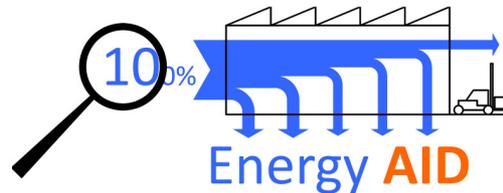


## Services and products for energy optimisation

*Remote services and consulting on energy management.*

*We provide these services **via Internet from Poland.***

*Therefore price of these services is reasonable low.*



### Services

We provide **analysis and consulting on energy** mainly:

- **for industrial companies,**
- **for any other enterprise whose annual energy consumption exceeds ca 100 MWh/year.**

Our english services are limited to **remote services and consulting on energy management.** These B2B services are based on analytical, computational and expert skills. We provide these services **via Internet from Poland.**

In Poland our activity is comprehensive. We do analytical work on energy data, energy audits for industrial companies and physical measurements of energy systems.

### 1. Energy bill validation and analysis

From our experience in analyzing energy invoices (invoices for electricity, invoices for natural gas, invoices for network heat) issued to industrial customers, billings should be checked by energy buyer.

#### The purpose of purchase invoice analysis

The invoice analysis service is mainly aimed at:

- Verifying the correctness of invoices, i.e. checking the accrued fees for individual services based on meter readings, tariffs and contracts,
- Drawing conclusions resulting from the cost structure, i.e. the value of individual components of fees (energy costs, distribution costs, contracted capacity costs, reactive power charges and other charges),
- Verification of alternative energy providers to reduce the commercial price of energy,
- Drawing conclusions regarding the power structure, i.e. the number of power and gas connections.

### 2. Measurement data analysis, processing and visualization

Data collected from various measurement systems, ie. SCADA/BMS/EMS systems, power meters and analyzers, should be analyzed to utilize the data, draw conclusions and reach solutions, and therefore to generate profits from often expensive measurement systems.

A dynamically developing market of metering systems gives a wide range of opportunities to create integrated systems allowing to analyze energy consumption in an enterprise. However, data recorded by tens, hundreds or even thousands of meters, energy analyzers and other measuring points are difficult to analyze due to their large amount.

We offer a service for the analysis and development of measurement data in the field of energy consumption, including data collected for the cause of energy management. The service is aimed at supporting energy management in conditions of large amounts of data from meters and energy analyzers.

#### Purpose

The aims of energy measurement analysis service are:

- Relieving the employees of the engineering staff of the company by outsourcing the work needed for the fruitful use of measurement data,

and in relation to the data analysis:

- Identification of the share of individual receivers (groups of receivers) in the total energy consumption (energy balancing), i.e. determining which receivers consume the largest amount of energy,
- Determination of the load profile of receivers (groups of receivers), e.g. continuous operation with constant power, intermittent operation, performance requiring the use of power regulation,
- Classification of energy consumption for permanent consumption (independent of production quantity) and variable consumption (depending on the production quantity),
- Searching for unnecessary energy losses, ie. idling devices or unnecessary operation of devices in given time periods,
- Determination of energy consumption during production shutdowns and analysis of these values separately for different production areas,
- Searching for unnecessary load peaks that may cause excessive power consumption, as well as searching for energy losses of machine starts, which can be avoided using soft start devices,
- Searching for ways to reduce the inductive reactive power factor defined as  $\tan(\phi)$ , which is the ratio of inductive reactive energy to the amount of active energy, so that  $\tan(\phi)$  would be below the allowed value,
- Searching for time periods and sources of capacitive reactive power, if this is significant,
- Determination of energy efficiency of devices, if the determination of such a size is possible (ie. determination of energy consumption of compressed air systems expressed in [kWh/m<sup>3</sup> of air] with comparison to typical values),
- Correlation of energy consumption values with any measured parameters affecting this consumption,
- Diagnostics of machines (detection of abnormal state) according to power consumption.

### 3. Analysis of conceptual designs (concepts of technical solutions) and technical designs of energy-using devices or installations

If you are planning changes in existing systems/installations, then we can analyze the impact of such changes on energy consumption, as well as find their optimal solutions.

The service is intended for:

- Companies which develop ideas of improvements related to energy efficiency, where the assessment of the solution variants can bring tangible results in obtaining future energy savings (taking into account the value of investment costs), at the initial stage, before meeting the first investment cost,
- For companies which are recipients of technical projects, for which it may be useful to evaluate the projects, to improve them at the initial stage,
- For designers (design offices), where technical project consultations can transfer part of the work related to energy calculations and equipment selection to us, also ensuring increase of the quality of the project for the final customer.

#### Avoiding unnecessary costs

The improvement of the technical design before investment makes it possible to avoid unnecessary investment costs in a less effective solution which would later be improved.

#### Purpose

Purpose of audit of conceptual and technical designs:

- Assessment of the devices proposed in the project in terms of their energy efficiency,
- Assessment of the method of regulation and control of devices or installations in terms of energy efficiency,
- Assessment of the measurement scope in the installation in terms of control of its current energy efficiency (not only energy consumption, but also the measurement of the quantity of the useful effect).