Three domains to start with…

The **FRAKO** Energy Management System started out some 15 years ago with the coverage of 3 domains, all of them strongly related to electrical energy:

- Power Quality Monitoring
- Maximum Demand Control
- Power Factor Correction

In context of the 2nd and 3rd domain there are EM instruments available that realize direct savings by minimizing the following two items of charge on your electricity bill:

1. Expenses for maximum demand (often charged as kW per month) are reduced considerably: Payback periods usually range from ½ to 1½ years.
2. Expenses for reactive work (often charged as kVArh above a certain %-age of consumed active work) are reduced to zero: Typical payback periods are about 2-3 years.

Within the first domain – Power Quality – no direct savings (on bills) are realized, because bad power quality is not penalized by the utilities (yet). However monitoring of power quality becomes an increasingly prominent issue: Early warnings prevent the customers from costly malfunctions such as production downtimes.

Domain No. 4: Monitoring consumption of electrical energy and other resources

The third item of charge on your electricity bill, the consumed electrical energy (kWh), is covered by the fourth domain of the **FRAKO** Energy Management System: Cost Allocation.

Here **FRAKO** chose for a very flexible setup:

Coupling to arbitrary devices with a pulse output. These pulse outputs can be connected to the EM system. Among others, electrical energy meters with pulse output can easily be connected.

With this same solution all other sorts of meters and counters (gas, water, compressed air, counters of pieces, etc.) can be linked to the system via pulse outputs. There the consumption and the rate of consumption can be monitored both as actual and historical values.

In addition the customer can carry out submetering of electrical energy and other resources. Fig. 4 shows a monthly report for electrical energy, maximum demand expenses and natural gas expenses set up as a spread sheet. These figures are calculated from ¼-hourly readings of hundreds of submeters installed at the site and connected to the system. The data are accessed from the SQL database that is delivered along with the Central Data Collector EMIS 1500.

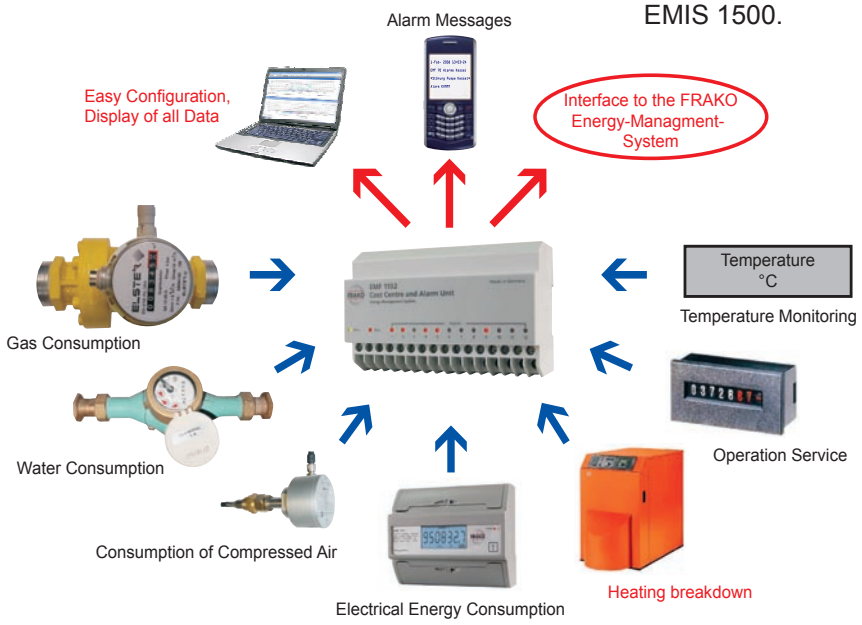

Figure 3:
Cost Center and Alarm Unit EMF 1102 can be connected to pulse meters and other pulse emitting devices.