What is the Energy Management?

**Energy Management - Continuous Improvement of energy efficiency**

- **Monitor and measure processes:** collection of measurement data
- **Analysis by the different departments concerned:** production, maintenance, accounting, site management, etc.
- **Take actions** to continually improve energy performance...etc.

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**AVReporter Energy Management and Monitoring**

1. Identify energy flaws
   Discover your hidden energy potentials

2. Evaluate saving potentials
   Consider live cycle costs of your investments

3. Realize efficiency measures improve your machines and processes

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- Energy management system
- Calculation & Analysing tools
- Products and solutions
Why do Successful Companies use AVReporter?

... because they want to

- **cut down consumption**- „The energy consumption has dropped by a 30% on average. This was achieved by monitoring the energy consumption of the production process (per production line) and optimizing losses and factory management." (Audi)
- **save costs**- „The overall running costs decreased by 13% by the deployment of the energy management system and green technologies, this also allowed us to cut down on human resources.” (ABB, SKANSKA – Greenhouse)
- **save time**- „Because the energy accounts and reports are generated automatically the administration costs and time reduced significantly.” (EGIS Pharmaceutical)
- **be safe**- „AVReporter energy management was a powerful aid to increase our energy efficiency, but it also contributed towards the safety of the production process.” (Gallicoop-poultry producer)
- **take it easy**- „The AVReporter application helps staff to complete their energy accounts accurately and easily. This made the integration of the system into the already existing one flawless.” (VELUX)
- **get it quickly**- „The AVReporter application contains many built-in reports and device drivers already, making the system building process a lot faster and less frustrating.” (Hexeis, System Integrator)
• The aim was to design a highly competitive, complex **reporting and real-time data visualization tool** that could be **learned quickly, implemented easily** and made accessible to all users on several levels.
• Special attention was given to **data source integration, creating complex expressions**, providing numerous reporting options, and easily configuring automated delivery.
• The result was an easy to use, yet **powerful and flexible reporting tool**, suitable for small and enterprise applications with **scalable licensing options**.
AVReporter Energy Management Software has been designed to meet most individual needs, demands. The modular structure supports the integration of the easy to choose software components serving the end-user's specific requests.

**AVReporter**

**Entrance**
- Small system with low cost solution
- The Entrance Package is an entry level energy management software solution at low cost. It contains the higher level software packages reporting and analysing functionalities. It is a great option for trial or pilot projects.

**Lite**
- Local solution
- The right solution to cover the energy management, monitoring needs and requirements of local enterprises (factories, office buildings, stores etc.), as it contains most standard analytical and reporting functionalities.

**Basic**
- Local solution + improved reporting
- Suitable solution for more individual corporate needs (individual reports, analytics, modelling functionalities) and practical aid for the integration of industrial communication devices.

**Intermediate**
- Local solution & external data source
- The Intermediate edition is recommended for end-users, who also wish to connect to external data sources (BMS, ERP, Production Management System, etc.).

**Advanced**
- Multisite & Cloud solution
- The Advanced Edition is an energy management solution for integrated systems and global energy management projects.

The next slide will provide an overview of the modules of AVReporter.
AVReporter can be installed using a Desktop Standalone/Server-Client solution, Web based solution and Mobile solution; this combination is used to meet the specific requirements for access to individual sites for International or Multi-site applications.
User interface: Desktop, Web & Mobile Environment, Cloud Solution
Desktop solution is advised for customers where...

- there are rigid IT restrictions
- energy management system network is separated from company network
- standalone application is used
- big data handling and logging required on client side (big data handling within one report requiring intensive CPU and IO performance, only possible in desk top mode efficiently)
- Complex calculations, analytics and mathematical engineering analytic procedures need to be completed at high quality level.

Customers who prefer web-based solution

- multinational companies, where users create dashboards and reports that can be scheduled to share with other users
- multi-user and Security Access Level Management are necessary, each user with a unique login name and password that manage their access to menus and features
- where there are lot of clients and users, therefore the complete applications installation and management would be too difficult

Mobile solution is advised for customers where...

