achieve.

	4. **CONFIRM MANAGEMENT APPROVAL OF YOUR OBJECTIVES AND TARGETS:**	Review objectives and targets with senior management to ensure that the goals identified are approved and that targets are realistic, achievable, and appropriate.
	5. **OBJECTIVE AND TARGET STATUS REVIEW:**	Determine the frequency and best time for reviewing the status of the action plans. Can this effort be linked to an existing meeting (such as a department monthly meeting)?
	6. **TRACK PROGRESS AND COMMUNICATE RESULTS:**	Determine the best method and frequency to communicate objective and target results with employees on site and if results need to be communicated to other external parties (media, mayor).

By documenting the answers to these questions, an effective procedure for establishing Objectives, Targets, and Action Plans will be created.

Refer to Session 4, Modules 1 and 2 pages 44-50 in the *Energy Management Guidebook* for more information on this topic.

ENERGY MANAGEMENT SYSTEM PROCEDURE

UTILITY LOGO	**UTILITY NAME** **OBJECTIVES AND TARGETS AND** **ENERGY IMPROVEMENT ACTION PLAN**	CONTROLLED DOCUMENT

Subject:		Document No:	WW – xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Purpose

The purpose of this procedure is to provide guidance and consistency in the process of establishing EMS objectives, targets and performance indicators for Utility Name.

Scope

This procedure applies to all employees and external stakeholders in Define your Project Fenceline Here when engaged in utility work-related activities associated with the energy management system.

Definitions

Objective: The internal goal our facility establishes to improve its energy performance

Target: A measurable performance improvement that arises from our objective.

Performance Indicator: A measurement tool that can be used to evaluate and measure energy performance in relation to a specific target.

Energy Improvement Action Plan: A structured program with a set of specific identifiable actions that provides direction for achieving and tracking objectives and targets. The energy improvement action plan assigns tasks, resources, responsibilities, and timeframes for each energy conservation measure.

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

Procedure/Plan

ACCOUNTABILITY	RESPONSIBILITY
The Energy Team or Name the accountable job function or employees who will complete this task here	Annually (or insert your preferred time), review the priority activities and operations to consider for setting Objectives & Targets.
Name the accountable job function or employee who will complete this task here	Document and record energy objectives and targets. Similar to the activities and operations review, the energy team leader (or insert a preferred responsible party) solicits input from departmental staff and senior management to ensure that objectives and targets are realistic and achievable and appropriate.
The Energy Team or Name the accountable job function or employee who will complete this task here	Identify the performance indicators to track the utility's quantitative and qualitative benefits
Name the accountable job function or employee who will complete this task here	Develop action plans for each target. Confirm that the plans list the individual tasks (what and how will be done); assign responsibility for achieving goals (who will do it); establish deadlines (by when) for individual tasks; and estimate staff time and costs (how much).
Name the accountable job function or employee who will complete this task here	Frequently (or insert a preferred time) review energy improvement action plans Can this effort be linked to an existing organization process (such as budget, planning or auditing cycles)? Make course corrections as needed using the monitoring and measurement and corrective action procedures.
Name the accountable job function or employee who will complete this task here	Track progress and communicate results using the communication procedure.

References

Monitoring and Measurement System Procedure

Communication Procedure

Corrective Action Procedure

Activities and Operations Priority Tables

List any other documents or information sources which may be needed in order to carry out the tasks identified in this document. For example, this procedure might reference the Energy Policy, the Activities and Operations Analysis, Legal and Other Requirements.

Operational Controls

Background

The intent of creating an operational control is to improve the reliability and consistency of a task that is performed frequently or for tasks that are non-routine, especially a task that uses energy. In general, operational controls avoid the need for managers and employees to reinvent the wheel and provide an available reference for training and motivating workers, including new employees, part-time help, and new promotions. Moreover, operational controls also allow for better emergency preparedness.

> **OPERATIONAL CONTROL:**
> Detailed instructions for performing a task or for following a procedure. Also called a work instruction, operating control, or standard operating procedure (SOP).

There are many reasons why documenting operational controls is a good idea:

- When a task is complicated, or new;
- When there is a risk of negative environmental or energy impact if the task is not completed in a specific way;
- When multiple operators perform a task in different ways;
- When the task is non-routine and a review of the instructions provides the guidance to complete the task efficiently; and
- To accurately document procedures in the event that new staff require training.

Mishawaka Wastewater Treatment Plant, Mishawaka, Indiana

Checklist

In order to develop effective operational controls, the organization should complete the following steps (check when completed):

☐ **1. IDENTIFY CRITICAL OPERATIONS:** Determine the operations or activities that are complicated or have large energy impacts. Review the legal and other requirements and significant activities to determine a list of operations and activities that require a written procedure. Determine non-routine tasks that require instruction. Consider all work shifts and those activities that are rarely conducted by multiple staff members. Refer to the Operations and Activities Flowcharts previously constructed to review the tasks in each of the critical operations or activities.

☐ **2. IDENTIFY CRITICAL EQUIPMENT:** In each critical operation or activity identified in Step 1, identify the equipment essential to the operation or activity. Is the equipment being sufficiently monitored, calibrated, and maintained?

☐ **3. CONTINUOUS IMPROVEMENT:** As new equipment is installed or procedures are modified, develop a plan to review the need to include additional procedures or instructions.

☐ **4. WRITING AN OPERATIONAL CONTROL:** Determine the specific way in which a task is to be carried out by discussing the process with the operator or multiple operators and reviewing the written procedure with department supervisors or top management.

