



Modern Industrial Assessments

A Training Manual

Version 2.0

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Preface to the First Edition

The assessment of energy consumption practices and conservation opportunities for industrial clients has always been tied to the cost of energy resources. Beginning with the oil embargo in the seventies, interest in efficient running of industrial operations has risen with manufacturing cost to the point where the current study of resource use has broadened into the waste minimization / pollution prevention and productivity arenas. The old energy audit allowed directly focused insight into energy applications while the new industrial assessment includes all industrial methodologies at the local manufacturing plant. The energy auditor now finds skills sharpened for the energy side of the business inadequate for the entire process although intuitive observations from energy auditors, which have led to excursions into industrial assessment recommendations in the past, make the transition from energy auditing to industrial assessing a logical and natural one. Precisely that which previously made the energy audit worth the initial investment by the manufacturing concern now makes the full industrial assessment attractive.

But what exactly makes the industrial assessment pay for the client? Analysis of the assessment client's satisfaction indicates several reasons. First, fresh "eyes" and insights into operations commonplace to management commonly bring questionable but normal practice into question. Assessors bring a high degree of sophistication into the manufacturing plant, recommendations are based on firm engineering background after questioning the client as to needs and concerns and precise measurement of existing conditions. Implementation costs are economically analyzed against savings for complete impact projections then explained to management in plain, common language. Finally, the industrial assessor takes pride in the work bringing strong desire to see the plant implement and adopt concepts and ideas presented in the assessment report.

Modern Industrial Assessments: A Training Manual, grew from the desires of the United States Department of Energy's Office of Industrial Technology and the United States Environmental Protection Agency's Risk Reduction Engineering Laboratory to consolidate into a single tome information about industrial assessments presently located in the public domain. This information derived principally from industrial energy conservation and waste minimization / pollution prevention training courses and information agencies sponsored by the Federal Government and to a lesser extent State sponsored research and training material.

This single sourcing of scattered instructions allowed for collapse of many differing ideas of what exactly an industrial assessment may cover. Meshing thought processes and works from multiple backgrounds and disciplines proved to be monumental in its complexities. This first edition therefore represents the "first pass" at the task. Gathering public domain material, arranging the work in a coherent fashion, and indexing the final document took the better part of a year. This investment of time and effort has yielded a compiled product representative of a firm foundation in industrial assessment.

Modern Industrial Assessments: A Training Manual leads the professional through the assessment proves from client selection and assessment methodology to client reporting. In between, there ensues an explanation of energy form definitions to production then transportation, consumption by systems and

finally conservation recommendations. Analysis of waste follows with the study of material waste types, generation, and reduction practices along with pollution prevention background. Preparation of the industrial assessor would be incomplete if not sprinkled liberally with the requisite tools and while energy measurement devices do not transmit well over the internet, what does are numerous examples of time-tested recommendations and the insight of years of experience.

Modern Industrial Assessments: A Training Manual portends to be different from other, similar works in a few ways: energy and waste assessments combined into the industrial assessment, indexing of the manual for easy reference, but most of all its changeability and availability. As the Internet and World Wide Web have flourished in recent years, so has the ability to transfer documents from computer to computer, State to State, or even Country to Country almost instantly and at a fraction of the cost of printing and distributing. *Modern Industrial Assessments: A Training Manual* will be published for public consumption on World Wide Web at the address <http://oipea-www.rutgers.edu>. Some copies undoubtedly will be printed and mailed though traditional means; however, unless the reader has access to the Internet, the most unique feature of *Modern Industrial Assessments: A Training Manual* will be foregone.

To what the World Wide Webmaster will identify as instantaneous access to continuous updating, the “living document” was born and is alive and well and living in cyberspace. The living document has no singular form, thus living documents are subject to change. Living documents do not sit on the shelf fathering dust, the living document is erased as soon as current usage dictates or the reader (or listener) finishes as electronic documents from the “cyber press” download easily for temporary storage on local computer systems for performance via an audio interpreter for the hearing impaired. When the need arises, the industrial assessor or the other interested party can access the web site and fetch the latest version of the document for a fresh examination. Living documents cannot perish – they only get better with age.

Of final note, this first edition of *Modern Industrial Assessments: A Training Manual* will be followed shortly by the second edition. It is gratifying to note that while those responsible for compiling this work realize the need to get the manual into the eager hands of industrial assessors they do not feel comfortable about the readability and up-to-the-minute nature of this 300+ page document. Some chapters are slated for updating while others will be fleshed out with summary thoughts explored and expanded. Industrial assessment technology will be re-examined for state of the art forms the subsequent and future editions. Productivity enhancements loom largely as the next area of concentration for this manual and certainly will merit a full section in the next volume. Future editions will be brought online immediately upon completion of even minor revisions. Industrial assessors can query the experts on any topic relating to resource conservation by sending email to oipea@camp.rutgers.edu as the message will be addressed to OIPEA staff and forwarded to the list moderator for attention. We encourage participation in this open forum.

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