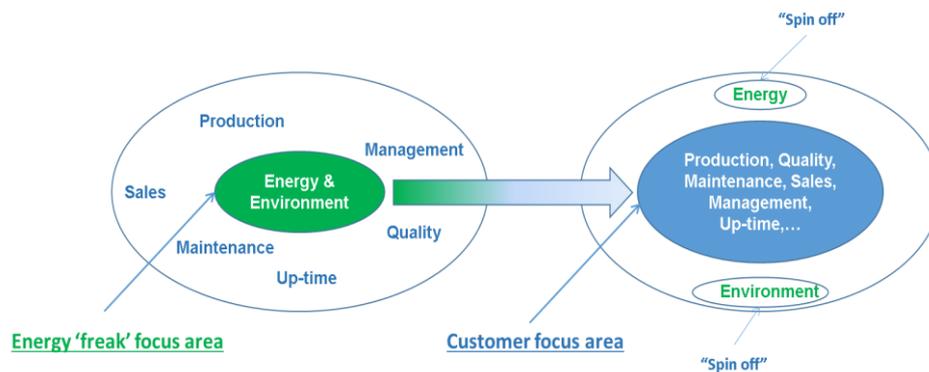
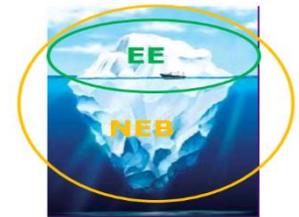


FACTSHEET

Steam Efficiency: Non Energy Benefits



‘Did we forget something?’



Non Energy Benefits: adding value to energy efficiency

Industry sector accounts for about one third of the total energy consumption in industrialised countries. Energy efficiency has improved by about 2.1% per year since 1990 in the industrial sector and plays a major role in EU efforts to improve productivity, energy security, job creation, and sustainability.

How comes then, when energy efficiency is so important, that the implementation rate of energy efficiency is so slow in the industrial sector that you even in a very energy efficient country like Denmark still can find 10-15% savings potential with a payback time of less than 4 years?

Maybe, it is because we, the energy consultants, think we have a great product, but the product does not create the same excitement with the management in the industrial companies: our focus is on the wrong benefits when we try to sell "energy efficiency". In our efforts to help the industries we focus on energy efficiency and not reduced maintenance cost, better product quality, increased production, better working environment, etc. – all issues that really matter for the industries but sometimes are hard to quantify.

Investment

Low

Savings

Increased savings

Other benefits

Reduction of payback time with on average a factor 2.5

The NEB tool

The NEB tool introduced here is a guide for energy consultants providing energy efficiency services to the industrial sector but also other business sectors.

The underlying assumption behind the development of an NEB tool for energy consultants and companies is that easy access to information on NEBs and their size might lead to higher acceptance and implementation of energy efficiency projects.

The NEB tool is a web-based tool that consists of the following:

- ✓ Method for assessing NEBs of energy efficiency projects,

- ✓ NEB database that allows users to search e.g. by branch and energy efficiency project type,
- ✓ Case examples with more detailed description of energy efficiency projects and the associated NEBs,
- ✓ Questionnaire for identification and assessment of NEBs, and
- ✓ Suggested further reading.

NEB tool is available online to all although the primary user group is intended to be energy consultants offering energy efficiency services. New energy efficiency projects and associated NEBs can be added so that the tool compiles a database of cases.

Address : <http://neb.teknologisk.dk/>

Classification of NEBs

NEBs are traditionally not included in energy efficiency project implementation economics since there is no commonly recognised method calculating their value, nor has the area been prioritised. However, research indicates that if NEB are included, the true value of the energy efficiency projects might be up to 2.5 times (E. Worrel et al) higher than if looking at the energy efficiency improvements alone.

NEBs have been discussed since the 1990's and many research studies have



FACTSHEET

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been carried out, review of these studies combining with the first hand experiences of the project partners formed the basis for the NEB classification used in the web based tool. The classification is presented in the table below

Assessment method

The NEB values are assessed relative to the achieved energy efficiency improvement. In other words, the achieved energy efficiency improvement is used as index. The value +100 describes the expected benefits of the project in terms of energy efficiency improvement. The NEBs are then rated relative to this index. If, for example, an industrial company as a result of an energy efficiency project experienced an increased productivity estimated to be twice as valuable as the achieved energy savings, the NEB “productivity” is assigned the value +200. If increased productivity is estimated to have a value of 1/4 of the energy savings then the NEB value is +25. It is worth noting that NEBs may have negative values.

Using an index avoids having to translate all NEBs into an exact monetary value and emphasizes that it is the perceived impact by the client that is in focus. A project may for example have resulted in significantly reduced the noise levels in the factory workshops and the client may judge the reduction just as valuable as energy savings.

The individual NEBs of a given project are in the tool summarised by main category of NEB and presented in a bar chart. Together they may add up to a greater value than the energy efficiency improvements themselves. It is our impression that from a client and energy consultant point of view high accuracy is not necessarily the most important issue. Circumstances are very complex. Many parameters change from one company to another – even within the same business field – and this affects the energy saving and the size of the NEBs. What is important is the relative size of the NEB (e.g. very large, larger, same as the energy efficiency improvements, smaller, much smaller) rather than the exact value in each case.

Furthermore, it is the benefits as perceived by the client that is critical for the clients’ future interest in energy efficiency projects – not a scientifically accurate value.

The developed NEB tool therefore permits the user to choose the method of her/his own choice for assessing the NEB values and to specify which method has been used for each NEB in each case.

Table 1: The applied NEB classification

Main category	Sub categories
Productivity (cost per unit)	Consumption of materials Necessary work force Product quality Unscheduled down-time Other
Sales	Sustainability Customer satisfaction/loyalty Publicity Unique selling points (such as sustainability) Other
Work environment / health /safety	Draft Air/dust/vapours Sound/noise Light Employee flux/retention Room temperature Safety Stress Heavy lifts Other
External environment and resources	Waste and waste water (incl. industrial waste, hazardous waste, heat, materials) CO ₂ emissions Other GHG emissions Other emissions Security of supply / self sufficiency Other

