

# *Offices: Going Green in CEE*

On Point | Sustainability

2013 / 2014



How sustainable is your footprint?

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# Introduction

Over the course of this decade, existing properties and those in the pipeline will be put to the test from an environmental standpoint by those looking to own them, manage them and occupy them. This paper serves as a brief update to the one produced in 2012 and sets out to inform developers, owners and occupiers of recent trends in the CEE region (Croatia, Czech Republic, Hungary, Poland, Romania, Serbia, Slovakia) and why proactive action needs to be taken, both to mitigate the risks of high impact buildings, to adapt portfolios and occupational practices to inevitable climatic and workplace changes. This paper also seeks to provide some practical tips and guidance on the actions that can be undertaken by Developers, Owners and Occupiers. It will also look at the current levels of 'Green Building' activity in the region and hear from those who are leading the industry in this respect.

By the year 2020, all new buildings will have to prove almost zero energy consumption. By the year 2050, emissions from all buildings need to be as near to zero as possible. To reach these goals significant changes to current practices need to be made by both owners and occupiers.

*"Commercial real estate is now generally recognised as pivotal in the fight against global environmental challenges, including climate change and the consumption of increasingly scarce resources. The United Nations Environment Programme (UNEP) estimates that, globally, buildings are responsible for more than 40% of energy use, one-third of greenhouse gas emissions and 30% of raw material use. From a socio-economic perspective, real estate shapes our towns and cities and is a defining characteristic of society in general. It is where we work, where we live and it creates jobs and investments for people from every walk of life."*

**Kevin Turpin**, Head of Research and Consultancy CEE, JLL

## CEE Sustainability Highlights

### Offices: Going green in CEE

- In the CEE region, there are currently over 1.75 million sqm of existing certified green office space and approximately 2.5 million sqm of existing or pipeline space that are targeting green certification.
- Poland has overtaken the Czech Republic in the past 2 years to claim the highest volume of certified office space, currently at almost 730,000 sqm. This will also remain for the foreseeable future as Poland has a further, potential pipeline of over 700,000 sqm that is seeking green certification.
- BREEAM is currently the preferred methodology of choice in certified projects although; LEED methodology is currently dominating the pipeline of registered projects. We do however expect BREEAM to bolster its position, particularly in the Polish pipeline structure.

### Legislation & Drivers

- The 2010/31/EU Energy Performance directive to lower energy consumption in the building sector by about 20% is becoming more widely enforced.
- Depending on the country, there is legislation that has come into force from 2013 onwards where all developed buildings will have to fulfil certain norms about its minimal energy characteristics.
- Otherwise, very few government incentives currently exist to promote sustainable development or practices in the region.

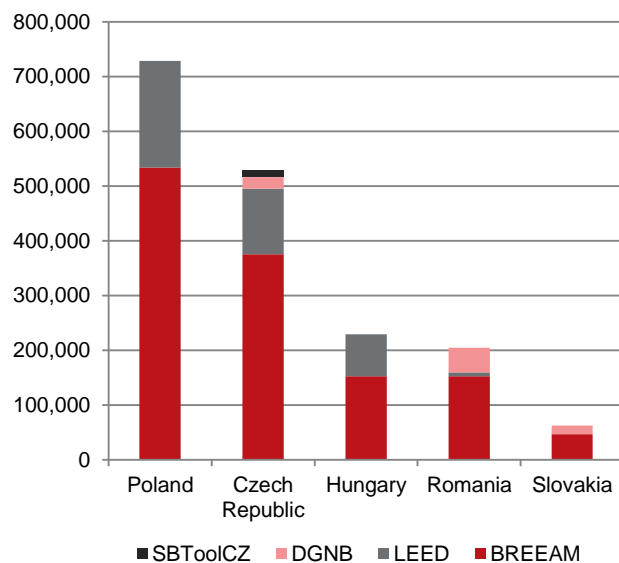
### Tenants going green

- JLL joins a global project to boost the business case for the health and productivity benefits of green buildings.
- JLL implements programme to educate tenants on sustainable practices to reduce energy and water consumption and also provides the possibility to recycle common office waste and reduce the volume of waste going to landfill sites
- Initially started in Poland, JLL, Skanska and other participants are running and growing a programme across CEE to collect electronic waste from building occupiers in designated containers and have it disposed of in the correct manner by specialist partner companies.

## Offices: Going green in CEE

Green building certification has been rapidly growing in the CEE region over the past number of years. There is currently over 1.75 million sqm of existing certified green office space and approximately 2.5 million sqm of existing or pipeline space that is targeting green certification.

