



# Automatic Meter Reading, Energy Data Management and Load Forecasts of balancing groups as an integrated data service for BP Energie GmbH



## Case Study

BP is one of the largest internationally operating integrated energy suppliers in the world. There are four areas of operation within the BP Group: Gas, Power and Renewables; Oil; Chemical products as well as Research and Production. Gas, Power and Renewables is the latest addition to the group. NEGP is the northern European branch of the global gas,

power and renewables section of the group and is active throughout Germany, France and the Benelux countries. BP Energie supplies electrical power and gas to major industrial consumers and municipal utilities. Additional energy related services are offered in the risk and portfolio management field.

The liberalised energy market opens chances, risks and new prospects for all participants in the market, particularly in the field of energy acquisition. Whoever wishes to avail of these opportunities must be aware of the risks involved and be capable of controlling them. This is a requirement for data management and data evaluation. The services provided by EuroDCS Energiedaten AG help to combine the general organisational conditions for the trade partners.

BP Energie Marketing GmbH offers energy supply contracts in diverse trading packages and with distributed risks. The Hamburg-based company trades in energy, supply contracts and manages entire portfolios on behalf of its customers.

For instance a scheduled delivery at a fixed price: The customer is supplied with electrical energy at a fixed price. A specified consumption schedule in 1/4 hourly values, defined at the beginning of the delivery period is the master schedule here. However, there is the option to react to short-term changes in production whereby the master schedule can be adjusted on work days before delivery until 08:30 hours for the following day.

It is to be noted that trading can be done only on energy exchange trading days. To keep possible modifications in a limit framework, a range ("Tolerance Band") is defined within which they can fluctuate. With a shortfall or transgression of this tolerance band, applicable pre-defined fees are charged to the consumer. The same procedure applies for the predicted amount of energy. This form of supply offers an uncomplicated procedure by its fixed energy price. Yet at the same time the customer has the possibility to react quickly to sudden fluctuations. Furthermore the fixed energy price ensures a precise view of the costs incurred.

Quality control of metering data by EuroDCS before transmission



The driving force behind a successful project: (from left to right: Joachim Sztochaj (authorised officer EuroDCS AG), Volker Hühne (IT consultant BP Energie), Martin Görlitz, Olaf Siegel (members of the board GÖRLITZ AG and EuroDCS AG), Ralf Bär (portfolio management BP Energie), Ingo Schmitt (member of the board EuroDCS))

### Integrated consumption forecast

What appears to be quite simple in theory and in the commercial offer is in the practise a highly demanding logistical task for data management. The individual customers' schedule notifications must be compiled punctually, the consumption is forecasted for the upcoming energy supply period, the metering data are collected from each single grid operator and an extensive balancing group statement is created from this data.

EuroDCS Energiedaten AG executes these services of energy data management and acquisition of metering data for BP Energie Marketing GmbH.

In this project the consumer profile is mainly characterized by industrial group-customers under multi-site supplies as well as manufacturers in the steel, iron, glass and cement industries with a large energy demand. BP provides these customers with full electrical power and derivatives thereof. The accurate schedules are logged with the grid operators concerned, in Germany with EON, RWE



and in France with RTE. Also Vattenfall Europe is included as a recipient since January 2003.

Daily schedule login is made on the basis of current individual forecasts created by a forecast system; its dataflow is automatically integrated in the operational procedure of EuroDCS.

### daily nominations inclusive

Previously projected special events in the customer's daily load profile, the so-called daily nominations, are also incorporated as a planning factor. Spontaneous messages from BP or the customer notifying for instance company holidays or cleaning cycles in the production lines are converted by EuroDCS to a data format compatible to load profile and are registered automatically in the forecast system.

EuroDCS also transmits all received metering data of the previous day in a standard data format and as an aggregated data line per balancing group to the forecast computer. Based on prior studies

and pre-defined rules the forecast tool establishes a rolling forecast for the coming supply period (7 days continuous), which is then automatically communicated to BP for their purchasing operations.

The biggest problem for this process is the mostly defective data quality of the grid operator. Even the major distribution network operators very rarely make available 100% complete data and usually never within the time required to make a punctual forecast. But missing values must be interpolated and so in the end impair the quality of the forecast, which in turn increases the trader's risk with schedule logging and energy purchase.

