geff

generation **– all of us**

efficiency **– doing things right, being effective**

We provide energy efficiency-focused consulting and project management services for building technologies, production processes, and infrastructure challenges. Through our network of geff Partners and our branded services, we bring local and international, licensed experts to you from under one brand to cover all of your energy efficiency-related needs – from planning & installation to maintenance & operation.

WE SAVE ENERGY, GUARANTEED

We are generation efficiency and I am convinced that our current generation can conserve the resources provided by our planet for future generations through an intelligent and responsible use of those resources and by making use of innovative technologies going forward.

Together with you, my team and I want to save you and our planet five billion kilowatt hours of energy - cutting energy costs by around five hundred million Euros - over the next ten years.

Over the years, we have been able to gain much experience - and in the healthcare, telecommunications, and the automotive industries alone - have been able to save even more energy on our projects than even the most optimistic calculations had projected! Thanks to our team of experts and those of our partner firms, we don‘t need to be visionaries in order to help you save energy, but rather can concretely address any and all factors of your situation in order to show you how to measurably save energy.

We are your partner - from the first analysis, through project implementation, all the way to maintenance and servicing - guaranteeing a sustainable operation.

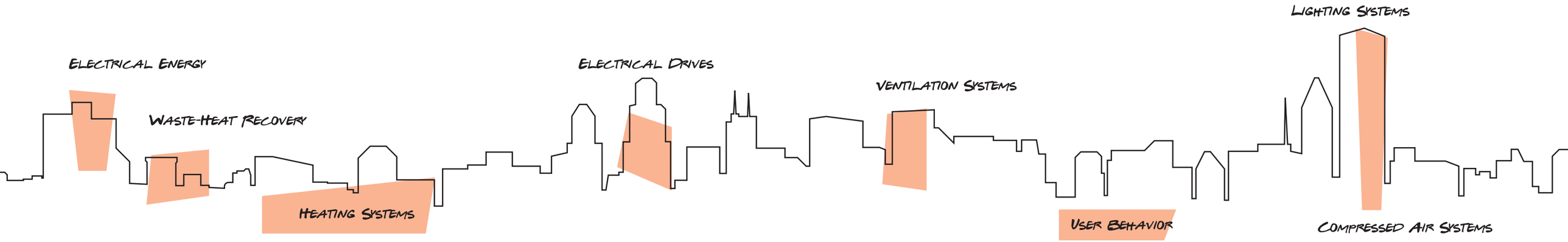
Steffen Müller
Owner and CEO, geff GmbH

THIS IS OUR TASK

geff covers everywhere where energy is fed into a building services system.

We optimize your building‘s energy performance with the goal of saving on energy costs, protecting the environment, and conserving resources - all while striking the right balance between economy and environment.

Just looking for Energy Waste



People + System + Technology

Balanced Action

We take a holistic approach. In every project that we do, we focus on the three most important factors within an optimization process.

The behavior of the users, the system as a whole, and the technologies being used in that system are treated as a unified element.

We attune these three factors with each other in order to thereby reach the right balance. This allows us to achieve the optimal level of energy efficiency for your needs.

The People

From our perspective, the impact of the “human“-element in an efficiency concept is one of the most important factors to success. Only through and with the cooperation and engagement of people can a project be truly successful – therefore we make sure to involve everyone possible. If all the participants are able to see the reasoning behind and the uses of the solution in a positive light, the positive energy saving effects of that measure will be significantly higher. We cover everything from providing the participants with basic information about the proposed efficiency solution and its intended results, to directing targeted further-education sessions.

The System

We take into account every phase of the energy consumption value chain: energy generation, storage, distribution, use, and conversion. For example, is there excess energy in the heating system, which could be transferred into another system for consumption or storage there via the implementation of new technologies? Using this approach, we check for and integrate complementary equipment deployments throughout the building‘s energy consumption infrastructure, and are thereby able to reach maximum system operational efficiencies.

The Technology

Through our worldwide network, we are always on the cutting edge of technological developments and have access to many innovative solutions, while at the same time maintaining manufacturer-independence, allowing us to focus on finding you the most fitting solution for your needs. The latest energy efficiency technologies are standard in our services. Deploying a customer-specific monitoring solution ensures user-friendly transparency, overview, and sustainability on all projects.