**Graph 1: \*Volume (sqm) of existing office buildings that have obtained green building certification**



Source: JLL Research, February 2014

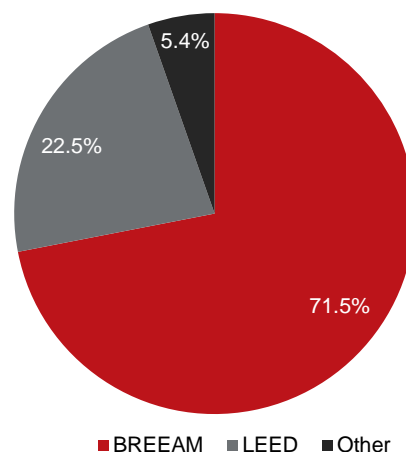
\* Volumes include buildings or space that have received final certification, according to the relevant databases of BREEAM, LEED, DGNB etc.

Poland has overtaken the Czech Republic in the past 2 years to claim the highest volume of certified office space, currently at almost 730,000 sqm. This is set to remain for the foreseeable future as Poland has a further, potential pipeline of over 700,000 sqm that is seeking green certification.

The systems most commonly used in the region at present are for existing buildings under **BREEAM In-Use** which account for ca. 53% of all existing BREEAM Certifications by volume or, **LEED EB:OM** (Existing Buildings: Operations & Maintenance) which account for ca. 71% of all existing LEED certifications.

Alternatively, for new developments, **BREEAM Europe Commercial**, for office or commercial buildings and **LEED for New Construction** and **LEED for Core & Shell** are used. **DGNB** is also used by 4 office projects in the region, in addition to a few other methodologies.

**Graph 2: Share of certification methodologies (\*volume / sqm) in existing certified office buildings in the CEE region**

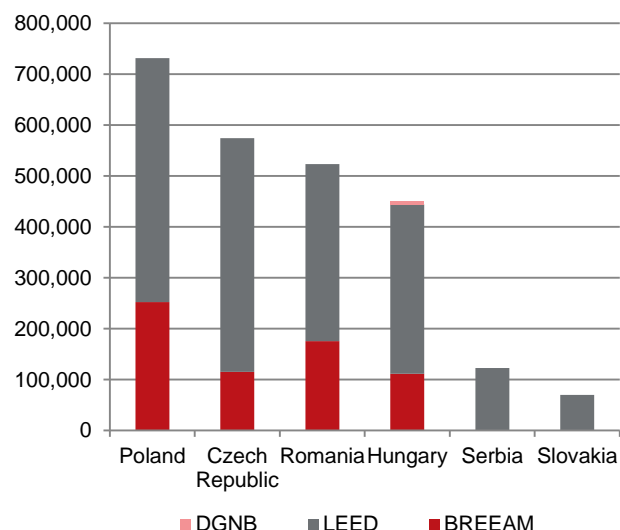


Source: JLL Research, February 2014

\* Based on buildings or spaces that have received final certification, according to the relevant databases of BREEAM, LEED, DGNB etc.

There are a growing number of developers or owners of existing buildings that are looking to certify their buildings with the goal of maximizing operational efficiency while minimising the impact the building has on the environment. Whilst BREEAM is currently the preferred methodology of choice in certified projects, LEED methodology is presently dominating the pipeline of registered projects. We believe that many planned BREEAM projects have not yet been registered, particularly in Poland so, the shares in pipeline supply may change shortly.

**Graph 3: \*Volume (sqm) of existing or pipeline office space that is targeting green building certification**

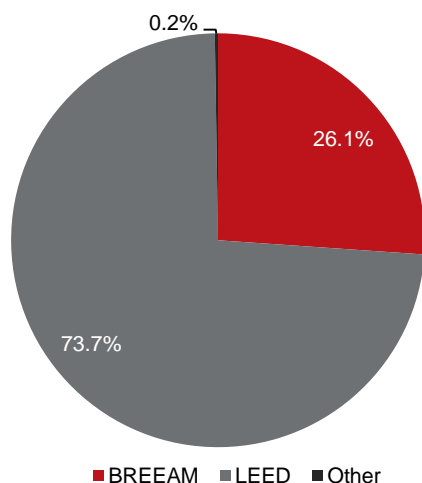


Source: JLL Research, February 2014

\* Volumes include buildings or spaces that are targeting certification (registered / applied) according to the relevant databases of BREEAM, LEED, DGNB etc. These volumes include projects that may not receive certification for various reasons such as: not completing/qualifying for the process or, have not yet commenced construction. Therefore, the volume may represent the pipeline for the next 3 or more years.

