

ENERGY  
EFFICIENCY  
IN BUILDINGS



A call to action



wbcd buildings

# Climate Change: Implications for Buildings

## BUILDING-AS-USUAL

Buildings' energy use in developed countries is generally wasteful and inefficient. Developing countries risk locking into the same pattern as their economies and populations grow richer.



In 2010, buildings accounted for 32% of global final energy use.



In 2010, buildings accounted for 19% of all GHG emissions\*.



CO<sub>2</sub> emissions in the building sector could double or triple by 2050.

## BUILDING FOR THE FUTURE

Widespread implementation of best practices and technologies could see energy use in buildings stabilize or even fall by 2050. Many mitigation options promise multiple co-benefits.

### Energy-Efficient Technology

- High-performance building envelopes. Typically, with high-performance insulation and windows, and high indoor air quality.
- Energy-efficient appliances, efficient lighting, and heating, ventilation and air conditioning (HVAC).
- Improved building automation and control systems that respond to changing conditions. "Daylighting". Using smart meters and grids to modulate supply in real time.
- Evaporative cooling and solar-powered desiccant dehumidification.

Average CO<sub>2</sub> reduction potential: 20–45% of baseline

### System Infrastructure Efficiency

- Know-how exists on retrofitting and how to build very low and zero-energy buildings, often at little marginal investment cost or manageable payback times.
- Passive building designs that minimize or eliminate the need for mechanical heating, cooling and ventilation.
- Deep retrofits of existing buildings have brought 50–90% energy savings.
- Integrated design processes prioritize energy performance and use factors through building design, construction and commissioning.

Average CO<sub>2</sub> reduction potential: 30–70% of baseline

Average CO<sub>2</sub> reduction potential: 20–45% of baseline

### Carbon Efficiency

- At present, electricity is the main form of energy used for cooling and appliances, while fossil fuels are used for heating. Changing fuels and energy supply infrastructure to buildings will be needed to deliver large emissions cuts even if end-use demand falls.
- More than 2 billion people currently lack access to modern energy carriers. The evolution of their energy provision will drive trends in buildings-related emissions.

### Service Demand Reduction

- Energy use increases projected for buildings relate mainly to higher demand for energy services, driven by people moving out of poverty and changing patterns of consumption. Potential means to deliver demand reduction include carbon pricing, personal carbon trading, property taxation related to building CO<sub>2</sub> emissions, progressive appliance standards and building codes with absolute consumption limits.

Average CO<sub>2</sub> reduction potential: 20–40% of baseline

\*According to the IPCC WGIII AR5 report, total GHG emissions include contributions from F-gases, N<sub>2</sub>O, CH<sub>4</sub>, Forestry and other land use, fossil fuel combustion and industrial processes.

Source: *Climate Change: Implication for Buildings. Key Findings from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report.* ECF, CISL, CJBS, BPPI, GBPN, WBCSD. June 2014.

# We Can all Act on Energy Efficiency in Buildings

By **Peter Bakker** President & CEO, WBCSD

Five months ago we published our first EEB Magazine: a series of 14 case studies highlighting corporate action on energy efficiency in buildings (*An Insight from Companies*). We are now following up with an additional 12 insights from EEB Manifesto signatories. Again, we see that companies that have taken action to reduce the energy consumption of their buildings are benefitting from impressive results in terms of economic returns, payback times and employee engagement.

These latest examples demonstrate energy use reductions in the range of 10-40% (with millions of US dollars saved) and significant commitments for future reductions on a 2015 to 2020 time horizon: all tangible contributions by individual companies to the WBCSD's Action2020 agenda and the 'Must-Have' on addressing climate change (see box). We showcase them here to inspire others to act as well.

Clearly, we need to do even more if we want 9 billion people to live well and within planetary boundaries by 2050. In their most recent assessment, the Intergovernmental Panel on Climate Change has confirmed again that buildings represent about one-third of global final energy use and account for 19% of total greenhouse gas emissions. This share could double or triple by 2050 if we do not act, since buildings' long life-cycles mean that the energy they use is "locked in" for a time frame that is dangerous within the context of the battle to halt climate change. According to the International Energy Agency, energy consumption in buildings needs to be reduced by 80% by 2050 if we want to limit global temperature rise to 2°C.

We are now launching a global Call to Action to all stakeholders — business, governments, regional and local authorities, and civil society organizations — to take ambitious steps to reduce the energy consumption of their buildings. The WBCSD's EEB Manifesto can be signed by all organizations wanting to make their actions visible and get them embedded in their organization's culture.

The EEB Manifesto states that an organization will set an energy-use baseline in the buildings it controls, that it will set voluntary reduction targets and report publicly on progress, and that it will further promote building energy efficiency among its stakeholders.

We have set ourselves the target of getting 1,000 commitments to action on energy efficiency in buildings by the end of 2015, to show that there is growing demand for high-performance buildings because they make business sense. Furthermore, we can show to the world leaders who will gather for the climate conference in Paris at the end of 2015 just how much action is taking place to address climate change. Today we stand at 140 EEB Manifesto signatories, all private businesses and business organizations.