☐ **5. IMPLEMENT OPERATIONAL CONTROLS:** Distribute operational controls and train employees, key stakeholders, and contractors. Emphasize areas that are particularly important to the action plan to implement energy improvements. Alert supervisors and employees about why certain priority activities and operations should be done a specific way.

☐ **6. CONTROL DOCUMENTS:** Master files of each operational control may be stored in binders, centralized computer file servers, or in the manager's file cabinet. Copies of relevant operational controls may be placed in strategic locations for quick and easy access by employees performing the activity or task. Specific operational controls can be posted where the instructions are to be followed. Manage and control any changed or new documents and records according to the document control procedure.

☐ **7. MONITORING:** Set a schedule for auditing operational control procedures. Verify the documented controls are being implemented properly.

By documenting the answers to these questions, an effective operational control procedure to manage energy use within the organization will be created.

Refer to Session 5, Modules 1 and 2, pp. 52-56 and 60-62 in the *Energy Management Guidebook* for more information on this topic.

Template

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ENERGY MANAGEMENT SYSTEM PROCEDURE

</div>

UTILITY LOGO	**UTILITY NAME** **OPERATIONAL CONTROLS**	CONTROLLED DOCUMENT

Subject:		Document No:	WW – xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Purpose

This Procedure describes how *Utility Name* identifies and documents operational controls for the critical activities and operations that can have a significant impact on energy efficiency within their energy management system fenceline.

Scope

This procedure applies to all employees and external stakeholders in Define your Project Fenceline Here when engaged in work-related duties associated with significant energy using activities.

Definitions

Operational Control: A set of instructions for performing a task or for following a procedure. Also called work instructions, or standard operating procedures (SOPs).

As you feel necessary, list the abbreviations or potentially confusing terminology used in this document.

Procedure/Plan

ACCOUNTABILITY	RESPONSIBILITY
the Energy Team	Identify significant energy using operations and activities associated with the utility's energy improvement action plans, including legal requirements that govern any of these operations.
	Refer to the flowcharts previously constructed to review the steps/tasks in each of the significant energy using operations or activities.
	Verify that the steps are happening correctly (operational controls) and that (if applicable) they are happening consistently in every shift.
	Identify equipment that is essential in this critical operation and verify that it is being sufficiently monitored, calibrated, and maintained.
	Evaluate results. Confirm that each critical operation/activity is being conducted according to expectation. Is it conducted to ensure compliance? Are there opportunities for improvement?
	Determine which of the operational controls should be documented.
	Document the operational controls
	Provide appropriate competency training that may be required. Use the utility's training procedure if developed.
	Manage and control any changed or new documents and records according to the utility's document control process.

References

Input-Output Diagrams

List of Significant Energy Using Activities

Training Procédure

Document Control Procedure

<mark>*List any other documents or information sources which may be needed in order to carry out the tasks identified in this document.*</mark>

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

Awareness and Competency Training

Background

Many energy conservation measures and energy management system procedures require changing work practices. Employees should not be expected to implement such changes on a continuing basis unless they first understand why such changes are needed or how they should be implemented. Competency and awareness training should focus on: (1) specific actions required to improve energy efficiency and (2) the

> **COMPETENCY TRAINING:** Training used to disseminate detailed information on how to perform a specific task in a specific task in a specific way in order to maintain control of an organization's energy impacts.
>
> **AWARENESS TRAINING:** Training used to disseminate detailed information that provides an individual with the basic or general knowledge and understanding of an energy policy, program, or system.

employees' responsibility to adhere to the energy management system. Incorporating various topics into training sessions can streamline training time. Overall, training is a good opportunity for employees and other stakeholders to discuss and connect utility efforts so that employees develop a "big picture" outlook.

Competency training is provided on how to perform a specific task with new or added emphasis on energy efficiency. For example, if a standard operating procedure is developed for a pumping system, information on energy efficiency goals with procedures for operating large-horsepower equipment during non-peak hours might be included.

Awareness training provides basic knowledge and understanding of the energy policy, program or system. For example, during awareness training an office employee may link powering down of his work station to the wider objectives of the energy policy. A building engineer might realize how to cycle airflow more effectively and cut heating needs.

Checklist

The energy management team can support training efforts by checking off the following seven measures for building energy awareness and competency.

☐ 1. **CURRENT TRAINING PRACTICES AND RESOURCES:**

Gather a list of the type of training offered by the utility, whether or not energy related. Identify if the training is formal or informal, how it is managed, frequency, and required attendees.

☐ 2. **ASSESS TRAINING PRIORITIES, INTERESTS AND REQUIREMENTS:**

Review operations or equipment that affect the use of energy the most or have a potential for ready improvement. Refer to operational controls and determine critical equipment or processes that require training. Identify staff associated with these operations and determine the awareness and competency to be enhanced.

☐ 3. **DEFINE LEARNING OBJECTIVES AND OUTCOMES:**

Awareness outcomes might include: (1) list three parts of the energy policy that apply to your

department, (2) recognize how energy is produced and measured, (3) gain an appreciation of energy use at the plant, (3) discuss issues of energy safety, or (5) describe how everyone is an energy manager. Competency training raises the technical aptitude of employees by improving the way things operate. Discuss with employees professional training opportunities.

☐ 4. **PREPARE A TRAINING PLAN:** Develop a plan to deliver energy awareness and competency training to the employees and stakeholders identified in Step 1. The plan should tell who will develop and deliver the training along with how, when, and where the training will be delivered.