Graph 2 shows a large potential pipeline of re-development or new development (due for completion in the next few years) that is committed to sustainability, particularly in Poland. In the majority of markets, a very high percentage of new projects in the pipeline, 100% in some markets, will be targeting green certification and has almost become a standard. Pipeline projects also include the first green buildings from Serbia and a growth in Hungary, Romania and Slovakia.

**Graph 4: Share of certification methodologies (\*volume / sqm) for office space in CEE that is targeting green certification (New and existing space)**



Source: JLL Research, February 2014

\* Based on buildings or spaces that are targeting certification (registered / applied) according to the relevant databases of BREEAM, LEED, DGNB etc. These volumes include projects that may not receive certification for various reasons such as; not completing/qualifying for the process or, have not yet commenced construction. Therefore, the volume may represent the pipeline for the next 3 or more years.

In the pipeline of office certification projects, we are also seeing less operations and maintenance certification and more new build certification, which is partly thanks to the large pipeline in Poland (mainly Warsaw) but also a gradual return of development to other parts of the region. From the pipeline of registered projects targeting certification, only 22% of BREEAM projects are for In-Use and only 18% of LEED projects are for EB:OM.

It is also predicted that the certification of commercial interiors will become more popular among Tenants, especially if they belong to a large global network requiring sustainable offices as part of their Corporate Social Responsibility (CSR) charter. There are currently 5 known examples in the region and a similar number in the pipeline.

## What is new in green certification methodology?

### Changes in BREEAM

*'In comparison to BREEAM Europe Commercial 2009, BREEAM International 2013, although more expensive, introduces a number of new issues and improvements which reflect today's building construction market. In the certification process, BREEAM Accredited Professionals can now also work alongside a BREEAM Assessors. It is not obligatory to engage a BREEAM Accredited Professional in the process but, it could prove to be useful at the design stage, through the implementation phase until construction is completed, as a number of credits can be attained. BREEAM AP's should monitor at the design and implementation stages, as well as the implementation of BREEAM requirements on behalf of the investor.'*

*'Another essential change which involves additional costs for the investor is the requirement to prepare an Energy Model, which will assess the energy consumption of a designed building. This time -consuming and rather expensive model will be prepared by engineering companies with specialized software. Preparing an energy model at the design stage will provide the architect with a number of guidelines on how to improve the building and its installations, and as a result, lower future operating costs. Due to concerns over air quality, a number of restrictions have been introduced to the assessment scheme. These include a ban on materials containing asbestos as well as a requirement to measure the level of formaldehyde and volatile organic compounds (VOC's) emitted from surface finishing materials of the building. Smoking in any area of a building's interior is now forbidden and should protect occupants and the building itself from exposure to tobacco smoke.'*

**Regina Gul**, Senior Project Manager, Project & Development Services, JLL - LEED Accredited Professional, BREEAM Assessor

### Changes in LEED v.4

The new version of LEED v.4 will be obligatory from June 2015 and the most important changes, in comparison to LEED Core & Shell 2009 are as follows:

- Credit - Green Vehicles – 3% of parking spaces must be reserved for low emitting cars and additionally 2% of parking spaces must be provided with electrical charging stations for electrical cars.
- New prerequisite – Outdoor Water Reduction – potable water reduction is required for landscape irrigation about



30% in comparison to the baseline, or lack of irrigation system.

- New prerequisite - Indoor Water Use Reduction – all sanitary fittings must have Water Sense symbol confirming their water efficiency.
- New prerequisite – Building Level Metering - requires total water consumption metering in the building.
- Existing credit - Water Efficient Landscaping – has been replaced with new credit Outdoor Water Use Reduction – requiring minimum 50% of water reduction for landscape irrigation or usage of landscape which does not require irrigation.
- New credit - Water metering – additional points can be achieved if additional water sub metering is provided per minimum two water consumers.
- New Prerequisite Building – Level Energy Metering – total energy consumption metering has to be provided.
- New credit - Advanced Energy Metering – energy meters shall be provided for all energy consumers using more than 10% of the total building's energy consumption. The energy meters shall be connected to the system collecting metered data automatically.
- Prerequisite – Storage Collection of Recyclables – there is new additional requirement of batteries, lamps containing mercury and electronic wastes segregation in addition to current obligatory segregation of paper, cartoon, glass or metal.
- New Prerequisite - Construction and Demolition Waste Management Planning – it is required to plan reduction and registration of construction wastes.
- Prerequisite - Minimum Indoor Air Quality performance – there is additional requirement of monitoring of outside air volumes introduced to the building's mechanical ventilation systems. Prerequisite - Environmental Tobacco Smoke Control – smoking is prohibited inside the buildings.
- New credit - Acoustic Performance - acoustic parameters in rooms have to be met according to ANSI and ASHRAE codes.