I am convinced that business can and will lead the way to market transformation. WBCSD will continue to reach out to business leaders, amongst its members and beyond, to share their actions and continue to increase their efforts. But business cannot do it alone – we welcome governments, regional and local authorities and civil society organizations to join us as well.



## Climate change "Must-Have"

With the goal of limiting global temperature rise to 2°C above pre-industrial levels, the world must, by 2020, have energy, industry, agriculture and forestry systems that, simultaneously:

- Meet societal development needs;
- Are undergoing the necessary structural transformation to ensure that cumulative net emissions do not exceed one trillion tonnes of carbon.<sup>1</sup> Peaking global emissions by 2020 keeps this goal in a feasible range;
- Are becoming resilient to expected changes in climate.

<sup>1</sup>) Anthropogenic CO<sub>2</sub> emissions from pre-industrial levels as outlined in the IPCC Working Group I Fifth Assessment Report. One trillion tonnes carbon = 3.67 trillion tonnes CO<sub>2</sub>.





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This publication is part of the EEB 2.0 project.



## About the World Business Council for Sustainable Development

The World Business Council for Sustainable Development (WBCSD), a CEO-led organization of some 200 forward-thinking global companies, is committed to galvanizing the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its member companies — who represent all business sectors, all continents and a combined revenue of more than US\$8.5 trillion, 19 million employees — to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The council also benefits from a network of 70 national and regional business councils and partner organizations, a majority of which are based in developing countries.

“

*By showcasing action we can change the energy use paradigm.*

”

# Getting to 1,000 Commitments on Energy Efficiency in Buildings

Since we started working on energy efficiency in buildings almost ten years ago, we have witnessed increasing awareness that the buildings we occupy do not need to use huge amounts of energy to be nice places in which to live, work and spend time. Today we are seeing innovative ways in which buildings can use substantially less energy and produce what they need themselves, while contributing to improved indoor air quality, lighting and space use.

Yet in our interactions, businesses and individuals are still asking us: why would we invest in a more energy-efficient building; how can we make the economics work; how can we make sure our building will actually be more efficient, delivering the savings we need to achieve?

In other words, we need to provide more evidence for the business case for energy-efficient buildings. This not only includes the financial returns on investment, but


also the co-benefits that are generated and which should be considered in the decision-making process. These range from health and well-being improvements, increased productivity, innovation and job creation, all the way to reduced pressure on public budgets and greater energy security.

I commend the work done by our partners at the International Energy Agency, the Urban Land Institute and the World Green Building Council. They are providing increased evidence for these co-benefits and helping us integrate them into decision-making. We are building on this work in our local market engagements where we explore and leverage the value of energy efficiency in buildings to help transform the market (see EEB 2.0 project update at the back).

Business has a leading role to play in this transformation towards energy efficiency in buildings. In this magazine,



**Roland Hunziker**  
Director, Energy Efficiency in Buildings (EEB 2.0) project



we are showcasing another 12 case studies of companies that are addressing the energy efficiency of their buildings in a systematic, strategic way. They show us the benefits, including cost savings, streamlining of processes, innovation, and effective employee engagement.

But what is most important today is that more businesses, as well as public authorities and civil society organizations, start demanding highly performing energy-efficient buildings. We need to show that this movement is growing so that the supply chain will start delivering them, in order for these practices to move from being the exception to being the norm. During our local market engagements, we are seeing this happen around the world in the top-tier segment of commercial buildings developed for international companies and investors.

We now need to make this movement universal across the entire building sector. We have set ourselves the objective of reaching 1,000 commitments to act on energy efficiency in buildings, by the time of the climate conference (COP 21) in Paris at the end of 2015. Signing the EEB Manifesto is one such commitment; it commits an organization to take action, to set its own targets, and to report publicly on progress. This creates transparency and inspiration.

### **Why sign the EEB Manifesto?**

We are often asked by companies why they should sign the EEB Manifesto. The answer to this of course depends on the aspirations and business reality of each company, but in general terms the act of signing can:

- Make visible and hence reinforce an existing commitment that supports a valid economic principle of the organization;