- alarming the staff at end-user level like facility/utility/energy manager is highly important at any time
- manual data entry is required where connecting communication is not available or possible
- Management needs up-to-date dashboards and information supporting the decision making process

Customers who prefer cloud solution

- governmental buildings, shopping centers, small businesses, who do not wish to maintain IT infrastructure, or where IT security is not such an issue; could be advantageous for wide-spread measurement areas, as well.
One of AVReporter’s unique and core strengths is the ability to satisfy the needs of an end-user, who needs a simple and quick reporting and analytical tool and also serve those, who wish for high complexity reports and in-depth analytics.
Quick report building

User can create just the right view and summary of their data easily in both web and desktop environment by the wizard. Due to the simple user interface, preparing a report does not require any particular professional knowledge.

Benefits:

• AVReporter includes a host of built-in reports and dashboards, the users keep the control of their system and able to adjust the reports, dashboards etc. themselves, without the need to involve an IT specialist.
• A comprehensive Template Library is at hand minimizing the need of custom reports, additional engineering fees and installation
• Minimizing the need for additional costs, increasing the solution’s overall competitiveness
• Users do not have to have specialist IT knowledge to operate the system flawlessly, only basic office skills are required, therefore the solution will be liked by staff and often used making the implementation of EMS more favourable

It takes only few clicks by AVReporter to create following reports:

• Trend analytics (Line, Column, Area, CUSUM, Aggregation chart, etc.), Min/Max reports
• Performance and production utilization reports (example: Surface Mapping Report)
• Consumption and Rating reports (gas, power, water, heat, air, etc.) in a Column and Pie Chart
• ABC Rating reports, for accurate building classification according to their energy consumption
• Simple calculations can be made by using consumption data so that emission calculation (carbon emission) and cost allocation calculation will be possible.
• Analysis of the data by applying mathematical and statistical methods - Regression & Forecasting analysis (demand calculation)
• Histogram report, TOU chart, KPI reports, Cos Phi Chart, etc.
Unique or individual reports and complex analytics (Business Intelligence functionalities)

AVReporter provides solution for those, who need completely unique or highly individual reports: by applying mathematical and statistical curves, individual loggings, search funnel requirements and individual models.

Typical examples of unique or individual reports providing advantage:

- **Cost Allocation** by department, sub-tenant, or process.
- **Production KPIs** can be created to track and summarize energy performance by manufactured product or production unit.
- **Comprehensive Reporting Utilities** – the complete record of all utilities can be tracked and reported.
- **Energy Cost Invoicing** - complies with local authorities or accounting departments.
- **Custom formatting** (e.g. office buildings - invoicing of monthly consumption).
- **Reports for the maintenance process** (load times and utilization monitoring reports)
- **Summary reports for the corporate management**
- **Reports, dashboards needed for certifications** (FMG, energy audit, ISO50001, NABERS reports, LEED, local governmental compliance, etc.)
User interface: Real-time Visualisation and Monitoring

Real-time Visualisation and Monitoring

• one second refreshing time speed (depending on hardware environment)
• Simple template device creation possibilities
• Generate real-time screens by more schema (accordance with installation places, cost allocation places, etc.) – fast screen creation for lots of meters
• Quickly add user-friendly real-time dashboard creation (lot of graphical objects) designed screen creation – example: switchgear status and measurements for the facility manager
• Same screen real-time and historical information
• Control functions for digital and analogue values (user access level management for controls)
User interface: Alarm & Event Management

**Desktop, Web and Mobile environment:** alarm, event management and alarm summary report creation possibilities, email sending, etc.

- Simple filter settings possibilities
- Customize alarm settings for user requirement
- Alarm group creation (separate alarms for utilities)
- Support Root Cause Analysis
- Notification for alarm acknowledges (support maintenance activities)
- Create alarm queries and reports
- Export functions
- Multi language alarm messages
- System event log
By the aid of AVReporter it is possible to import data values into the system from desktop application, excel, smartphone. This functionality is highly useful when data needed from meters with no communication surface. Or when the input of cost, emission values is needed to further use in the reports.
One of the most important strengths of AVReporter is its **ability to communicate to several systems and data sources.** This ability also offers easy integration to existing systems without requiring any change or modification making the corporate **integration process defectless.**

Within AVReporter there is a surface called **Component Store** created to make the System Integrators’ job quicker and less frustrating. The Component Store contains device drivers ready to download.
AVReporter makes reading, logging of meter data simple regardless of the measuring devices’ types (electricity, temperature, water, gas, PLCs, etc.).
AVReporter Integration: Connect to data concentrator