☐ 5. **CONDUCT THE TRAINING AND MAINTAIN TRAINING RECORDS:** Determine how training is to be recorded and where the records are to be stored. Typically training is documented on a controlled EMS form.

☐ 6. **EVALUATE EFFECTIVENESS:** Periodically, monitor and verify that employees and key stakeholders are carrying out operational controls and other directives as specified in the competency training. Audit operational controls and verify that documentation is consistent with actual work performed. "Say what you do, Do what you say."

☐ 7. **APPLY LESSONS LEARNED AND KEYS TO SUCCESS:** Report the monitoring results up the management chain as appropriate to the organization. Evaluate whether any changes are needed in the operational controls or training content and apply the lessons learned to future training plans and materials.

By documenting the answers to these questions, an effective energy awareness and competency training procedure will be developed for your organization.

For more information on competency and awareness training see Session 5, Module 2, pages 56-57 in the *Energy Management Guidebook* for more information on this topic.

Energy Management System Procedure
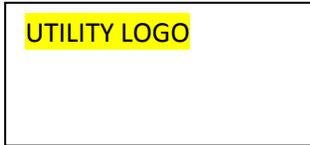
Utility name

Awareness and Competency Training

CONTROLLED DOCUMENT

Subject:		Document No:	WW - xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Purpose

This Procedure describes how **Utility Name** identifies and provides awareness and competency training about energy efficiency in order that any person working for or on its behalf whose work could have a significant energy impact at the utility has appropriate education, training or experience.

Scope

This procedure applies to all employees and external stakeholders in Define your Project Fenceline Here when engaged in utility work-related activities.

Definitions

As you feel necessary, list the abbreviations or potentially confusing terminology used in this document.

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

Procedure (Include reporting requirements in this section)

ACCOUNTABILITY	RESPONSIBILITY
	COMPETENCY TRAINING
	Define appropriate frequency, e.g., annually, or when any modifications to existing processes are made. Review the critical operations that affect the utility's use of energy.
	Identify the name and position of employees and external stakeholders associated with these critical operations who need energy competency training.
	Determine training objectives. If needed, tweak current training materials to include up-to-date energy control issues.
	Develop a schedule and plan to deliver energy competency training to employees and external stakeholders (Note: The plan should describe the 5 W's - who, what, where, when, why - and also tell how)
	Deliver the training and maintain training records.
	Store competency training materials in (*enter location here*)
	When any of the steps in the utility operations change, identify if any are energy-critical and identify the employees and external stakeholders who may need updated energy competency training.
	Update current training materials to include these changes related to energy.
	At least annually or insert alternative timeframe, monitor and verify that employees and external stakeholders are implementing operational controls and other directives as specified in the energy competency training.
	Report monitoring results and any suggested corrective actions to (*insert name or position title here*)
	AWARENESS TRAINING

ACCOUNTABILITY	RESPONSIBILITY
	Identify energy awareness training topics to include: (*note the list below is a sample – you should choose your own topics to include in your awareness training*) - The energy policy or mission statement - The importance of energy conservation to the utility - Employee and external stakeholder roles and responsibilities with respect to energy - Etc.
	Develop a schedule and plan to deliver energy awareness training annually to all employees and appropriate external stakeholders (Note: *could this training be integrated with other training you provide, e.g., shop-talks; safety meetings; computer; on-the-job, etc.*)
	Deliver energy awareness training and maintain training records.
	Store awareness training materials in (*enter location here*)
	MAINTAIN TRAINING RECORDS
	Maintain records of competency training
	Acceptable Formats include (*e.g., sign in sheet, certificate, etc.*)
	Competency training records are stored in (*enter location here*)
	Maintain records of awareness training
	Acceptable Formats include (*e.g., sign in sheet, certificate, etc.*)
	Competency training records are stored in (*enter location here*)

References

List any other documents or information sources which may be needed in order to carry out the tasks identified in this document. For example, this procedure might reference a Corrective Action Procedure, a Document Control Procedure, and a Key External Stakeholder Analysis.

Internal and External Communications.
Background

The intent of internal and external communication procedure is to *exchange information* with employees and key stakeholders regarding the following components of the energy management system:

- Management commitment to energy programs (motivate);
- Energy policy or mission statement;
- Energy improvement goals; and
- Energy saving progress and benefits.

Most organizations already have some form of internal and external communication method in place to keep employees and stakeholders informed, and to gather feedback and ideas for improvement. The piece that is typically missing is a procedure documenting the method for internal and external communications. If the utility already has a method for internal and external communication, the first task is to ensure that these methods are effective and then to define and document them.

> **COMMUNICATION:** A two-way process of exchanging information, ideas, and opinions to achieve mutual understanding.

> **INTERNAL COMMUNICATION:** The flow of relevant information among people inside the organization; especially important because the success of energy management efforts depends on strong employee buy-in and participation.
>
> **EXTERNAL COMMUNICATION:** The flow of relevant information among people outside the organization; especially important to establishing and maintaining confidence and understanding among external parties and key stakeholders who have an interest and impact on your organization.

Checklist

In order to develop an effective internal and external communication procedure, the organization should complete the following seven steps (check when completed):

☐ 1. **IDENTIFY THE INTENDED AUDIENCE:** Who has interest in and who has the potential to influence your energy management goals? An effective communications strategy always identifies the different groups of people with whom you will need to communicate. Each may need to be dealt with and approached differently depending on their culture and their motivators.

☐ 2. **DEFINE THE OBJECTIVE:** What is the *purpose* of the communication? For instance, is the intention to: a) motivate employees to become actively involved in energy conservations measures, b) document energy improvement activities and performance, c) reinforce commitment to the on-going implementation of energy improvements, d) monitor success, or e) aid planning?

