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Building energy management is no longer optional, but a necessity

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A brief history of energy management

The management and optimal utilization of resources is an important topic around the globe. And not a recent one, as a look into history shows: A few decades ago, fuel was one of the most valuable resources. World War 2 made fuel efficiency vital, and as fuel shortages continued in the post-war years, the Ministry of Fuel and Power in the UK set up the National Industrial Fuel Efficiency Service to advise industry on energy saving measures. As a consequence from this period of shortage, there were several inventions around fuel efficiency in the 1970s. Systematic energy management then started to evolve in connection with the first oil crisis around 1973 and gained momentum around 1979 when energy prices soared. In 1975, the United States Energy Policy and Conservation Act was introduced with energy conservation as one of its focus areas. Also, in the following years, there were energy crises across the globe, and they have triggered significant research and a focus on renewable energy sources as well as energy



management and optimization. Why is this relevant for us today?

Growing need for energy management

One of today's global mega trends that makes the optimal use of energy resources even more urgent is urbanization. The world's population which used to be distributed across rural areas is drifting toward cities, and about 68%¹⁾ will live in urban areas by 2050, leading to the depletion of further resources. Cities need various infrastructures such as hospitals, airports, datacenters, commercial and residential buildings, etc., and all of them use energy. Approximately 40% of the overall energy in the world²⁾ is consumed by buildings! Today, energy consumption often requires fossil fuel burning (coal, oil, and gas), which is the main source of greenhouse gas emissions – with additional contributions from agriculture, deforestation, and industrial processes. These greenhouse gases are the

largest driver of global warming, and more than 90% of them are carbon dioxide (CO₂) and methane. Global emissions must be drastically cut to ensure the average global temperature increase will not exceed 1.5 °C (2.7 °F). This means that staying within this limit would require halving the emissions by 2030, then reaching near-zero emissions by 2050³⁾. This scenario makes clear that managing the energy consumption of buildings and making the buildings sustainable is critical to reduce emissions and to slow down global warming. And Building Energy Management Systems (BEMS) have an important role to play here.

What is a Building Energy Management System?

A BEMS generates information on energy usage and related costs for the purpose of lowering costs while still maintaining a comfortable, productive, healthy and safe environment for the building's occupants. As part of a smart building, the BEMS brings together and addresses the main electric and energy systems, HVAC, lighting and power.

Electricity costs charged by the utilities are based on different factors, but the

¹ United Nations Department of Economic and Social Affairs, 2018

² UN Environment Program, Energy Efficiency for Buildings

³ United National Secretary-General Press Release November 12, 2020

most significant ones are demand and electricity consumption. Consumption is the total amount of electricity used by the buildings, while demand-based tariffs consider the cost per kWh during a certain period of time.

The underlying essence of any BEMS is to reduce consumption and to manage demand. At the same time, it stresses the importance of monitoring the utilization of green energy sources and reducing emissions to guarantee a more sustainable future.

The information provided by a BEMS also helps companies to derive short- and long-term energy strategies and to follow up on these aspects. Their strategy may include increasing the use of renewable energy and introducing decision criteria on energy investments. Having an energy strategy in place also gives an organization a competitive advantage, not only from the cost perspective, but also from a social and environmental standpoint. In addition to energy regulations imposed by a number of countries, the sustainability initiatives taken by an organization are becoming increasingly an important differentiator for consumers, investors, and corporate customers.

To making buildings energy-efficient Siemens Smart Infrastructure has the answer

Desigo CC is the integrated building management platform for managing high-performing facilities. It offers a wide range of features that allow you to monitor and optimize the energy performance of your buildings while ensuring the comfort, health, and safety of the buildings' occupants.

