

viastore blue

Save 30% of energy or more in the warehouse

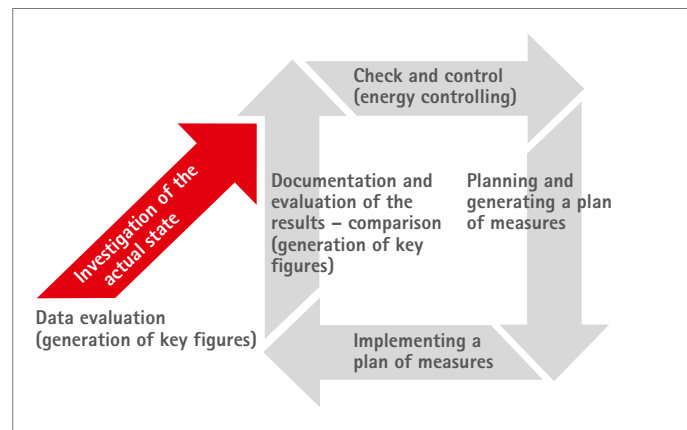


There is great potential for energy savings in a warehouse or distribution center. Areas that can consume the most energy include storage and retrieval machines, conveyor systems, automated guided vehicles, forklifts and IT hardware. For more economical and efficient processes, improvements may include: installing controlling drive power, recycling wasted energy, reducing movement, designing processes more efficiently or adapting the performance of the entire system.

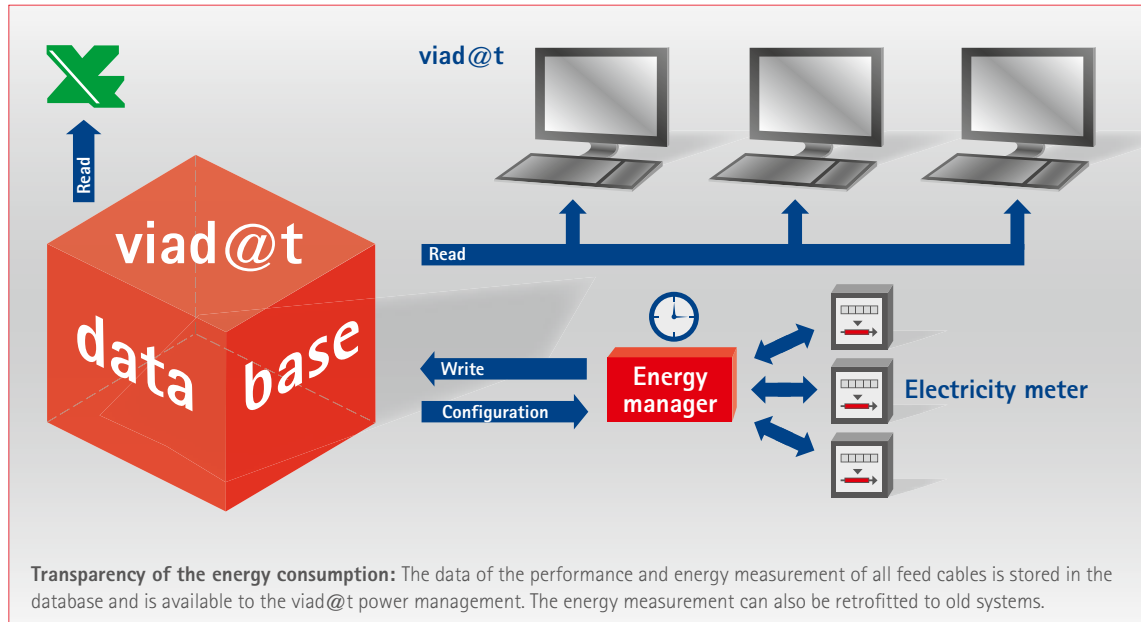
viastore has developed viastore blue, the most energy efficient solution, by evaluating each individual component as well as the entire warehouse. viastore blue may be implemented as an older facility retrofit or on a warehouse provided by others.