The optimal level of efficiency is achieved through the successful integration of

People + System + Technology

geff Steps

These are the steps towards higher energy efficiency and thereby your “savings-plus“

Visualize and Analyze

The first step involves geff experts documenting the energy consumption and technical infrastructure:
your energy consumption, facility equipment, utility contracts, and buildings, as well as the overall consumption behavior along the entire value chain will be examined.
We then look at all the different aspects of possible energy efficiency improvements, including system-, technical-, and organizational improvements, as well as human resources capacity adjustments.
Together, we set the scope for savings and investments in the latest technology, while also tying in possible public financing opportunities based on the chosen investments and available programs.

Implement

All the chosen improvement measures will meet our highest quality standards.We have vast knowledge of and extensive experience with working on very sensitive and confidential projects.
Our project management practices take your organization‘s internal operational infrastructure and needs into account.
A further very important element of the implementation phase is the training and integration of your employees into the newly deployed system of energy management.
The optimal efficiency will be reached through the successful interaction between people – the system – and technology.

Monitoring

Our gEMS (global Energy Monitoring System) is about control and transparency.
Energy Analysis, Calculated (virtual) Meters, Reporting, Alerts & Alarms, Benchmarking, Bill Verification - the complete system is recorded, monitored, and displayed in a user-friendly manner.
Real-time data is regularly transmitted over the internet to the geff development center, where monitoring and evaluation allow for ongoing improvement of the system. Of course we also ensure and guarantee a high level of security, privacy, and confidentiality for your data.

FOR YOUR ADVANTAGE

Save Energy

Energy will be saved
Your costs will decrease
This is how you achieve your “savings-plus“

- Reduce your dependence on future energy prices
- Financial: Save your business millions in avoided energy costs
- Enhance the value of your property
- Decrease carbon dioxide emissions and avoid pollution
- Improve your image
- Increase employee motivation and ties to your company

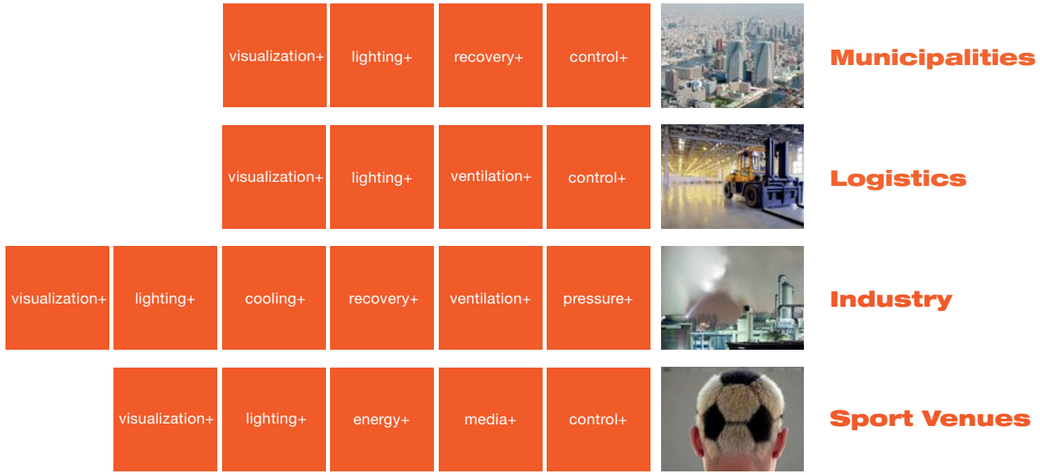
geff Modules

We have a fitting module to optimize any type of building-infrastructure equipment

The individual modules, such as for example “ventilation+“ - the optimization of the ventilation system and equipment - can be combined with any of the other modules.