For instance, remote monitoring of the complete facility helps you set up important checkpoints and react very quickly to any events and failures that otherwise might lead to energy losses over time. You can also analyze and manage power and energy loads and lower overall energy consumption and costs. Monitoring and comparing your buildings' energy costs over time based on fixed or variable tariff models as per your needs gives you a great avenue to plan and optimize your energy investments. This does not only allow you to keep track of your costs, but also of your buildings' emissions, which helps to ensure that your sustainability goals will be met.

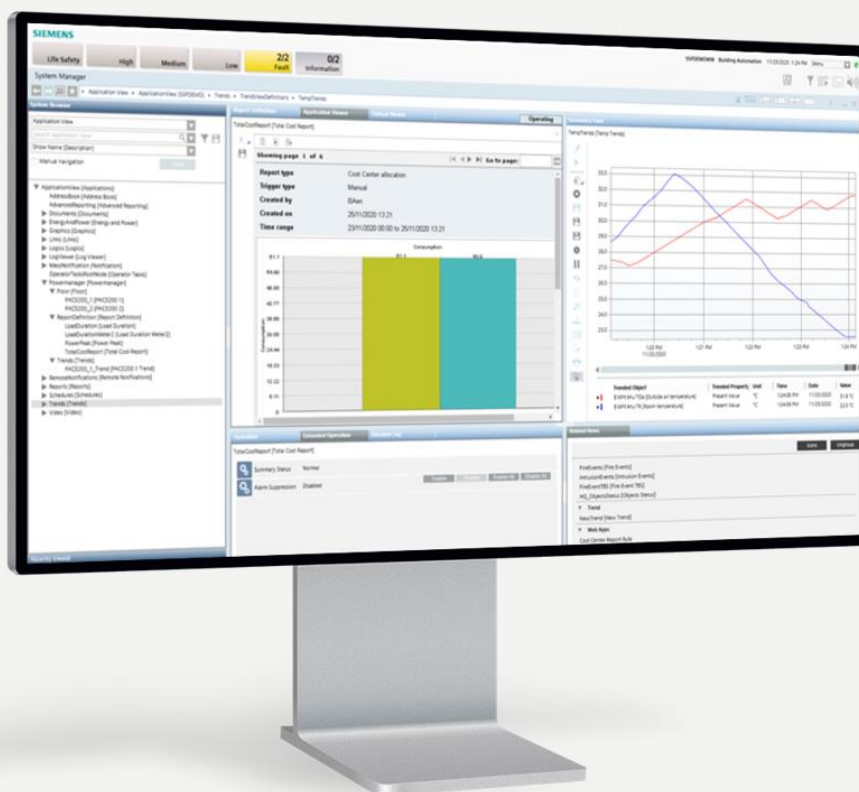
Moreover, Desigo CC is equipped with powerful graphics and floor plan visualizations that help you locate the area of a problem and drill down to the source. Whether it is a circuit breaker, a fire control panel, or a heat pump, you can have a unified view and control because of the wide variety of protocols that can be integrated into Desigo CC.

The unique advantage offered by Desigo CC is the integration of energy management into the building management system. This means one single platform that offers energy monitoring and the ability to optimize the buildings' performance by commanding all connected devices. This helps you implement and completely automate the energy monitoring and optimization strategies for your buildings.

Imagine the advantages of a fully integrated solution for all your building management needs. Save additional efforts, avoid unnecessary learning curves plus the waste of resources, and experience seamless workflows. That is the power of Desigo CC!

For more information and gearing up to a sustainable future together with us, check out:

<http://www.siemens.com/desigocc>





About the author

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Susmita is passionate about developing product strategies with customer centricity as key focus. She has graduated with a master's degree in Computer Science at the University of Pune, India, followed by a course in Executive Business Management. She believes in continual learning and likes to share and expand knowledge by various interactions and training courses she conducts. Susmita has a technical background as a software architect and, additionally, in the building automation sector. She has held various functions at Siemens since 2005. In her current position as Product Manager for the state-of-the-art building management platform, Susmita loves challenges and the creative tackling of problems.

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