For further information on green certification or, energy and sustainable strategies in CEE, please visit our energy and sustainability services pages at [www.jll.pl](http://www.jll.pl) or, contact **Regina Gul** or **Ewelina Karpinska** using the contacts at the end of this publication.

Globally, buildings have a very negative impact on the environment. In Europe, buildings account for:

- 50% of CO<sub>2</sub> emissions
- 45% energy demand,
- 40% materials consumption
- 20% landfill waste
- 17% potable water use

Real estate developers, owners and occupiers are all in a position to help minimize this impact by:

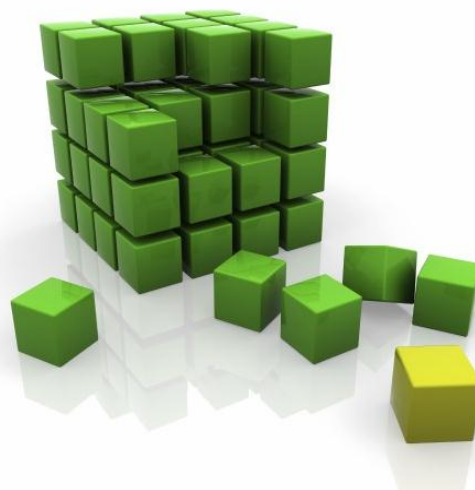
- Efficiently using energy, water, and other resources
- Reducing waste, pollution and environmental degradation
- Protecting occupants health and improving employee productivity
- Contributing to better communities and to leave the world a better place for future generations

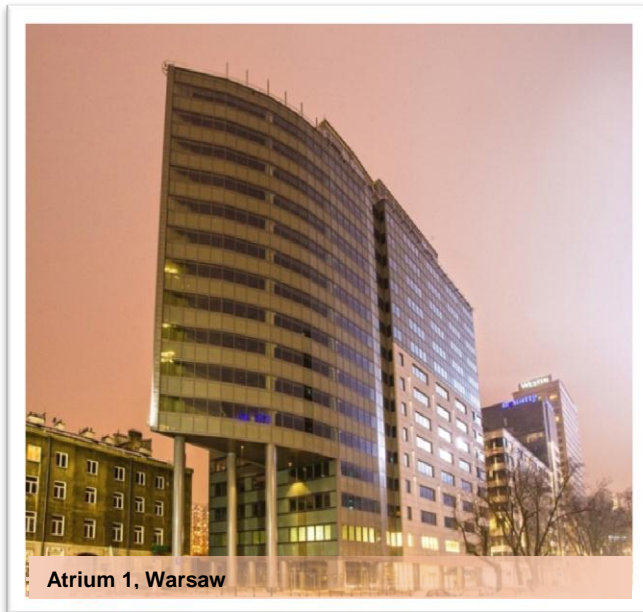
### Case study: Atrium 1, Warsaw

#### A development by Skanska Property Poland

*'Sustainable development is the key priority for Skanska. We were the first developer on the market who saw the advantages of green buildings in terms of value for tenants, investors and the community. Today, a green certification is a "must have" for a developer, proving the quality and attractiveness of the premises. However, there is still a great opportunity in green business and standing still is not an option. As a developer, we have to see the project in a bigger context, stimulating a green society, putting more attention on the surroundings of the premises and delivering places that are full of life even after working hours.'*

**Katarzyna Zawodna**, Managing Director, Skanska Property Poland





Atrium 1 is located at Al. Jana Pawła II, near the ONZ roundabout, in the heart of Warsaw's business centre. It was envisioned to be the most sustainable and energy efficient building not only in Warsaw and Poland, but in all of Central Eastern Europe. The project represents the true definition of sustainability by equally representing and balancing social, economic and environmental factors into the full lifecycle of the building including design, construction, operations and future use.

Atrium 1 has been designed and constructed according to the requirements and guidelines of the U.S. LEED rating system. The project aims to achieve LEED Platinum which is the highest level possible of the certification system. Atrium 1 will have a near net zero impact on the environment, providing its tenants with reductions in costs for energy, water, operating and maintenance. In addition, an improved working environment is widely acknowledged to result in a happier, more productive workforce, attracting talent and enhancing profits.