… for individualized solutions

Each client receives a customized package of efficiency measures made up of one or more modules



gEMS - our global Energy Monitoring System is about control and transparency

save 67%

save 48%

save 32%

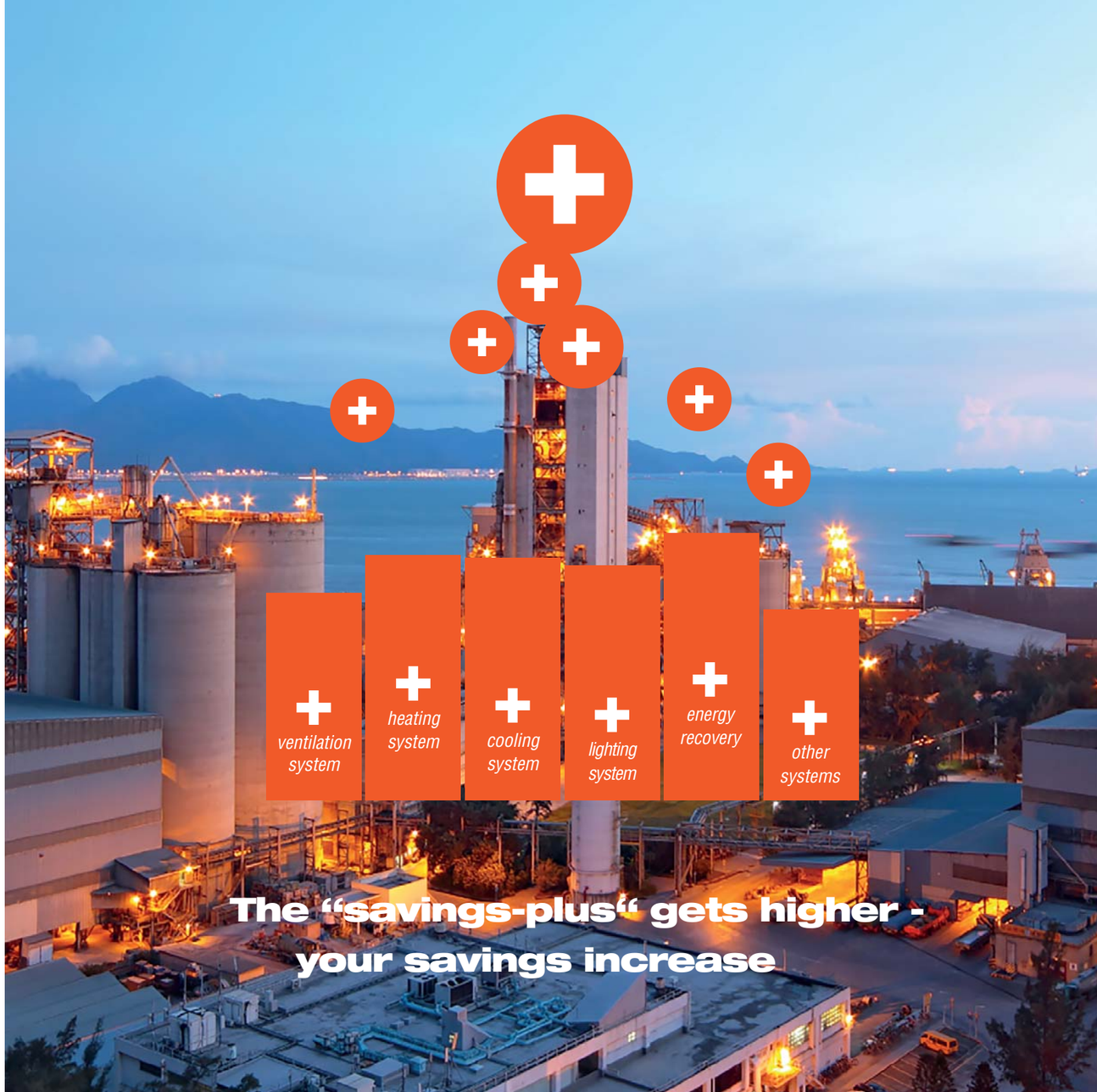
save 28%

We maximize your savings using these modules

By taking a holistic view of all systems and through the combination of specific modules, geff is able to maximize energy savings.

The potential energy savings and the emphasis that achieving those savings should receive is dependent on both the magnitude and type of energy consumption.