☐ 3. **DEVELOP THE MESSAGE CONTENT:** Communications are to be clear, sharp, simple, consistent, and appropriate.

	4.	**IDENTIFY APPROPRIATE COMMUNICATION VEHICLES:**	What is the best format for the information? For example, typical communication vehicles include general meetings, department meetings, one-on-one conversations, working lunches, newsletter, web postings, or bulletin boards.
☐	5.	**DECIDE WHO SHOULD DELIVER THE MESSAGE AND WHEN:**	Many of the changes the energy management system brings are new and challenging, both inside and outside the organization. The goal is to ensure those who need energy management information because it is relevant to their jobs and roles in the energy management system know where to access the appropriate information.
☐	6.	**PREPARE INTERNAL AND EXTERNAL COMMUNICATION MESSAGES:**	As you monitor and measure progress in achieving energy targets, improvements and efficiencies in operational controls, money saved and return on investment, document and update these benefits regularly and work them into internal and external communications. Both quantitative and qualitative information is relevant and useful in communication plans.

By documenting the answers to these questions, an effective internal and external communication procedure has been created for your organization.

Refer to Session 5, Module 2, pages 57-59 in the *Energy Management Guidebook* for more information on this topic.

Energy Management System Procedure

<table>
<tr>
<td rowspan="3">UTILITY LOGO</td>
<td colspan="2" align="center">UTILITY NAME

Internal and External Communication</td>
<td align="center">**CONTROLLED DOCUMENT**</td>
</tr>
</table>

Subject:		Document No:	WW - xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Purpose

This Procedure describes how *Utility Name* develops and implements a procedure for communicating about the energy policy, energy improvement goals, and energy saving progress with internal and external stakeholders.

Scope

This procedure applies to all employees and external stakeholders in Define your Project Fenceline Here when engaged in utility work-related activities.

Definitions

As you feel necessary, list the abbreviations or potentially confusing terminology used in this document.

Procedure/Plan

ACCOUNTABILITY	RESPONSIBILITY
	INTERNAL COMMUNICATION
	Define the objective of this communication e.g., *This message provides information about the energy policy, energy targets, progress toward targets, and benefits the utility has achieved.*
	Identify the target audience, e.g., *all utility employees and those who work on behalf of the utility (e.g., contractors, suppliers)* and their motivators? Any language or cultural considerations to consider?
	Collect/update data and information
	Write the message and identify the most appropriate form for the message.

ACCOUNTABILITY	RESPONSIBILITY
	Identify when and where the message will be disseminated.
	Identify who would be best to deliver the message.
	Monitor the effectiveness of the communication.
	Apply lessons learned and corrective actions to your communication plan.
	EXTERNAL COMMUNICATION
	Conduct an analysis of those key external stakeholders who have an interest in and the potential to impact your energy management goals.
	Define the objective of this communication e.g., *This message describes the energy policy, energy targets, progress toward targets, and associated benefits.*
	Identify the target audience for the current message and key contact information.
	Collect/update data and information.
	Write the message content and identify the most appropriate form for the message.
	Identify when and where the message will be disseminated.
	Identify who would be best to deliver the message.
	Monitor the effectiveness of the communication.
	Apply lessons learned and corrective actions to the communication plan.

References

List any other documents or information sources which may be needed in order to carry out the tasks identified in this document. For example, this procedure might reference a Corrective Action Procedure, a Document Control Procedure, and a Key External Stakeholder Analysis.

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

Document Control
Background

Document control helps ensure that only current documents are in use at the utility. With respect to records, the intent is that records necessary to manage and maintain the energy management system and those that are required by law are current, easily accessible, protected, and archived when necessary.

> **DOCUMENT CONTROL:** Certainty that current documents are approved by competent persons, are legible, readily accessible, user friendly, distributed to the places where they are used, and that old and obsolete versions are
>
> **RECORD CONTROL:** Certainty that records verify valid and unbiased data, are available where needed, are protected for revisions, and that old and obsolete versions are removed, archived, or destroyed according to the most current legal and other requirements.

Checklist

Most organizations already have some form of document control. They may post their write-protected documents on their internal website for quick distribution or maintain controlled documents in protected electronic file folders. The organization will need to verify they have a documented procedure detailing how documents and records are controlled. The procedure will supply the following information about how documents and records are controlled:

- The document approval and modification process.
- The document distribution system - ensure that current versions of documents are appropriately distributed, available at the workstations where they are employed, and are user friendly.
- How old or obsolete documents and records are removed. Where records are stored and for what length of time.

Monroe Water Treatment Plant, Bloomington, Indiana

DEVELOPING DOCUMENT AND RECORD CONTROLS:

In order to develop effective document and record controls, the organization should complete the following steps (check when completed).

☐	**1. IDENTIFY WHICH DOCUMENTS AND RECORDS SHOULD BE CONTROLLED:**	Identify the documents the organization uses for non-routine or routine operations that affect energy usage. Identify the types of records the organization is required to maintain. *e.g., training records, maintenance slips, compliance reports, hours of pump operation, etc.*
☐	**2. REVIEW DOCUMENTS FROM THE USERS POINT OF VIEW:**	Verify documents are clear, concise, and easily identifiable. Confirm the documents reflect the procedure performed in the operation. "Do What you Say, Say What you Do."
☐	**3. IDENTIFY LOCATION(S) WHERE DOCUMENTS ARE STORED:**	Determine where controlled documents should be stored. Controlled documents can be retrieved by employees from "Read Only" controlled computer folders, available via the internal web site, or can be printed and signed on controlled paper and stored in one location. Determine what method of

control, storage, and usage is appropriate for your organization. Copies of documents used by employees will be considered "unapproved copies". Ensure when procedures or documents are updated that employees receive the most current version.