The façade and all installations were designed to maximize the energy efficiency of the building to **reduce consumption of energy by an unprecedented 50%** and **water consumption by 70%**, contributing directly to lower services charges for tenants (approximately 20% lower service charges compared to competitive buildings).

The most significant features and strategies contributing to the building's high energy efficiency are as follows:

- **Unique geothermal heating and cooling system** – in summer it is used as a source of cooling for air-conditioning in the building, in winter it is a source of heat for the initial heating of ventilation air. The system consumes far less energy than conventionally designed heating and cooling systems.
- **The façade is connected to and controlled** by the Building Management System (BMS) in order to decrease the collection of heat caused by solar gain and thus, to decrease the building's energy need for cooling.
- **Active photovoltaic panels** to generate electricity directly from the sunlight in order to decrease the use of energy generated from fossil fuels that contribute to a negative impact on the environment,
- **Energy-efficient lighting** system using LED lighting and motion sensors to turn off unused lights.
- **Daylight control system** which adjusts the level of artificial lighting depending on the intensity coming from natural daylight.
- **"Free cooling" system**, using cool outside air to cool office areas in colder periods of the year.

All of this was achieved without losing sight on the occupants that will occupy the building. Equal measures were taken to create the highest levels of indoor environmental quality to ensure maximum occupant productivity, health and well-being.

On average, we spend approximately 90% of our time indoors. Even worse than spending so much time indoors, is that pollutant levels can be 2-5 times greater than outdoor levels, literally making us sick. Building occupants across the globe frequently complain about headaches, fatigue, and sensory irritation of the eyes, nose, throat and skin.

To protect future occupants, Skanska has increased ventilation levels further than the 30% required by Polish norms, installed CO<sub>2</sub> monitors to ensure that proper air levels are maintained and used only non and low toxic building materials. In addition, the building was designed in such a way to allow maximum access to daylight and outside views for at least 75% of the designed area to further contribute to a superior indoor environment.

Atrium 1 is a significant achievement and sets a new benchmark for buildings to aspire to in the CEE region in terms of high energy efficiency standards and occupants health.

## Property management going green

Despite all the potential benefits from creating a sustainable building and surrounding environment, governments are slowly increasing legislation for sustainable practices in the region but, are offering very little in the way of incentives for investors and developers which would normally take the shape of tax breaks or other similar incentives. Instead, it is largely property and asset managers, developers and occupiers who are driving this initiative forward due to their own sense of duty and the growing number of corporate social responsibility (CSR) programmes.

Occupiers of property are an integral part of the quest for a more sustainable built environment. After all, you can have the most technologically advanced and efficient building on the planet, but if it is not managed or occupied correctly, then some or, quite a lot of that positive impact can be lost. Therefore, the **JLL property management team** continue to spend a considerable amount of effort with its clients and their buildings tenants into improving the portfolio of properties under management from both a technical and efficiency standpoint but also from an environmental and well-being position.

*'In order to keep up with the rapid evolution of green, we have focussed on the improvement of many different areas. For example, these can start from the simple placement of selective waste bins in office spaces through to promoting alternative methods of transport and implementing green practices in our service lines for our clients and tenants.'*

*Human behaviour has an enormous impact on building performance, which means buildings are only as efficient as the people who operate them. Emphasizing the importance of human impact, as a green-minded group of property managers, we focus on tenant education – tenant collaboration, and finally – tenant engagement.*

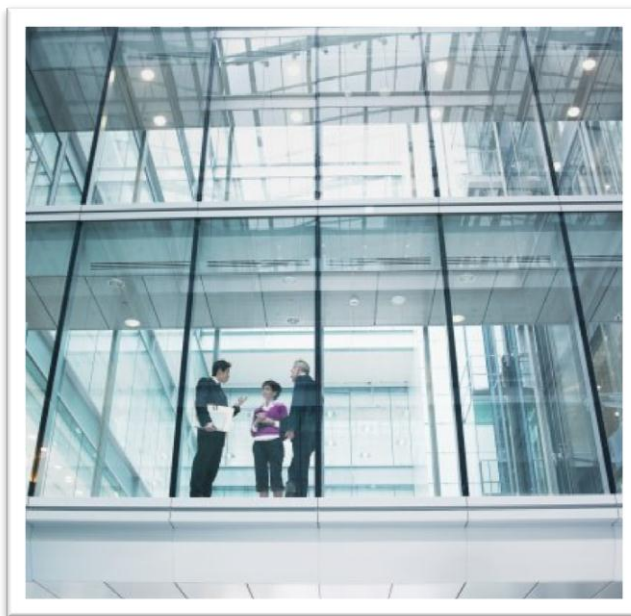
*By using a variety of green practices, we can show tenants the advantages of operating harmoniously with a healthy environment, as well as demonstrating what the future could look like if we don't operate appropriately. In order to achieve a real impact, the practice of education needs to be continual. The goal is to keep energy and sustainability at the forefront of tenant's minds over time. Onetime events are good, generating initial responses but these fade and become less active over time. However, with a continual process we can change the overall culture to a consistent environmentally friendly acting culture.'*