Our goal is to use the results of our analysis of the individual system technologies in place - such as the ventilation systems, the heating systems, the refrigeration systems, compressed air technologies, and all of the other infrastructure components - together with our modules in order to attune and integrate those systems better with one another to achieve the maximum energy efficiency result.



geff offers more

geff is global

Our global network of partners helps ensure a constant flow of new technology innovations. We bring these new solutions for energy efficiency to our clients from around the world.

We are manufacturer-independent

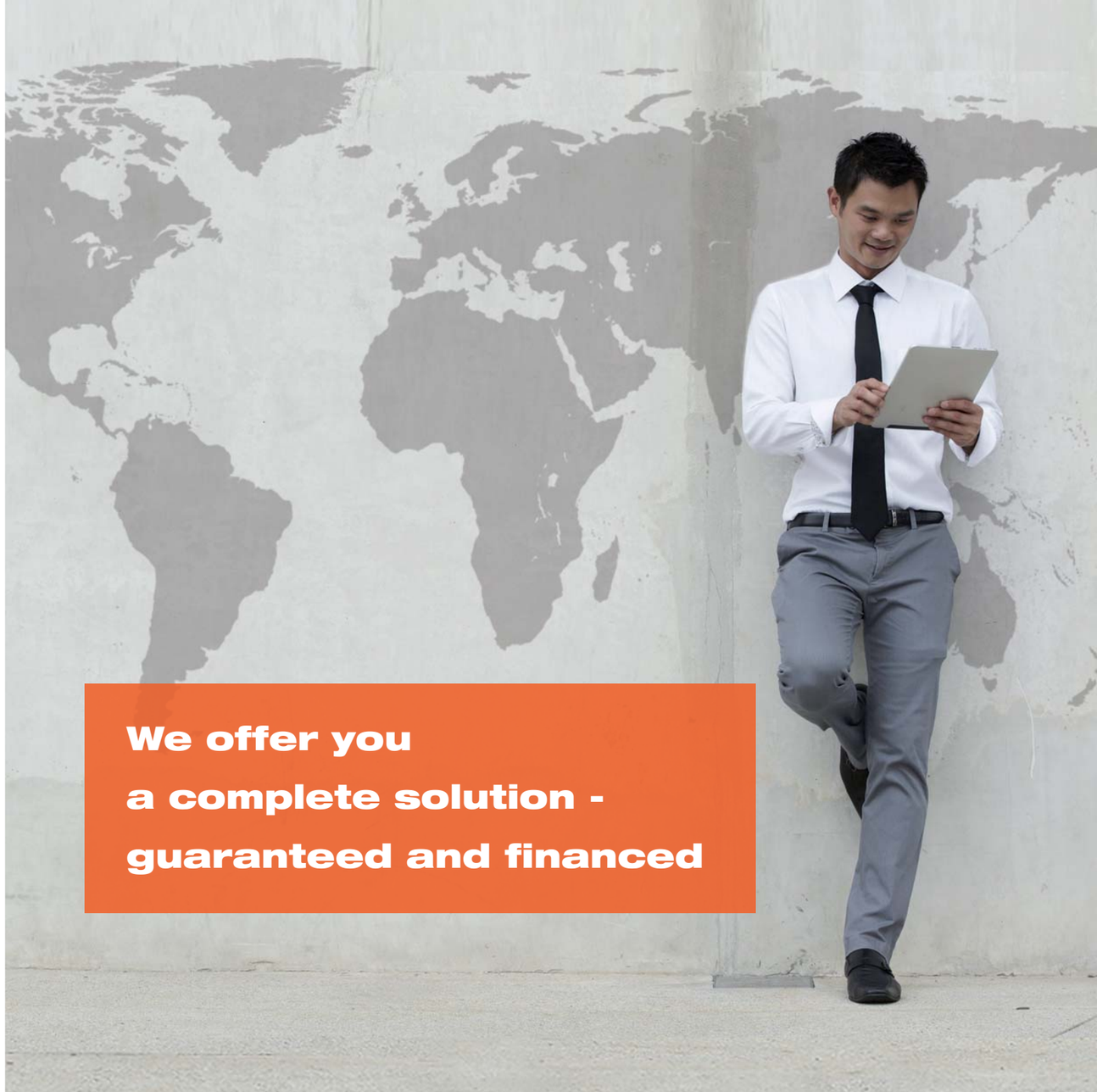
Being independent of manufacturers guarantees us the ability to adopt and deploy the latest proven energy efficiency solutions no matter where they come from.

