ASME EA-10–2026

Decarbonization Assessment for Facilities

AN AMERICAN NATIONAL STANDARD



The American Society of Mechanical Engineers

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The American Society of Mechanical Engineers

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FOREWORD

ASME EA-10 sets the requirements for preparing for, conducting, and reporting the results of a facility-wide decarbonization assessment (called Assessment throughout) for reduction of greenhouse gas (GHG) emissions.

This Standard focuses on the industrial sector and other large energy-using facilities (e.g., hospitals, universities, large commercial buildings) but can also be used at smaller facilities. An Assessment (sometimes called an audit) includes determining a facility's energy use and identifying significant energy-using and GHG-producing equipment. An Assessment also includes analysis of potential energy and GHG performance improvement opportunities, including energy efficiency, electrification (the process of replacing technologies that are powered by fossil fuels with technologies that use electricity), on-site energy generation and extraction, fuel switching to a lower-carbon source, and carbon capture and storage. This Standard also includes analysis of improvements from fugitive and process GHG sources. Carbon offsets are not addressed in this Standard

This Standard sets the requirements for conducting and reporting the results of an Assessment that considers the entire system, from energy inputs to the work performed as the result of these inputs. An Assessment complying with this Standard need not address each individual system component or subsystem within a facility with equal weight; however, the Assessment must be sufficiently comprehensive to identify the major energy GHG reduction opportunities.

The Standard is part of a portfolio of documents and other efforts designed to improve the energy efficiency of facilities. Assessment standards were developed for compressed air, process heating, pumping, and steam systems.

ASME EA-10–2026 was approved by the Industrial System Energy Assessment Standards Committee on April 14, 2026, and by the American National Standards Institute on October 1, 2026.

ASME EA COMMITTEE
Industrial System Energy Assessment

(The following is the roster of the committee at the time of approval of this Standard.)

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In addition, the committee may post errata on the committee web page. Errata become effective on the date posted. Users can register on the committee web page to receive email notifications of posted errata.

This Standard is always open for comment, and the committee welcomes proposals for revisions. Such proposals should be as specific as possible, citing the paragraph number, the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent background information and supporting documentation.

Cases

(a) The most common applications for cases are

(1) to permit early implementation of a revision based on an urgent need

(2) to provide alternative requirements

(3) to allow users to gain experience with alternative or potential additional requirements prior to incorporation directly into the Standard

(4) to permit the use of a new material or process

(b) Users are cautioned that not all jurisdictions or owners automatically accept cases. Cases are not to be considered as approving, recommending, certifying, or endorsing any proprietary or specific design, or as limiting in any way the freedom of manufacturers, constructors, or owners to choose any method of design or any form of construction that conforms to the Standard.

(c) A proposed case shall be written as a question and reply in the same format as existing cases. The proposal shall also include the following information:

(1) a statement of need and background information

(2) the urgency of the case (e.g., the case concerns a project that is underway or imminent)

(3) the Standard and the paragraph, figure, or table number

(4) the editions of the Standard to which the proposed case applies

(d) A case is effective for use when the public review process has been completed and it is approved by the cognizant supervisory board. Approved cases are posted on the committee web page.

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DECARBONIZATION ASSESSMENT FOR FACILITIES

1 SCOPE AND INTRODUCTION

1.1 Scope

1.1.1 This Standard sets the requirements for preparing for, conducting, and reporting the results of a facility-wide decarbonization assessment[1] (hereafter called an Assessment) for reduction of Scope 1 and Scope 2 energy-related greenhouse gas (GHG) emissions[2] in alignment with the following:

(a) an ISO 50001–based energy management system (EnMS)
(b) an organizational decarbonization strategy
(c) a GHG emissions inventory and reporting system

This Standard focuses on the industrial sector and other large energy-using facilities (e.g., hospitals, universities, large commercial buildings) but can also be used at smaller facilities. An Assessment (sometimes called an audit) includes determining a facility's energy use and identifying significant energy-using and GHG-producing equipment. An Assessment also includes analysis of potential energy and GHG performance improvement opportunities, including energy efficiency,[3] electrification (the process of replacing technologies that are powered by fossil fuels with technologies that use electricity), on-site energy generation and extraction, fuel switching to a lower-carbon source, and carbon capture and storage. This Standard also includes analysis of improvements from fugitive and process GHG sources. Carbon offsets (transferable financial instruments certified by governments or certification bodies to represent an emission reduction that can then be bought or sold) are not addressed in this Standard.

1.1.2 Assessments involve collecting, analyzing, and reporting data from the following categories:

(a) purchased utilities, fuels, and on-site generation
(b) energy use and associated GHG emissions
(c) fugitive and process-related emissions
(d) energy and GHG performance indicators and baselines
(e) system, process, and facility design, operation, maintenance, and performance
(f) significant energy-using and GHG-producing equipment
(g) potential energy-efficient measures
(h) potential electrification (including review of electrical capacity constraints), on-site energy generation and extraction, fuel switching to a lower-carbon source, and carbon capture and storage opportunities

1.1.3 This Standard sets the requirements for

(a) organizing and conducting the Assessment
(b) analyzing the data from the Assessment
(c) reporting and documenting Assessment findings and identified opportunities

1.1.4 An Assessment identifies GHG emissions reduction opportunities in alignment with an ISO 50001–based EnMS by performing the energy and GHG review and determining energy and GHG performance indicators and an energy and GHG baseline, all while focusing on decarbonization instead of energy. An Assessment is also part of an organization's decarbonization strategy, identifying actionable projects to reduce GHG emissions that are part of an organization's GHG reduction scenarios and pathways in their GHG emissions reduction plan. Output from the Assessment can also inform an organization's GHG inventory and emissions-reporting process.

[1] A decarbonization assessment reduces Scope 1 and Scope 2 GHG emissions at a facility. Decarbonization assessments can focus on only energy efficiency, or can be more comprehensive, depending on the scope. Obtaining net zero GHG emissions is not always the goal of a decarbonization assessment.

[2] Energy GHG emissions include on-site combustion; fugitive and process-related emissions (including refrigerants) from energy-using equipment; Scope 2 emissions such as electricity generation, district heat, and off-site compressed air; and any other site-level GHG emissions.

[3] The Standard references existing standards for energy-efficiency assessments, such as ANSI/ASHRAE/IES Standard 90.2, ASME EA-1, ASME EA-2, ASME EA-3, ASME EA-4, and ISO 50002.