☐ **4. DEFINE A DOCUMENT APPROVAL SYSTEM:**

An approval/authorization system ensures that distributed documents are appropriate for persons who receive them. The system can specify that documents are created by persons who are experts by nature of education, training, or experience and verify that a responsible person has approved the document for use in the utility. Approvals can be indicated on paper documents as a signature and electronic documents may be write-protected and only posted by a document manager in either web or specific file location after approved. Determine which method works best for the organization.

☐ **5. DETERMINE WHERE RECORDS ARE STORED:**

Determine what records are required to be retained by the utility, what location(s) is appropriate for storage, and the length of time for retention for documents. Distribute the record retention procedure to ensure necessary documents are stored per legal and other requirements. Develop a schedule to destroy old records once the retention time is met.

After the answers to these questions are considered, for the next step is to create an effective document control procedure to manage energy use within the organization.

 Refer to Session 5, Module 2, pages 59-62 in the *Energy Management Guidebook* for more information on this topic.

Energy Management System Procedure
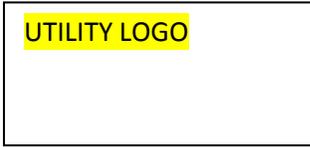
UTILITY LOGO	**UTILITY NAME**	CONTROLLED DOCUMENT
	Document and Record Control	

Subject:		Document No:	WW - xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Purpose

This Procedure describes how *Utility Name* develops and implements a procedure for the approval, issue, maintenance, and control of all energy management system documentation.

Scope

This procedure applies to all employees and external stakeholders in Define your Project Fenceline Here when engaged in utility work-related activities associated with the energy management system.

Definitions

As you feel necessary, list the abbreviations or potentially confusing terminology used in this document.

Procedure/Plan

ACCOUNTABILITY	RESPONSIBILITY
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will clearly define the documents and records they need to establish and maintain the energy management system. These documents and records will be labeled "CONTROLLED DOCUMENT" or another label of the utility's choice.
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will review the documents and records defined above to verify they are created, reviewed and authorized by appropriate personnel; distributed and easily available when and where needed; legible and readily identifiable; appropriate for user skill and language levels; the current version.

Created in partnership by Indiana Department of Environmental Management, U.S. Environmental Protection Agency, and Global Environment & Technology Foundation (a 501(c)(3) not-for-profit).

ACCOUNTABILITY	RESPONSIBILITY
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will verify that all controlled documents have a consistent document control header which includes: • The utility logo in the upper left hand corner • The words CONTROLLED DOCUMENT in the upper right hand corner • A document heading that includes: the name of the utility; the title of the document; a matrix telling the subject of the document, the document number, who reviewed the document, who approved the document, the date it was approved, and its original date of issue. • A statement that says "Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid." (**or insert your preferred document control header)**
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will verify that all controlled documents have a consistent document control footer which includes: • The name of the document • The page number • The document number • The revision date **or insert your preferred document control footer)**
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will verify that all controlled documents have a consistent document control format which includes: • Purpose • Scope • Definitions • Procedure/Plan **(or insert your preferred document control formatting)**
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will verify that all controlled documents as appropriate provide information that tells • Who has responsibility • What needs to be done • When it needs to be done • Where it needs to be done • Where information about the task will be stored. **(or insert your preferred document information)**

ACCOUNTABILITY	RESPONSIBILITY
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will verify that all controlled documents as appropriate provide information that lists any other documents, records or information sources which may be needed in order to carry out the tasks identified in this document. **(or insert your preferred additional document information)**
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will assure that documents and records verified above are appropriately distributed and available throughout the organization as needed.
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will remove or archive or destroy old or obsolete documents and records according to their record retention policy.

References

List any other documents or information sources which may be needed in order to carry out the tasks identified in this document. For example, this procedure might reference a Utility Record Retention Policy, a Document Format Policy, and an Intranet address.

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

Monitoring and Measurement

Background

Establishing baseline conditions and regularly measuring process improvements are essential for long-term energy management. Monitoring and measurement are useful to identify energy performance, keep track of energy improvements, and show where areas of the energy management system are performing need improvement.

Monitoring and measurement may be qualitative or quantitative. Quantitative measurements include electricity usage, natural gas usage, process flow, energy cost, and number of employees trained. Qualitative measurements capture information on staff familiarity with the energy policy or awareness of the importance of improving energy efficiency.

> **MONITORING AND MEASUREMENT:**
> Relates to structured activities for evaluating the key characteristics of the energy management system. Key characteristics include:
>
> - Measuring energy consumption and performance, especially as it relates to significant energy using activities;
> - Maintaining the efficiency of energy using equipment;
> - Regularly reviewing the progress in achieving energy improvement goals; and
> - Verifying conformance with operational controls (Work Instructions).

Legal and other requirements require a considerable amount of monitoring and measurement in the utility. In developing a procedure that shows how to monitor and measure the energy management system, ask the following questions: What additional metrics should be included in the energy management system? What are the monitoring capabilities? Who is collects the information? Will the results accurately reflect benefits and improvements? Are there opportunities for improvement such as more instrumentation or automated data collection?