Proper energy measurement

An important condition for the required transparency is the proper measurement of energy consumption. The three voltages and currents are measured via current transformers. The measuring device



viastore blue – Saving energy in the warehouse



calculates the performance (real power and reactive power) and integrates the demand of electric energy from it. The data of the performance and the energy measurement of all feed cables is stored in the database, and is available to the power management of the warehouse management system viad@t.

Energy-saving drives

To operate equipment such as storage and retrieval machines or conveyor systems in an energy-efficient way, it is recommended to use energy-saving motors or variable speed drives. However, energy-saving drives are larger and only have start stop functionality. A continuous start/stop operation does not save energy despite the energy-saving motor as the larger mass of the rotor must be accelerated and decelerated again and again. Starting and stopping the motors uses more energy than just letting them run continuously.

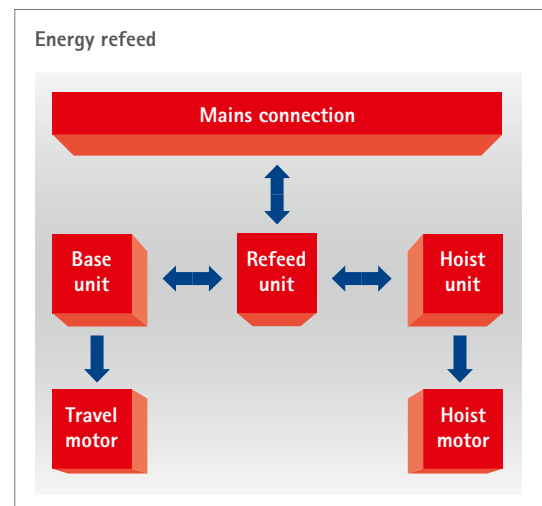
Energy refeed

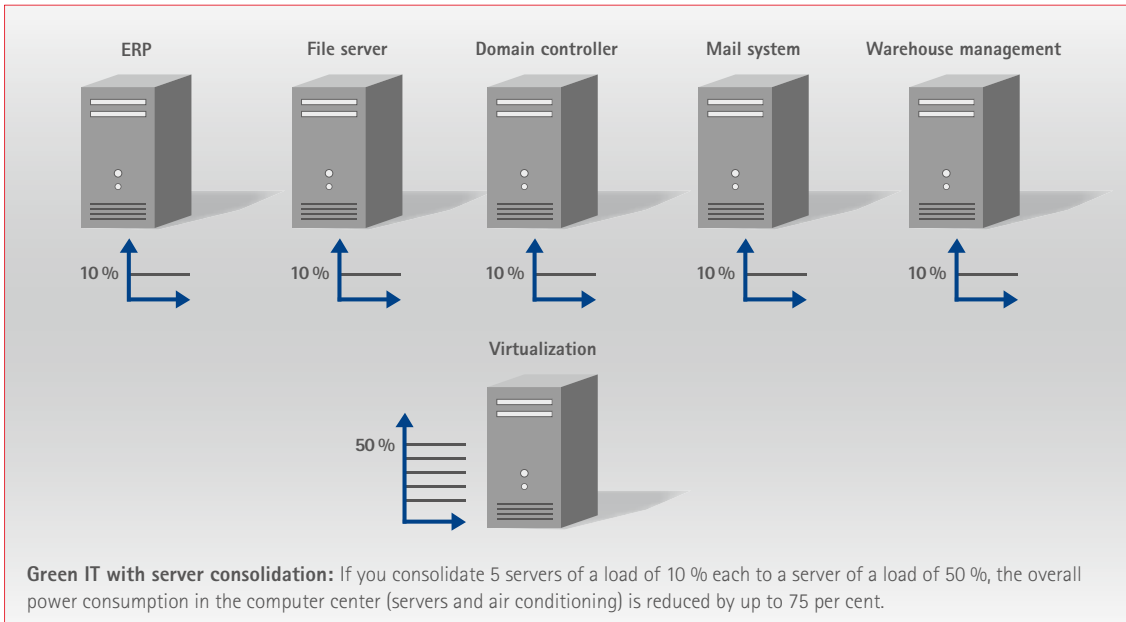
When traveling or hoisting, equipment such as storage and retrieval machines use electric energy that is released during the processes of braking or lowering. According to the traditional SRM technology,

this energy is radiated as heat in the braking resistor. This energy can be fed back into the power network by means of a refeed unit.