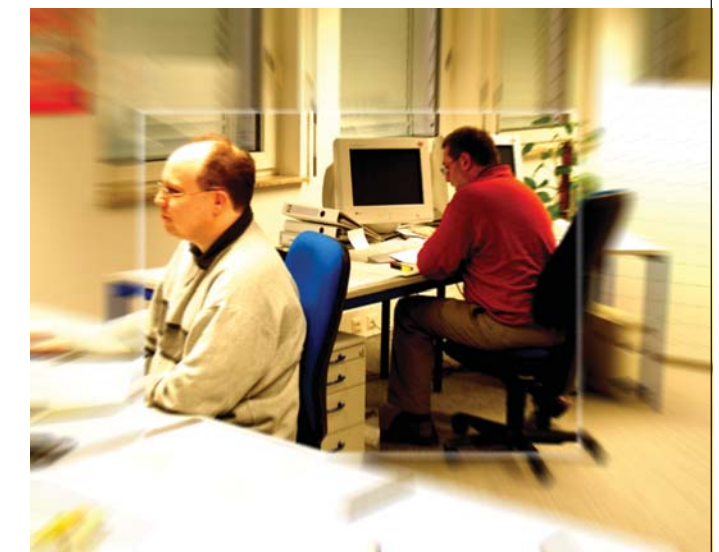
The integration of historical load profile data is also problematic. A high quality forecast necessitates a first initialisation with all 15-minute data of approx. 2 years retrospective; this is still more than 2 million individual metering values.

### Meter reading and data acquisition

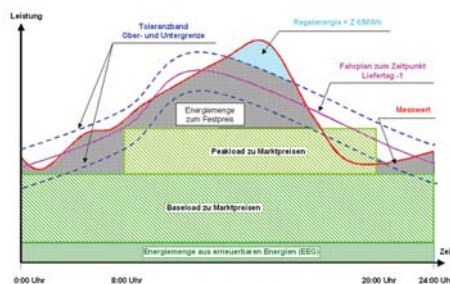
In general the compilation of the individual load profile data from the grid operators involved is an unexpectedly complex task. Although data formats in the liberalised German energy market are in theory standardised and transmission procedures are defined by the Metering Code and VV2 (agreement between German utilities), the practise is however entirely different. Numerous daily profile messages from grid operators contain gaps, errors or implausible data.

Furthermore, the fewest data messages today are formatted according to the uniform MSCONS

Data logistics in the head office of EuroDCS Energiedaten AG



Standard. When they are, they differ in the version of MSCONS definitions. Instead, the manufacturer formats Fröschl-ZFA and GÖRLITZ-ENZ are widely used. In a proportion of the requested metering points EuroDCS, contracted by BP Energie GmbH and with approval of the customers, has integrated its own separate transmission devices. A looped SO pulse from the energy meter is connected to a EuroDCS data logger on site, the relevant billing load profile data are saved and transmitted to the EuroDCS control station. This solution enables additional optional functions such as load management on site to be set daily via the EuroDCS system.

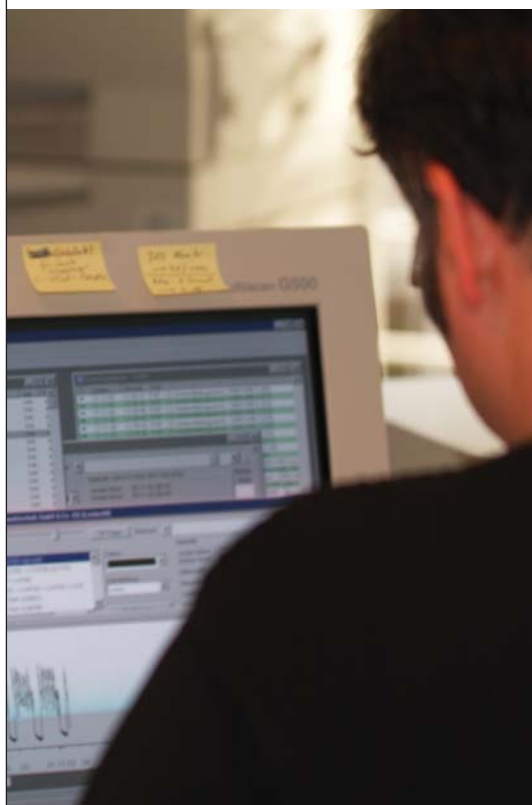


Portfolio management of BP Energie GmbH

The entire process chain functions today, the beginning of March 2003, with around 100 active data lines.


The project was started with a pilot phase in September 2002, the effective operation commenced in December 2002 for an initial period of 3 years. A first planned expansion with an additional 20 channels should take place shortly.

By then the vital reference,- comparison between the forecast and the actual energy consumption at a later moment, will be automated by EuroDCS. The "hit" accuracy of the overall system can then be monitored - indicating its proof of success.



The EuroDCS AMR team in operation for BP Energie

Further information can be obtained from:

A member company of the  group

Status: August 2003



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