**Ewelina Karpinska**, CEE Sustainability Coordinator, LEED Green Associate

## JLL property management - case studies

The following case studies are all properties under the management of JLL in CEE.

### Class A Offices in South Buda, Hungary



**Size:** 29,000 sqm (GLA) Offices

**Location:** Budapest, Hungary

#### Modifications:

- Optimization of lights in the garage
- Emergency lights replaced by energy savings bulbs
- Movement sensors installed in the toilets
- LED lights installed in the toilets and corridors
- Lifts – light sources were replaced and the 24h operating time was limited
- Decorative lighting – all 70W halogens- effective consumption 105W- were replaced by 30W LED reflectors
- Reduction of working hours by reprogramming BMS
- Solar panel installation on the garage roof
- Water saving faucets were installed
- Toilet flush tank capacity decreased
- Drip system installed on green areas

#### Achievements:

##### Electricity:

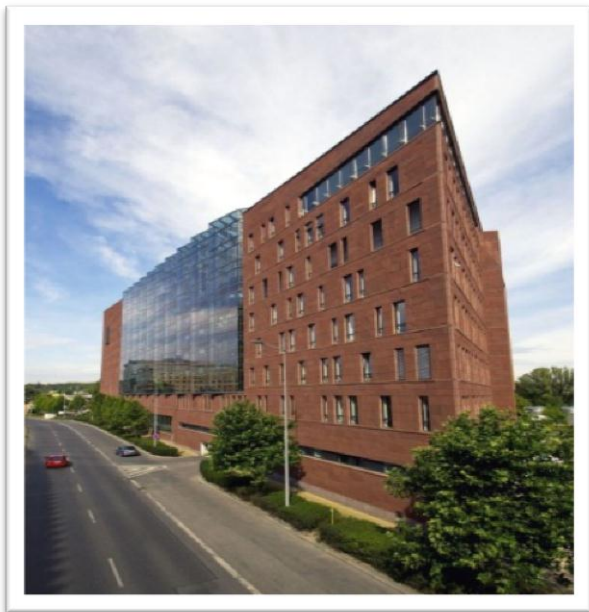
- Total reduction consumption of the lighting system is 85% year-on-year

##### Water

- 32% saving year-on-year



## Danube House



**Owner:** CA Immo

**Size:** 21,380 sqm (GLA) Offices

**Location:** Prague, Czech Republic

### Modifications:

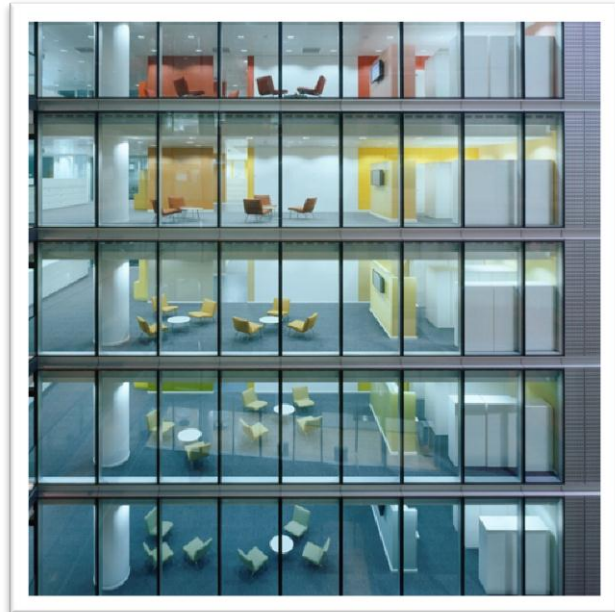
- Upgrade of BMS system
- Installed option for a master switch for all lighting management at the exit of the leasable units
- Movement sensors have been installed for the garage lighting
- Lighting optimization in the corridors, reception, façade
- Standard bulbs have been replaced by LED lights
- Installation of dual flush toilets
- Installation of aerators in the lavatory faucets