Recycle energy

It is substantially less costly and much more efficient to design a storage and retrieval machine to recycle the released energy via energy re-use. This is achieved by a DC link connecting the frequency





converters for the base unit and the hoist unit, meaning the braking energy that is generated on the SRM while lowering the hoist unit is made available for accelerating the base unit, and vice versa.

Green IT

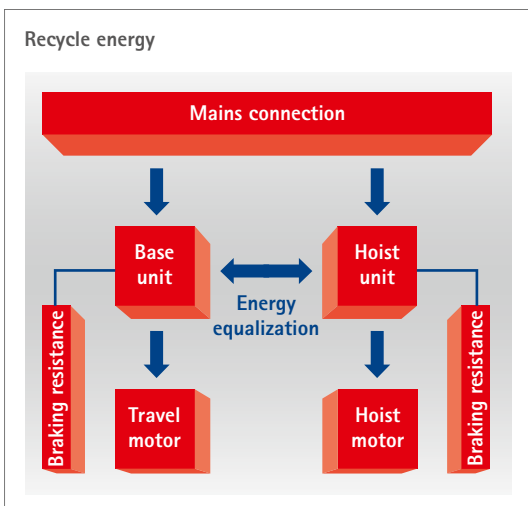
Approximately 33 million tons of CO₂ are produced by information and communication technology every year. If you use an innovative IT infrastructure, you can save a lot of money, and protect the environment

at the same time. Why, for instance, is an individual server installed for each individual application, each server making use of only a small percentage of its performance capacity? Why is each pick station equipped with an individual computer system? The answers are server virtualization and thin clients.

Reduction of movement

The most efficient way of saving energy is to reduce or avoid movements. In an automated or conventional warehouse, this can be achieved, for instance, through an ABC distribution model. Goods in high demand are arranged so they can be retrieved in the shortest possible distance. Goods with a lower demand, however, can be stored in positions closer to the end of the aisle. This distribution model always has to be kept up-to-date. A precondition for this model is effective key figures that are provided by an intelligent WMS.

In an automated warehouse, travel can be reduced through the use of route-optimized travel strategies, such as through an inbound or relocation optimization (IBO/RLO). For that purpose, the inbound storage location is selected in line with the next retrieval,



optimized with regard to the distance, and within the respective ABC zone.

To be able to always find the most efficient route, all route-relevant dimensions have to be defined by key figures. Such key figures are, for instance:

- Distribution of the A parts over the storage space
- SRM key figures
 - X coordinate approached in average
 - Y coordinate approached in average
 - Number of retrievals, storages, relocations
 - Distance traveled
- Number of changes between aisles in a narrow-aisle warehouse
- All key figures are cyclically read out and logged by means of a key figure mechanism in the WMS.

Precalculation of the packaging

viastoreblue plans the order of package size to optimize the cargo capacity of trucks. In many cases, no more than ten percent of the shipping package is filled with the product packaging; the rest is padding material, thus expensively produced waste. The goal is to reduce packed air to a minimum. Using *viastoreblue*, a WMS can analyze key figures and calculate how much air is being shipped. The use of a carton erector or a machine that produces boxes to dimension would reduce travel time and CO₂ emission.

Performance adjustment of the entire system

Why should a conveyor system be in operation permanently, and at maximum performance, even if the number of incoming orders is getting smaller in the afternoon? Why should an automated material handling system be on permanently, even at night or on the weekend if no work is done? With *viastoreblue*, your system is intelligently adaptable to your required performance. Your system can be adapted from the standby level to the full speed level, either manually from the control station or automatically via your WMS *viad@t* that controls the conveyor system and the storage and retrieval machines.



viastore systems GmbH
Magirusstraße 13
70469 Stuttgart
Germany
Tel. +49 711 98180
Fax +49 711 9818180
info@viastore.com
www.viastore.com

viastore.
systems