Dissolved Oxygen Meter, Wastewater Utility Mishawaka, Indiana

Checklist

In order to develop an effective monitoring and measurement procedure, the organization should complete the following steps (check when completed):

☐ 1. **CURRENT MONITORING AND MEASUREMENT:** Determine what the utility is required to monitor and measure either by permit requirement, legal requirement, or other requirements. Determine who records this information, where the information is stored, how the data is used, and record retention requirements for the data.

☐ 2. **AUDITING:** Determine a schedule for reviewing compliance with the Energy Management System and specifically the

operational controls for the facility. Remember that an Energy Management System allows the organization to check if it is doing what was said they would do. Update procedures or schedule training as necessary pending audit results.

☐ 3. **COMMUNICATING YOUR PERFORMANCE:** Determine what information is appropriate to share with stakeholders concerning audit results and performance indicators from measuring status from objectives and targets. Example, if an audit finds that several procedures in a specific department are not being followed, consider retraining the specific department on all procedures and ensuring the employees are aware of how to access procedures. Communicate with top management results of audits and status of performance indicators during management review meetings. Consider communicating results of energy reductions or cost savings with employees on an annual or more frequent basis.

☐ 4. **CALIBRATING EQUIPMENT:** Determine the frequency of calibration for equipment either from information from permits or manufacturer's information. Ensure that calibration is performed as required per manufacturer's specifications and that records are stored appropriately. Investigate options to repair or replace any equipment that is determined to be out of range and not able to be calibrated.

☐ 5. **OPPORTUNITIES FOR IMPROVEMENT:** Discuss the results of these questions with the Energy Team and identify if there are any opportunities for improvement.

By documenting the answers to these questions, an effective energy monitoring and measurement procedure can be documented for the organization.

Refer to Session 6, Modules 1 - 6, pages 63-71 in the *Energy Management Guidebook* for more information on this topic.

Energy Management System Procedure

UTILITY LOGO	UTILITY NAME	CONTROLLED DOCUMENT
	Monitoring and Measurement	

Subject:		Document No:	WW - xxxx
Reviewed By:		**Original Date:**	
Approved By:		**Date Approved:**	

Purpose

This Procedure describes how *Utility Name* monitors and measures the key characteristics of its energy management system.

Scope

This procedure applies to all employees and external stakeholders in Define your Project Fenceline Here when engaged in utility work-related activities associated with the energy management system.

Definitions

Key characteristics include:

- Measuring energy consumption and performance, especially as it relates to significant energy using activities;
- Maintaining the efficiency of energy using equipment;
- Regularly reviewing your progress in achieving energy improvement goals;
- Verifying conformance with operational controls (Work Instructions);
- Evaluating regulatory compliance

As you feel necessary, list the abbreviations or potentially confusing terminology used in this document

Procedure/Plan

ACCOUNTABILITY	RESPONSIBILITY
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time), clearly define what each department in the utility will monitor and measure regarding their energy consumption and performance, when it wants the information reported, and to whom.
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) each department in the utility will identify the energy using equipment that is most significant in their energy management system, and develop and implement an appropriate maintenance schedule for this equipment.
Name the accountable job function or employee who will complete this task here	Semi-annually (or insert your preferred time) each department in the utility whose work is associated with energy improvement goals will monitor its progress in completing the tasks in their action plans and achieving the energy targets. Each department will report results to the Energy Team (or insert your preferred recipient
Name the accountable job function or employee who will complete this task here	Semi-annually (or insert your preferred time) each department in the utility whose work is associated with the energy management system will verify that employees are performing tasks as suggested in operational control (work instructions, SOPs, etc.)
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) the utility will identify if they are current with any new legal or other requirements.
Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred time) the utility will check their compliance with legal and other requirements.

References

List any other documents or information sources which may be needed in order to carry out the tasks identified in this document. For example, this procedure might reference a Utility Record Retention Policy, a Document Format Policy, and an Intranet address.

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

| *Created in partnership by Indiana Department of Environmental Management, U.S. Environmental Protection Agency, and Global Environment & Technology Foundation (a 501(c)(3) not-for-profit).*

Corrective Action

Background

Corrective actions mitigate a nonconformance that needs immediate attention, like safety and health accidents, spills, and improper procedure implementation. An improvement opportunity can also be investigated through the corrective action process. A corrective action procedure explains how to investigate each nonconformance, determine the root cause of the nonconformance, and develop a corrective action to ensure the nonconformance is not repeated. Implementing the corrective action process defines a clear "find and fix" improvement plan by ensuring the nonconformance is corrected and preventive actions are taken so the nonconformance does not reoccur. Identifying a nonconformance and addressing it through a corrective action process are keys to continual improvement of an energy management system.

> **CORRECTIVE ACTION:** An action taken to correct and eliminate the cause(s) of a nonconformance in the short-term and to prevent a reoccurrence in the long-term.

> **NONCONFORMANCE:** An instance where an element, activity, operation, or procedure is not being implemented in accordance with a prevailing standard. For example, an employee is not performing an activity in accordance with a standard operating procedure in your energy management system thus the activity being performed does not *conform* to your energy plans and procedures.

Checklist

The corrective action procedure defines how to identify, manage, and wherever possible, prevent problems in daily operations. Consider the following steps to develop an effective corrective action procedure (check when completed):

☐ 1. **EVALUATE THE EXISTING CORRECTIVE ACTION PROCEDURE:** Review current practices the organization has for corrective and preventive action. Determine if this procedure is working well for the organization, instructions are detailed in a document, and if the procedure has been clearly communicated throughout the organization.