### Achievements:

#### Electricity:

- Total reduction in electricity consumption was 10% year-on-year

## Class A Offices in Bratislava, Slovakia



**Size:** 8,300 sqm (GLA) Offices

**Location:** Bratislava, Slovakia

### Modifications:

- New lighting with motion sensors installed in the garage
- LED lights installed in common areas
- outside lighting replaced by LED reflectors
- Reduction of working hours by reprogramming BMS
- Out of office hours and weekend programming of heating-cooling system was optimized
- Periodicity of waste disposal decreased

### Achievements:

#### Electricity:

- Total reduction in consumption of electricity was 15% year-on-year

#### Waste management:

- The volume of waste generation was decreased by 45%





## Marynarska Business Park



**Owner:** Heitman

**Size:** 45,850 sqm (GLA) Offices

**Location:** Warsaw, Poland

### Modifications planned for 2014:

- Upgrade of BMS system
- Cleaning of the ventilation ducts
- "Cycle to work" program, Instalment of bicycle racks
- Basin mixer installations for motion sensors;
- Installation of motion sensors on urinals,
- Installation of LED lighting in the toilets and staircases
- Standard bulb replacement for LED lights on garage levels

### Achievements in 2014:

- BREEAM In-Use 'Very Good' Certification conducted by the JLL P&DS team in Poland.

As you can see from the case studies, there are a number of changes that can be made which can have quite a dramatic impact on the consumption of energies, water and waste disposal.

For Marynarska Business Park, the JLL property management and project management (P&DS) teams joined their efforts to provide additional complexity to their services. Having sustainability specialists in both business lines brought about an opportunity to extend and enrich the sustainability offer for the client. The property management team introduced a building performance improvement program to the 4 office buildings of Marynarska Business Park.

The program includes modernization geared towards the improvement of building efficiency across a variety of environmental areas. The most important part of the program was to make the business park both environmentally friendly and attractive for its tenants. The transformation led to the building certification process and achieving the BREEAM In-Use certification with a 'Very Good' rating. The process was led by the JLL BREEAM In-Use Auditor from the project management team, highlighting a great example of successful cooperation between JLL service lines to deliver real value to its client.

## Tenants going green

As tenant demand builds and the threat of regulation grows, building owners are increasingly investing in capital projects and operational programs to enhance the environmental performance of their properties. However, to maintain a building in a sustainable way and have a lasting impact, it takes more than a financial commitment from the building owner. For continued results, many sustainability initiatives require the support of the tenants. JLL's 'Tenants Go Green' program helps to develop an effective tenant engagement that will:

- Raise awareness about sustainability initiatives and the benefits they create for tenants
- Motivate tenants to act more sustainably and accelerate progress towards a greener building
- Inspire tenants by helping them understand how they can make an impact
- Set and achieve mutually beneficial sustainability goals to build stronger tenant relationships and foster loyalty

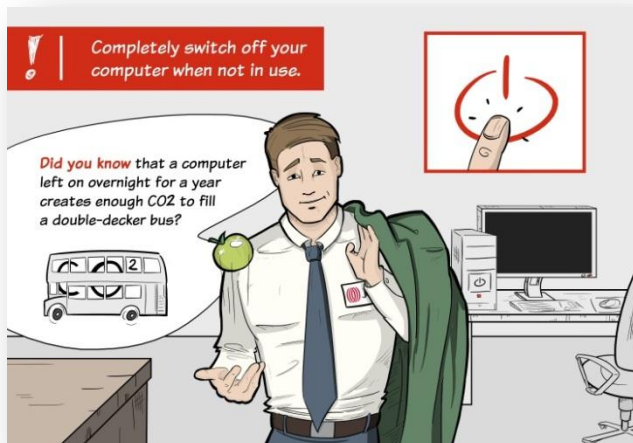
The program includes initiatives that are visible, impactful and demonstrate value to all tenants.

As a new addition to its tenants go green programme, the JLL property management team have developed a fun, simple guide to demonstrate that each of us can easily contribute to the reduction of energy and water use and at the same time, decrease the impact of real estate on the environment.

According to JLL analysis, did you know?

- A computer left on each night generates enough CO<sub>2</sub> over a year to fill a double decker bus.
- Leaving the lights on in the office, uses as much energy in a year, that would be enough to heat a house for 5 months.

