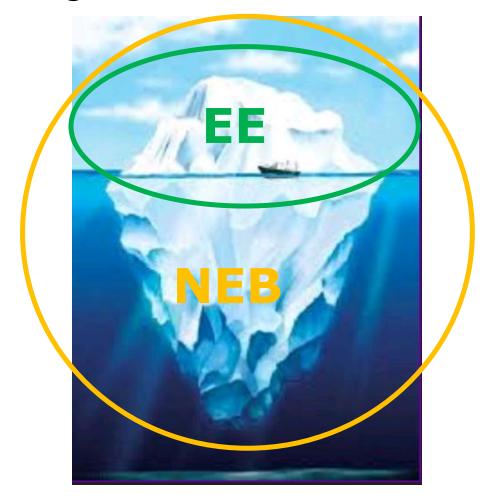# Industrial non-energy benefits in Denmark - Methodologies used and results attained

Who are Lokalenergi?

We are Lokalenergi. A group of energy and environment enthusiasts who work strategically and tactical to improve the energy economics of your company

- Lokalenergi
  - Electricity sales
  - Consultancy services
    - All customers segments
    - All types of energy
    - Energy labelling of buildings
    - National auditor of building energy labels
    - ESCO projects
    - Management systems

  - Research within energy optimization

Lokalenergi
Finder værdi i energien

Who is Erik

- Director of Lokalenergi
- Working with energy in all segments during the last 25 years
    - On all levels from high level planning to the household sector
- Certified energy consultant in industry by DEA
- Member of energy efficiency working groups
- Specialist in the "marketing" of energy efficiency
- Energy management specialist

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Introduction

- IF energy efficiency is so important, though in Denmark you still can find 10-15% savings potential with a payback time of less than 4 years.

- The following has been expressed:
- Existing technologies with an attractive internal rate of return can cut the growth in global energy demand by half or more within 15 years. – Curbing Global Energy Demand Growth, McKinsey & Co., May 2007.
- Industries around the globe can cut CO_2 emissions 19-31% using proven technologies and practices. – International Energy Agency, 2007.
- "Energy Efficiency is the most promising means to reduce greenhouse gases in the short term." – Yvo de Boer, Exec. Secretary UNFCC.

Why slow implementation

We the energy consultants, think we have a great product, but the product does not create the same excitement among the customers ☺

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2 years ago this was my final remark

Way forward

- There is a need for a calculation tool, therefore Lokalenergi is in the process to raise money for a project that comes up with a answer to this need ☺

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Funding has been raised from the danish energy associations Research department Elforsk

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The NEB Tool

- 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

NEBs included in the projekt

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/vapors 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

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Assesment of NEBs

- The NEB values are assessed relative to the achieved energy efficiency improvement. The NEBs are then rated relative to index. 100

- An energy efficiency project experienced increased productivity estimated to be twice as valuable as the achieved energy savings, the NEB "productivity" is assigned the value +200.

- Using an index avoids having to translate all NEBs into an exact monetary value

- The individual NEBs of a given project are in the tool summarised by main category of NEB and presented in a bar chart.

Issues when assessing NEBs

- **Objectivity** –calculation-based approach appears to be objective, since the values are derived from factual data. However, it is not always possible to measure the causal effects.

- **Time requirement** – If the NEB database is to expand and gain a wider use it is important that the time required to assess the NEBs of an energy efficiency project is not too time consuming

- **Complexity** – The assessment method must be easy to communicate to both energy consultants and their clients.

- **Validity** – The user must be able to trust that the NEB values are reliable.

	Calculation	Estimation
Objectivity	High/Medium	Low
Time requirement	High	Low
Complexity	High	Low
Validity	Medium	Medium

Experienced NEBs

- NEB tool contains information on the NEBs of specific energy efficiency projects.
- It is the experiences of the energy efficiency project holders that determine the importance and thus size of the NEBs.
- The energy consultant may also assist the project holder in identifying and assessing the NEBs but it is also possible for the project holder to do this on his own.
- Both energy consultants and project holders have access to the NEB tool.
- It is the ambition to capture the most important NEBs experienced by the project holder.
- The key experienced NEBs are first identified and classified and then their relative size is assessed.

Generalisation – From 12 individual cases to rules of thumb

- The NEB tool is intended to increase the numbers of energy efficiency projects implemented through easy access to information on NEBs energy efficiency projects

- At present, there is only a limited number of projects in the database. The second phase(funding ok☺) of the tool development will be focused on increasing the number of cases.

- IF a large number of cases are assessed and added to the database it might become possible to say something valid about the expected type and size of NEB associated with this type of cases.

- The intention is therefore to review the database with the aim to draw more general conclusions and suggest rules of thumb regarding type and size of NEBs.

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