☐ 2. **IDENTIFY THE NONCONFORMANCE:** Determine how your organization identifies nonconformities and opportunities for improvement. Identifying a nonconformance can be initiated through audit findings, suggestions from employees, monitoring data regarding priority energy issues, anomalies in operations or data results, and so on.

☐ 3. **DEFINE RESPONSIBILITIES AND DUE DATES FOR ADDRESSING A NONCONFORMANCE:** Determine who in the organization is the best person to mitigate and investigate a nonconformance and assign due dates by which they will completely address the nonconformance. The first priority is always to mitigate any potential negative environmental or energy impacts as quickly as possible.

☐ 4. **IDENTIFY THE ROOT CAUSE:** It is important to look past the obvious and identify

the underlying reason(s) that caused the nonconformance. For example, is the root cause of a group of employees not following a procedure a result of the employees not being properly trained? Or was an updated procedure not communicated to employees? Try to detect patterns or trends when identifying the root cause. Identifying trends assists in anticipating and preventing future problems.

☐ 5. **IDENTIFY THE CORRECTIVE ACTION:** Discuss the nonconformance with appropriate personnel in the organization before determining the corrective action. Select the corrective action that seems most appropriate for the level of severity of the root cause.

☐ 6. **IMPLEMENT THE CORRECTIVE ACTION:** Implement the corrective action after identifying the root cause and the corrective action to mitigate and prevent the root cause from reoccurring. Specify roles, responsibilities, and schedules for completion, and ensure the corrective action(s) is based on an analysis of the root cause. Determine if any documents, work instructions, or forms need to be modified for the corrective action. Track the corrective action to closure.

☐ 7. **VERIFY THE CORRECTIVE ACTION WAS EFFECTIVE:** Review the current operations status to verify if the corrective action solved the nonconformance and will prevent any reoccurrences. The depth and complexity of monitoring a corrective action depends on the severity of the nonconformance.

☐ 8. **CLOSURE OF THE CORRECTIVE ACTION:** Present the completed corrective action to top management for approval and closure or follow your corrective action procedure for final review of the process to close the corrective action.

By documenting the answers to these questions, an effective corrective action procedure can be created for the organization.

Refer to Session 6, Module 4, pages 68-69 in the *Energy Management Guidebook* for more information on this topic.

Energy Management System Procedure

UTILITY LOGO	UTILITY NAME **Corrective Action**	CONTROLLED DOCUMENT

Subject:		Document No:	WW - xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Purpose

*This Procedure describes how **Utility Name** maintains and uses a system to identify nonconformances and problems and to correct these and track them to closure.*

Scope

*This procedure applies to all employees and external stakeholders in **Define your Project Fenceline Here** when engaged in utility work-related activities associated with the energy management system. This procedure applies to all nonconformances requiring corrective action by staff. These will typically be identified by the following methods: Monitoring and measurement, Environmental Compliance Audits, Safety Audits, Inspections, Incident Reports, Complaints, Compliance Inspections, Permit Inspections, Employee suggestions.*

Procedure/Plan

Accountability	Responsibility
Name the accountable job function or employee who will complete this task here	Identify potential problem or nonconformance and notify supervisor and Energy Team member by e-mail.
Name the accountable job function or employee who will complete this task here	Determine whether the potential nonconformance needs a documented corrective action request (CAR). If yes, complete a CAR. If no, discuss rationale with staff reporting potential nonconformance. (Note: the severity of the nonconformance will determine the action.)

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Accountability	Responsibility
Name the accountable job function or employee who will complete this task here	Review corrective action request information and inform Division Management of any identified nonconformance that involves a potential regulatory or legal noncompliance. Determine appropriate staff to take corrective action, set schedule and responsibilities.
Name the accountable job function or employee who will complete this task here	Notify appropriate staff and request immediate corrective action if containment of some type is needed or if this is a regulatory noncompliance.
Name the accountable job function or employee who will complete this task here	Identify the root cause of the nonconformance.
Name the accountable job function or employee who will complete this task here	Identify appropriate corrective actions, schedule and responsibilities and forward electronically to the Energy Team, with a copy to work section.
Name the accountable job function or employee who will complete this task here	Determine the corrective action that will be used in this case.
Name the accountable job function or employee who will complete this task here	Implement the necessary corrective action.
Name the accountable job function or employee who will complete this task here	Track the corrective action to closure.
Name the accountable job function or employee who will complete this task here	Verify Effectiveness
Name the accountable job function or employee who will complete this task here	Change SOPs or Training materials if required
Name the accountable job function or employee who will complete this task here	Adjust Documents using document control processes

References

Corrective Action Request (CAR) Form

<mark>List any other documents or information sources which may be needed in order to carry out the tasks identified in this document. For example, this procedure might reference the Management Review, the Document Control Policy, Monitoring and Measuring Procedures, and Plans.</mark>

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

Management Review
Background

The management review is the final element in the Plan-Do-Check-Act cycle. It's an opportunity to review the quantitative and qualitative benefits from the energy management system. During the review, senior management as well as energy team members will assess the suitability, adequacy, and effectiveness of the system developed and implemented.   It's also an opportunity to suggest improvements,

> **MANAGEMENT REVIEW:** A periodic evaluation conducted by senior management and personnel involved in energy improvement system on the status of the system, the projects and the initiative(s).

review performance indicators, and prepare to new objectives and targets for continued energy improvements. Attempting to implement energy improvements to operations will be futile without management's full support, commitment, and involvement. The management review is an important final step in growing and sustaining your energy management plans.