Such information and guidance in a manageable and entertaining form are included in the guide addressed to the tenants managed by JLL buildings, as well as company employees. See sample below:



As mentioned previously, improving buildings to operate more efficiently in terms of energy consumption, with more natural light and higher levels of air quality is great for the overall environment but, the added benefits to building occupiers are also being investigated in great detail.

JLL, along with Lend Lease and Skanska have joined as corporate sponsors of a major global project which will help to define the health and productivity benefits of green office buildings which was formally launched by the World Green Building Council (WorldGBC) in March 2014.

*'While there is a growing body of research that firmly supports the connections between sustainable buildings and improved health, productivity and learning outcomes of those who occupy them, this evidence is yet to inform investment decisions in the same way as traditional financial metrics. This project aims to identify the metrics that will support investment in greener buildings.'*

**Jane Henley**, CEO of WorldGBC

The topic is rising up the global real estate sector's agenda as organizations begin to understand the business benefits of greener, healthier buildings. With 85 per cent of a company's costs spent on salaries and benefits, even modest improvements to staff health and productivity can have a dramatic impact on organizational profitability. Studies have found:

- Up to 11% gains in productivity from improved ventilation
- Up to 23% gains in productivity from improved lighting design
- Significant improvement in employee recruitment and retention as a result of green retrofits.

However, challenges remain in attempting to robustly measure health and productivity outcomes, and attaching financial value to them. The WorldGBC's project aims to establish a common way of capturing these benefits, and to provide best practice guidance on the type of green building features – such as day lighting, ventilation and indoor office environments – that enhance them. This can then be used to better inform investment decisions.

*'I am delighted that JLL is sponsoring this exciting and invaluable project. Our recent experience has confirmed that when making strategic location decisions, corporate clients are shifting their focus away from space efficiencies and are asking questions about the environmental credentials of the space and how it will support the productivity of their staff.'*

**Claudia Hamm**, Head of Strategic Workplace EMEA, JLL

## Occupier testimonial: LeasePlan Hungary

*'One of the reasons LeasePlan chose to occupy its current premises was because of its commitment to sustainability. In particular, due to the air quality and natural light of the buildings, our staff finds the building a very pleasant place to work. This is very important to us in helping retain and attract talent to our company. In addition to the property, LeasePlan Hungary Plc. is conscious that it has a role to play in reducing greenhouse gas emissions and reducing fuel consumption as well. In this context, our global GreenPlan Program has enabled companies to integrate the management of their vehicle fleet in their social responsibility and mobility programs since 2007.*

*Besides the above mentioned activities there are other charitable, environmental and economic initiatives which have already been implemented by LeasePlan on both a global and local level too. On a local level, LeasePlan Hungary annually participates in CSR activities such as flood restorations and renovations of children's homes and schools. We are also proud that we have increased our efforts to be a "Green Office". We reduced our paper consumption by default double sided printing and by more conscious paper usage. We installed time controlled plugs at the snack machine and Clearwater appliances. We also pay attention to switching off the lights and monitors when not in use. As a result, we have decreased our electricity consumption by 15% compared to a similar period of the previous year. For LeasePlan Hungary, becoming "Green" also means providing continuous support to our employees' well-being – such as offering daily fresh fruits and promoting sporting activities.*

**Agnes David**, HR Manager, LeasePlan Hungary

Through its own corporate social responsibility programme, **ACT: A Cleaner Tomorrow**, JLL is also committed globally to reducing its own energy consumption and waste, and to creating a productive and pleasant working environment for its employees. For more information please visit:

<http://www.joneslanglasalle.com/apps4/eaction/>

**How do your activities  
impact on the  
sustainability of your  
business' footprint?**





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**Kevin Turpin**

Director  
Head of Research & Constancy  
LEED Green Associate  
CEE  
+420 224 234 809  
Kevin.Turpin@eu.jll.com

**Pavel Schanka**

Director  
Head of Property Management  
CEE  
+420 224 234 809  
Pavel.Schanka@eu.jll.com

**Regina Gul**

Senior Project Manager  
P&DS  
LEED AP / BREEAM Assessor  
Poland  
+48 22 318 0000  
Regina.Gul@eu.jll.com

**Ewelina Karpinska**

CEE Sustainability Coordinator  
Property Management  
LEED Green Associate  
CEE  
+48 22 318 0000  
Ewelina.Karpinska@eu.jll.com

**[www.jll.com](http://www.jll.com)**

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