Savings Guarantee

We guarantee the energy savings that we promise our clients thereby giving you clarity and comfort.

Facilitation of Financing

We facilitate individual financing solutions, set up to strike the right balance between the economic and environmental needs of our clients.



Marketing Support

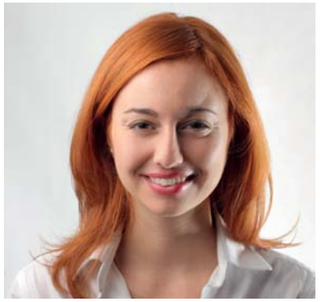
media +

We have made it our mission to accompany our clients through the entire life-cycle of energy efficiency projects. Involving the people that will be impacted by an efficiency concept in that concept is of immense importance. Every single one of them can - through understanding and therefore informed choices and actions - help achieve the desired goals. The necessary sensitization can be provided for via workshops or ”action days”. The most important thing is that the people become active participants and therefore a vital part of the whole efficiency concept.

“Everyone has their part to play.“
To move and motivate through the efficiency concept;
doing the important and right things.

geff Media has you covered with the positioning and the marketing support for your efficiency concepts - both **internally** towards your own employees and **externally** towards your customers.

Whether via digital or print media, through coaching and the necessary liaison person, or even by setting up a roadshow - we will help you implement your efficiency measures with creativity and passion.



Training, Workshops
Visualize Successes
Designated Liaison
Media Support
Integration in the Network
Mission Statement
Motivation
Discerning Perception
Reacting Sustainably
Sensitization
Roadshows
Support Print and Digital
CO_2 Counter

We are your partner for innovation

energy +

Saving energy through efficiency improvements alone is not always enough to meet your needs; here is where we bring energy+ into play.

Through energy+, we are able to help you get the highest level of performance out of your building and the environment around it, in that we evaluate and show you where you have potential energy generation capacity.

Sunlight, wind, water, geothermal heat, waste materials, or even wasted heat from your building can all serve as local energy sources, which can be tapped and integrated into your infrastructure in order to lower your total operational costs.

We have you covered for:
planning, purchasing, installation, maintenance, and operational services for the generation/capture of energy via solar PV, solar thermal, wind, geothermal, hydroelectric, bioenergy, and waste-energy recovery technologies.

We secure *your* solution, because we are united by:

The will to- and the clear focus on saving energy, thinking and acting sustainably, innovation, quality, expertise, and enthusiasm.

geff working

In these Sectors

Automotive Industry
Banks and Finance
Construction
Chemical Industry
Data Centers
Electronics Industry
Utilities
Research Institutes
Airports
Real Estate
Retail
Clinics
Power Plants
Municipalities
Cosmetics Industry
Food Processing Industry
Logistics
Aerospace
Petroleum Industry
Trade Shows
Optics Manufacturing
Paper Industry
Pharmaceuticals
Broadcast Industry
Swimming Pools
Telecommunications
Universities

Covering these Solution-Areas

Waste-Heat Recovery
Demand Optimization
Lighting Systems
Bioenergy
Compressed Air Systems
Electrical Drives
Energy Management
Electrical Energy
Energy Recovery
Geothermal
Heating Systems
Refrigeration Systems
Ventilation Systems
Mechanical Systems
Monitoring
User Behavior
Process Technology
Control Systems
Solar Energy
Hydroelectricity
Heat
Wind Energy
Efficiency Optimization