In order to prepare for the management review, here are some questions about your energy management system that the Energy Team might want to consider and discuss:

- How did we add value to the organization?
- What new information was discovered?
- What would we change?
- What do our efforts to date mean for continuing to improve energy performance while maintaining compliance?
- How are we going to communicate our successes, efforts, and continuing challenges?
- How do we keep the momentum going?

Angola, Indiana Wastewater Treatment Plant

Don't hesitate to ask senior management what information and data they would like in the Management Review. Here are a few topics other water and wastewater utilities have included.

- Are we on track to achieve our objectives and targets? Is our energy policy still relevant to what we want to accomplish?
- Do we need to realign any resources to meet our energy mission and goals and maintain the energy management system?
- What changing circumstances are we experiencing or anticipating (e.g., changes in operations or service, new customers, new laws, etc?) that may have an effect on our energy programs?
- What stakeholder concerns have been raised since our last review and how are they being addressed?
- What is the status of our corrective actions?
- Based on the utility's strategic goals for energy and business realities, what specific areas of our operations and activities might be the focus of our next round of objectives and targets and energy improvement plans?

Checklist

☐ 1. **DETERMINE REVIEW FREQUENCY:** Schedule Management Reviews at appropriate intervals to review status with top management. Choose a frequency that will work best for the organization but one should be scheduled at least annually. You may consider including the Management Review agenda to other meetings that senior management has already scheduled.

☐ 2. **IDENTIFY WHO SHOULD ATTEND THE MANAGEMENT REVIEW:** Determine the management review meeting attendees by identifying top management and key stakeholders whether internal or external. Of course, the energy team members should attend the review.

☐ 3. **IDENTIFY WHAT TO REVIEW:** Determine with the Energy Team the information needed to communicate with senior management Develop a draft agenda to share with top management and discuss if the agenda is complete or requires revisions.

☐ 4. **CONDUCT A MANAGEMENT REVIEW:** Generally the Energy Team leader will be the spokesperson during the review. Make sure that someone documents and records what issues were discussed, what decisions were reached, and any follow up action items and responsibilities. Management Review notes are part of the record retention program and should be distributed to all attendees for review after the meeting. This is one way to confirm agreement on decisions regarding changes for continual improvement. Be sure to track any action items to closure.

☐ 5. **COMMUNICATE SUCCESS:** Management's input and involvement is critical to the success of the energy improvement goals, to maintaining your system, and to ensuring buy-in and commitment from the entire staff. Using the information and suggestions from the Management Review, consider scheduling an employee meeting to communicate a summary of results of the management review. Examples of information to share with employees are audit findings, new programs or procedures, status of performance indicators, new objectives and targets, and a review of the energy policy.

By documenting the answers to these questions, an effective Management Review procedure can be developed for the organization.

Refer to Session 6, Module 3 page 75 in the *Energy Management Guidebook* for more information on this topic.

Template

ENERGY MANAGEMENT SYSTEM PROCEDURE

UTILITY LOGO	**UTILITY NAME** **MANAGEMENT REVIEW**	*CONTROLLED DOCUMENT*

Subject:		Document No:	WW - xxxx
Reviewed By:		Original Date:	
Approved By:		Date Approved:	

Purpose

The purpose of this procedure is to describe the process and primary agenda of issues to be included in the Utility Name Management Review meetings for evaluating the organization's Energy Management System. The review is intended to provide a forum for discussion and improvement of the Energy Management System and to provide management with a vehicle for making any changes to the system necessary to achieve the organization's goals.

Scope

This procedure applies to selected employees and external stakeholders identified by **Name of Your Utility's** *Energy Team who will participate in the Management Review meeting and who will be involved in communicating information about the Energy Management System.*

Definitions

As you feel necessary, list the abbreviations or potentially confusing terminology used in this document.

Procedure/Plan

ACCOUNTABILITY	RESPONSIBILITY
Energy Team Leader or Name the accountable job function or employee who will complete this task here	Annually (or insert your preferred frequency), confirm the date and time for a management review meeting. Identify who will attend.

ACCOUNTABILITY	RESPONSIBILITY
<mark>Name the accountable job function or employee who will complete this task here</mark>	Work with the Energy Team to determine the topics for the management review, such as (1) progress in achieving objectives and targets; (2) quantitative and qualitative benefits; (3) suitability and effectiveness of the energy management system; (4) continued appropriateness of the Energy Policy; (5) focus areas for the next round of energy objectives and targets; (6) lessons learned in developing and implementing the energy management system.
<mark>Name the accountable job function or employee who will complete this task here</mark>	Develop an agenda for the management review meeting and distribute it as appropriate.
<mark>Name the accountable job function or employee who will complete this task here</mark>	Lead the management review meeting.
<mark>Name the accountable job function or employee who will complete this task here</mark>	Document and record the issues discussed, what decisions were reached, and any follow up action items and responsibilities These meeting minutes will include, a list of attendees, a summary of key issues discussed, and any action items arising from the meeting. Any action items will be tracked to closure using the Monitoring and Measuring System Procedure. A copy of the meeting minutes will be distributed to attendees and any individuals assigned action items. A copy of the meeting minutes will be retained on file.
<mark>Name the accountable job function or employee who will complete this task here</mark>	Develop plans to communicate the results of the management review meeting and the quantitative and qualitative benefits of the energy management system.

References

<mark>List any other documents or information sources which may be needed in order to carry out the tasks identified in this document. For example, this procedure might reference a Utility Record Retention Policy, a Document Format Policy, and an Intranet address.</mark>

Users of this document are responsible to ensure it is the most current version. Otherwise this document is invalid.

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