AVReporter enables users to get data from the inner memory of data concentrators. This could be beneficial when the distance between the server and the devices is faraway (e.g., integration of the devices of a shopping center into one system), when the data’s flow requiring it or when the connection is not steady in avoidance of the data loss.
AVReporter supports OPC connection so the integration of industrial systems is smooth: SCADA, BMS, field devices via PROFIBUS, BACnet, LON protocol.
The AVReporter application’s AVR Connection Center module ensures the easy connection to external data sources, allowing users to get data from for example SAP systems (produced items, cost allocation data, sub-metering, sub-billing etc.). In the case of integrating external systems into one, all data can be accessed via the surface of AVReporter (consumption data, energy consumption of production per product, cost information etc.). Connecting them all into AVR and visualise all data on its surface takes out the need to switch between systems each time, reducing administration procedures and possible confusion excel sourcing, aiding the comfort of the user, as well.
Running search, filtering, modifications and calculations on the data within the AVReporter database (logged, imported from external database etc.) is possible. AVR Data Management Service module is looking after this process, typically for the following:

- Data filtering, swapping and validating based on set criteria(s).
- Creating virtual values based on historic data (creating virtual meters, CO2 emission calculations, cost calculations etc.).
- On-peak and off-peak or shift based consumption calculations.
- Forecasted consumption data calculations based on data rows of the past (e.g. forecasted consumption data calculations taking the production line’s past consumption and production quantities, and the forecasted production values).

AVReporter Data Management Service
AVReporter’s integration into existing corporate environment

The AVReporter application maintains a complex user-management system, it provides two ways for the integration into existing corporate environment:

- **The AVReporter (IIS) user-management**, when the user’s identification will be obtained for entry with username and password.
- **Integration into the user’s Active Directory**, in this case the AVReporter will recognise the user on entry based on the Windows Authentication and according to this the set user rights will be given.
AVReporter’s multilingual support together with its multi currency ability allows AVReporter to be deployed as a single central global energy management solution while supporting local language and currency at each site. This is ideal for deploying an AVReporter solution in a phased or fiscal scenario, as well as, accommodating multi-cultural teams working with the same data.
AVReporter localization

• **On the fly multi-language and multi-currency options** enable AVReporter to be used in multinational environments. Customization possibilities: language, currency, date format, custom reports and dashboards, corporate formatting standards

• **Managing different currency and time-zones**

• **AVReporter comes with 14 languages today, and can easily have new languages added**
AVReporter has an **Online powerful multilingual Knowledgebase** (Component Store, troubleshooting, technical documentations, flash trainings and videos, examples, etc.) and an attentive Tech Support Team.
Summary of benefits of AVReporter

• Because of the **modular structure** the system integrator can pick and choose the correct and most cost effective solutions.
• AVReporter provides a hardware independent solution allowing any make’s, brand’s component to connect within the system (ABB, Schneider Electric, Siemens, Janitza, Carlo Gavazzi, Entes etc.)
• There is no need for specific software environment, the installation is quick and simple.
• System building is fast due to the **template real-time screens, dashboards and reports**, no need for special IT/ programming knowledge.
• The control can be kept with the end-user as the system is completely open and can be operated by staff easily; the openness allows system integrator to fulfil individual requirements.
• The user surface is designed to be **highly user-friendly aiding the learning process of the end-user**, making sure the application is used regularly and willingly.
• It is easy to integrate into existing corporate system(s) because of the **flexible connectivity**, also supporting a one surface display to make processes transparent and more convenient to follow.
• One application to access information on desktop, web and mobile environment.
• AVReporter is ready to handle big data and its display.
• The System Integrators can complete modifications in their own office once the system is up and running, because of the backup/restore functionality, then they can update the system on site.
• The system building can be team work, more PCs can work on the same project at the same time saving time, ensuring reaching tight deadlines or just simply utilise workforce better.
• The editing functionalities can be accessed web and desktop environment, too.
• If control function is required on the real-time screen, it will be accessible over web and mobile surface, as well.
• The system supports the simulating work mode by this, system building and testing without devices is possible.
• Strong and attentive technical support is available with every AVReporter purchase (courses, on-line courses, documentation, comprehensive technical forum).
Thank You!

QUESTIONS?