Together with our Partners for these clients

Adam Opel GmbH
Allianz Immobilien GmbH
AUDI AG
Bausparkasse Schwäbisch Hall AG
BMW AG
Boehringer Ingelheim Pharma GmbH & Co. KG
BorgWarner Inc.
Carl Zeiss AG
Commerzbank AG
Credit Suisse AG
Daimler AG
Deutsche Bahn
Deutsche Bank AG
Deutsche Lufthansa AG
Deutsche Telekom AG
Deutsches Zentrum für Luft- und Raumfahrt
Dr. Horst Schmidt Klinik
E.ON Kernkraft GmbH
EnBW Kernkraft GmbH
ESSO Deutschland GmbH
Fachhochschule München
Ferrero OHGmbH
Flughafen München GmbH
Flughafen Stuttgart GmbH
Flughafen Zürich AG
Forschungszentrum Karlsruhe
Fraport AG
Grace Manufacturing GmbH & Co. KG
Hochtief Energy Management GmbH
Klinikum Augsburg
Klinikum Bamberg
Klinikum Nürnberg
Kölnbäder GmbH
Kreiskrankenhaus Böblingen
L'OREAL Deutschland GmbH
Merck KGaA
Messe Frankfurt Venue GmbH & Co. KG
PASM GmbH & Co.KG
ProSieben Sat 1 Media AG
Robert Bosch GmbH
RWE Energie AG
Siemens AG
Sparkassen Informatik GmbH & Co KG
Staatliches Hochbauamt Stuttgart
Staatsoper Hannover
Staatstheater München
STRABAG Property and Facility Service GmbH
SüdWestRundfunk
Technische Hochschule Darmstadt
Universitätsklinikum Frankfurt
Universitätsklinikum Heidelberg
Universitätsklinikum Tübingen
Volkswagen AG
ZF Lenksysteme GmbH
Züblin AG
Zweites Deutsches Fernsehen

We start the optimization process with the largest of the easiest - and therefore most economical- energy conservation measures, to ensure that you can see the fastest possible improvement.

Telecommunications

A major German telecommunications provider was already supplying 100% of the electricity needs for its administration facilities with renewable energy. Our task was to help them further reduce their energy consumption while at the same time drastically lowering their CO2 emissions. Our success is clearly visible in the yearly savings that we managed to generate for them.

geff Modules applied in this project

visualization +	Complete analysis of the system including actual versus target performance comparisons for the equipment
ventilation +	Conversion to performance-optimized ventilators. Reduced the volume of air flow
cooling +	Conversion to performance-optimized cooling. Adjustment of the room temperature set-points
control +	Demand-response controls for the ventilation and cooling equipment

Results

Power demand **before geff** (per year)	59,130,000	kWh
Power demand **after geff** (per year)	19,710,000	kWh
Savings	39,420,000	kWh per year
calculated at 0.1134 Euro per kWh and converted to USD at the 2013 yearly IRS exchange rate of $1 = 0.783 Euro	5,709,103	$ per year

visualization+ | ventilation+ | cooling+ | control+

Automotive OEM - Ventilation

A large German automobile producer with multiple production facilities throughout Germany operates many older ventilation systems, which were in desperate need of being optimized for energy efficiency. The challenge in this case, was that the retrofit work had to for the most part take place during ongoing production in the factories, as demand for new cars simply did not allow for production downtime.

geff Modules applied in this project

visualization +	Complete analysis of the system including actual versus target performance comparisons for the equipment
ventilation +	Replacement of obsolete ventilators with 330 new high-efficiency centrifugal fans
	Adjustment of air flow volumes
	Deinstallation of obsolete motors and installation of new high-efficiency motors
control +	Installation of frequency inverters and demand-response controls for the ventilation equipment

Results

Power demand **before geff** (per year)	106,149,320	kWh
Power demand **after geff** (per year)	60,985,004	kWh
Savings	45,164,316	kWh per year
calculated at 0.1134 Euro per kWh and converted to USD at the 2013 yearly IRS exchange rate of $1 = 0.783 Euro	6,541,038	$ per year

visualization+ | ventilation+ | control+

We have 30 years of experience successfully executing projects in highly-sensitive environments, such as surgical operation rooms.

