

The first normative ADEME/AFNOR work on energy efficiency has been issued in 2006: The energy diagnosis reference frame for industry

Author – Sylvie Riou
ADEME
French Agency for Environment and Energy Management
France
Sylvie.riou@ademe.fr

Keywords

audit, diagnosis, energy, industry, normative document, reference frame, standard

Abstract

Under the impulse of the French government, a group of experts from ADEME, AFNOR, Ministry of industry, professionals concerned and industry representatives, settled down to the task of developing a reference frame for energy diagnosis in industry.

This reference frame is the first normative document on the good practices in the field of energy diagnoses being based on the experts working group experience, and particularly on ADEME's specifications documents.

The energy diagnosis reference frame issued in April 2006:

- Exposes the context, applicability scope and actors addressed,
- Gives definitions of energetic terms,
- Reminds the general principle and objectives of such a mission summarized for the latter "to work out an assessment of the global energy situation of the company, to quantify the energy saving potentials and to define the actions necessary to realize these savings",
- Defines 3 diagnosis phases, and their particular objectives, unfolding, methodology, stages and results awaited,
- Expresses recommendations concerning the mutual engagements between the industrialist and the diagnostician, essential to reach a first-quality service,
- Proposes a bibliography, useful sites, appendixes... etc.

The reference frame represents a consensus, causes much interest among various actors and presents several benefits both for the industrialist and the diagnostician: a description of an acknowledged method they can refer to, a facilitating dialogue base, a time saving, information on what is awaited of each partner... etc.

Its publication gives place to various presentations towards experts and professionals of the energy efficiency.

The document is currently proposed to the European normative committee.

Introduction

CONTEXT

Under the impulse of French government will, a group of experts from ADEME (French Agency for Environment and Energy Management), AFNOR (Normalisation French Agency), the Ministry of industry (General Directorate for Energy and Raw Materials), concerned professionals and industry representatives, started normative work to develop a reference frame on good practices for the realization of an energy diagnosis in industry.

This work was based on specifications of the pre-diagnosis and the diagnosis written by ADEME and being used as formal supports with the strategy of decision support aid in industry, such as on the experience of several years of practice acquired in this field.

This work also answered a legislative and regulatory context:

- The directive on the energy performance of buildings

- The cogeneration directive (2004)
- The framework directive for the eco-design of the energy consuming products (July 2005)
- Law of orientation on energy efficiency and its application decrees on energy saving certificates
- The directive on energy efficiency in the final uses and to energetic services

AIM

The aim was to prepare for 2005 the first normative document on a reference frame concerning the good practices in the field of energy diagnoses, while being based on the increase of experience of the experts working group. No other international normative reference on this topic was found.

COURSE OF WORK

The group of about thirty experts was created in 2004.

The group met 12 times in a little more than one year to exchange, to gather the experiments, to define a common base among the actors coming from the different sectors, to prepare a document and to formalize a writing.

The last meeting was held in November 2005.

THE REFERENCE FRAME CONTENT

After having pointed out the work context, the document states the applicability scope and interested actors:

- energy using companies, referred to as “industrials”
- companies operating in the area of regulatory control and/or engineering and consultancy (engineering and design offices, audit firms, industrial technical centres, independent experts)
- operators, energy and environmental efficient service companies, energy or maintenance services of the industrial sites, and maintenance companies
- energy suppliers
- equipment suppliers
- authorities

The reference frame reminds the general principles and the objectives of a diagnosis mission, which are summarized for the latter “to work out an assessment of the total energy situation of the company, to quantify the energy saving potentials and to define the necessary actions to realize these savings”.

The reference frame notes the importance of objectivity and independency in diagnosis recommendations, summarized as “do not bear any preconceived idea on primacy of a type of energy, or energy and utility supply, or equipment”.

Principles to ensure a diagnosis high quality service are expressed:

- be attentive to the industrial needs, constraints and expectations,
- create a communicative relationship with him,
- establish a clear and transparent project offer,
- provide all the objective information.

The prior visit is essential to define the mission objective. This objective, the level and area of intervention must be clear between the diagnostician and the industrialist.

The high quality level of exchange is very important, and the reference frame recommends to communicate with the industrialist, in particular, to give documents. The reference frame details the content of these documents.

The diagnosis is defined in 3 phases, in which is identified the objective of each one, its unfolding, the methodology, stages and elements awaited.

The 3 phases are:

phase 1: preliminary analysis

phase 2: detailed analysis and measurement campaigns

phase 3: searching for improvements solutions

The reference frame proposes to classify energy saving recommendations in:

- good practices:
 - behavioural associated with awareness raising and training among staff, knowledge of the facilities and the monitoring of operations;
 - related to the facilities operating processes, including, for example: maintenance plan and operating optimisation, replacement or installation of low-cost materials;
- measures requiring (high cost) investments which include the study on the modification of the facilities and the replacement of machines while integrating the energy efficiency criterion.

The reference frame also contains:

- recommendations concerning the reciprocal engagements between the industrialist and the diagnostician, essential to realize a service of quality
- the bibliography of main works and the useful sites
- a certain number of appendices: logigrams, headings of a proposal for intervention, templates for a collection of information, table of fuel conversion, example of synthesis file, unfolding of a monitoring campaign, lists of reported data, examples of balance schemes and standard tables by equipment type.
- terms and definitions

The document adds up 54 pages.

INTEREST OF THE REFERENCE FRAME

This document caused much interest near various economic actors. It represents a consensus obtained by a group of essential actors in the realisation of one diagnosis, constitutes a collective work, results from the committee of experts joined together within AFNOR and chaired by ADEME.

For the industrialist, the interest of the existence of the reference frame has several origins. It is:

- a description of a consensual method to which he/she can refer
- a base facilitating dialogue, negotiation and exchanges with the diagnostician
- a time saving tool

- a way to be aware of what is awaited from him and from the diagnosis
- examples of outputs (list of equipments, balances, unfolding of a monitoring campaign... etc.)

For the diagnostician, the main interests are:

- to propose a validated method facilitating the dialogue
- to formalize the participation of the industrialist for a service of quality
- to reassure and put in confidence the customer
- to get better quality answer to a call for tender
- to develop its know-how, its trade by describing it
- to obtain an external recognition

The normative reference frame is one of the basic tools of the revival of a French policy on energy efficiency in industry.

PUBLICATION OF THE REFERENCE FRAME IN APRIL 2006

The reference frame is a normative document of AFNOR collection, classified in the field "ENVIRONMENT, RAW MATERIALS, ENERGY" – X30

The diagnosis reference frame carries the reference n° BP X30-120. It is only accessible to the sale. Its publishing gives place to various presentations towards experts groups and for a broader diffusion near the industrialists and professionals of the diagnosis.

THE FIRST APPLICATION OF THE REFERENCE FRAME

An operation of 20 diagnosis begins in Food industry in Bretagne (France 2007).

For the promotion of the reference frame, a training course for diagnostician is proposed.

References

- Reference of goods practices AFNOR – Energy diagnoses within industry – ref BP X30-120, 2006
- Supports ADEME of decision aid in Industry: Chart for diagnosticians, specific sheet for the energy pre-diagnosis and diagnosis
- Energy diagnosis for industrial refrigeration facilities, co-edition ADEME/EDF, 2000
- Energy diagnosis for industrial ventilation facilities, ADEME Editions, 2003
- Practical guide on compressed air, co-edition ADEME/ATEE, 1992
- Methodological guide to heating audits, co-publication ADEME/GDF, 1999
- High energy performance Industry Buildings, Collection ADEME/AICVF, 1997
- Expert guide: control visit in light of the decree of July 5 1977