Medical Center

This medical center includes a medical clinic, ambulatory practice, ambulatory rehabilitation unit, and senior living facilities. The multifunctional nature and high patient traffic that this facility deals with on a regular basis present many challenges. Nonetheless, geff was able to help significantly reduce their energy costs.

geff Modules applied in this project

visualization +	Complete analysis of their facility systems
ventilation +	Removal of 8 axial fans and replacement with 8 centrifugal fans equipped with flat-belt drives and high-efficiency motors
	Removal and disposal of unnecessary noise-control baffles (576 units)
	Removal of external air dampers and replacement with 4 section-rolling doors
recovery +	Installation of a highly-efficient combined circulation heat recovery system (including the necessary plumbing work)
control +	Installation of- and electric connection work for new frequency inverters
	Demand-optimized control of the ventilation and heat recovery equipment

Results

Power demand **before geff** (per year)	8,015,400	kWh
Power demand **after geff** (per year)	3,784,320	kWh
Savings	4,231,080	kWh per year
calculated at 0.1134 Euro per kWh and converted to USD at the 2013 yearly IRS exchange rate of $1 = 0.783 Euro	612,776	$ per year

visualization+ | ventilation+ | recovery+ | control+

Production Hall - Equipment Manufacturer

A manufacturer of industrial equipment and robots requested an energy savings analysis for the lighting in one of its production halls as part of the company‘s internal corporate energy savings program. The results of the analysis showed that the existing high-bay lighting in the hall was giving off much less light than the latest new lighting technologies, even though they use the same amount of energy.
geff‘s solution was an intelligent LED high-bay luminaire system with built-in occupancy and daylight sensors and dimmers, which could be mounted on the existing fixtures (at a height of 8 meters) and offered an anti-glare technology with guaranteed maximum energy efficiency at extremely high light output. Additionally, the client is able to monitor and custom-adjust each individual luminaire via a very simple software solution, leading to further savings through the automatic reduction of lighting hours based on occupancy and daylight.

geff Modules applied in this project

visualization +	Audit of the existing lighting system, including analysis of actual versus target performance levels
	Comparison of different technical solutions and brands, followed by a demonstration installation and evaluation.
lighting+	Deinstallation and removal of the existing lighting
	Installation of 77 intelligent LED luminaires (240W)
control +	Evaluation of the new software and follow-up commissioning to set up the various lighting scenarios for availability of daylight and the presence of employees

Results

Power demand **before geff** (per year)	374,374	kWh
Power demand **after geff** (per year)	40,841	kWh
Savings	333,533	kWh per year
calculated at 0.18 Euro per kWh and converted to USD at the 2013 yearly IRS exchange rate of $1 = 0.783 Euro	76,674	$ per year

visualization+ | lighting+ | control+

Automotive Foundry Operation - Waste-Heat Recovery with Tri-generation

This lightweight metal casting operation (aluminum and magnesium) produces cast components for a large German automotive OEM. As the foundry operation is part of a larger production campus where over 3000 employees work, geff recognized and was able to help the owners realize an excellent opportunity to save even more energy by capitalizing on the energy intensity that casting requires through the development, installation, and operation of a waste-heat recovery system and combined heat and power plant (CHP).
Additionally, by utilizing absorption chillers, we were able to add the conversion of the remaining waste-heat into cooling energy, providing a complete tri-generation system, which offset a massive amount of the energy purchasing needs of the campus. To top all of this off, energy performance contracting was used to finance the entire project, making this an instant win for the client.

geff Modules applied on the project:

visualization +	Complete energy analysis of the casting operation and facilities
recovery +	Installation and operation of a high-temperature exhaust gas heat exchanger at the aluminum smelter
energy +	Installation and integration of a combined heat and power plant (CHP) into the facility‘s power infrastructure
cooling +	Installation and integration of an absorption chiller
control +	Demand-optimized controls for all new equipment

Facts

Heat energy being wasted **before geff** (per year)	13,306,800	kWh

Results

Through energy	recovery from waste-heat	**we are able to generate savings worth double-digit millions of Euros per year**
	generation from the CHP unit	
	conversion through absorption cooling	

We ensure that you get the maximum savings

Together *with our customers, we want to save 5,000,000,000 kilowatt hours of energy and cut energy costs by $ 500,000,000 over the next ten years.*

geff

generation efficiency

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