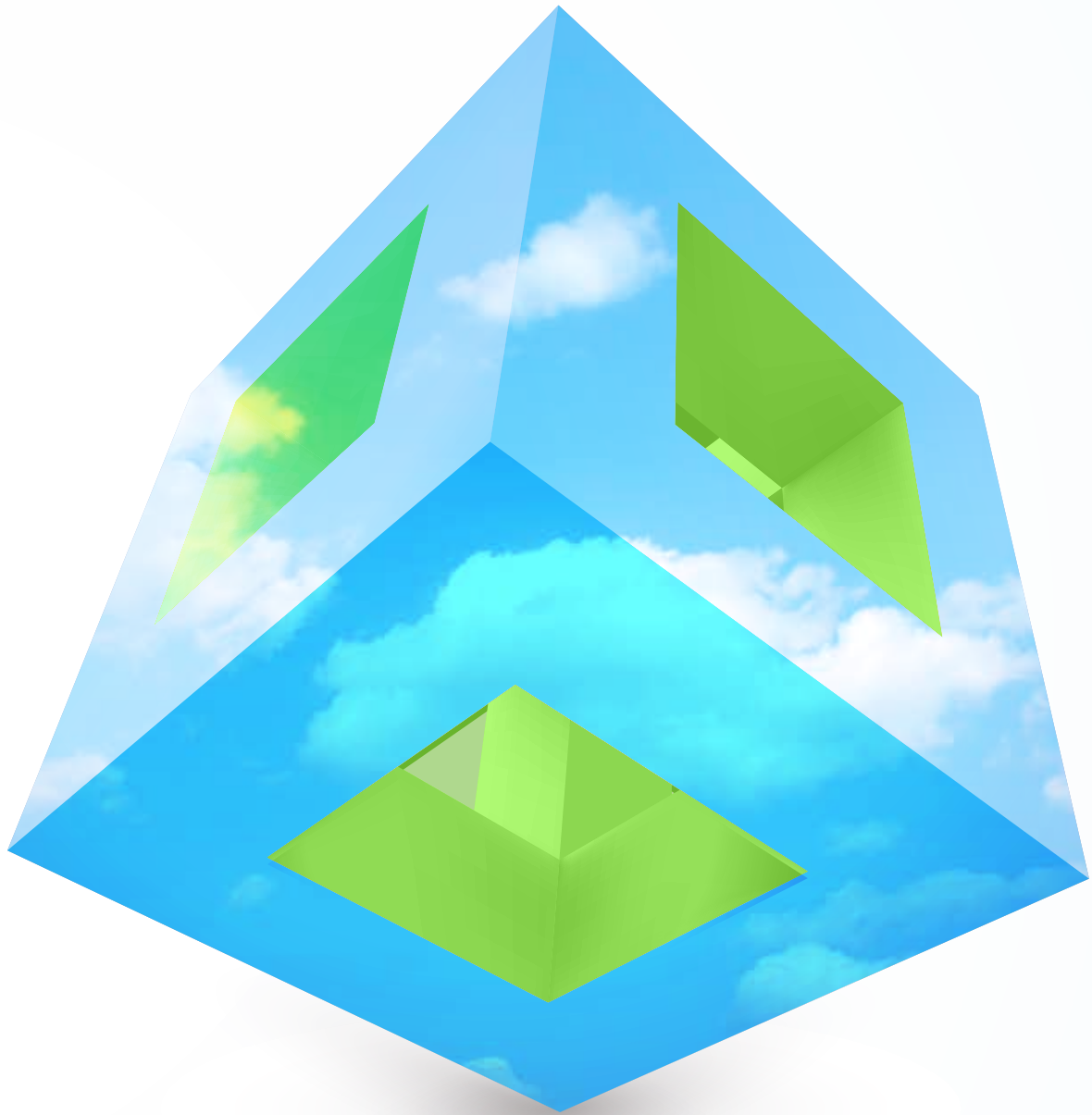
- Help communicate the actions to internal and external stakeholders to show leadership and get support;
- Provide evidence for action-oriented implementation of corporate responsibility principles;
- And not least, grow the number of organizations that, by showing their actions and results, help transform public perception.

These reasons are equally valid for non-business actors such as governments and civil society organizations. The EEB Manifesto was originally written for business, but we have made it more universal so it can be signed by any interested organization (see pages 7-8). We are also keen to explore how to further roll out the EEB Manifesto through partner networks, including through co-branding and customization.

I would like to thank those colleagues at BASF, CLP, EDF, ERM, Italcementi, Novartis, Siemens, Sonae Sierra and Unilever, as well as Boyner Grup, Garanti and TSKB, who have shared their stories. I would also like to particularly thank our Global Network partner Business Council for Sustainable Development Turkey for having facilitated the contributions from their members.

We will continue to showcase action from EEB Manifesto signatories on the WBCSD website, where we will also have the *Energy Efficiency Toolkit for Corporate Buildings* available as a step-by-step online guide for all those interested in how to develop a consistent strategy and implementation plan to address the energy efficiency of their buildings.

# MANIFESTO FOR **ENERGY EFFICIENCY IN BUILDINGS**



## **SIGNATORY**

We, the undersigned, hereby pledge to the intentions outlined on the reverse side:

Signature

Organization

# MANIFESTO FOR ENERGY EFFICIENCY IN BUILDINGS

Buildings consume approximately 40% of all energy produced globally – more than transport or industry. Energy used in buildings is a major contribution to climate change, hence it must be addressed.

Business, public authorities, professional bodies and environmental organizations must share the task of supporting and driving the transformation of the building market towards radically lower energy use in buildings.

Leadership in energy efficiency in buildings represents opportunities to reduce resource use, improve workplace productivity, and minimize impacts on the environment, all of which contribute to healthier, more sustainable cities.

These collective efforts can set new sustainability standards for buildings that will incentivize investment in energy-efficient buildings and will result in significant reductions in worldwide energy use and corresponding carbon emissions.

This Manifesto and its accompanying implementation guide aim to mobilize business, governments and local authorities to improve the energy performance of their buildings as outlined in the *Energy Efficiency in Buildings; Transforming the Market* report.

*By signing this Manifesto, the organization commits to:*

## 1 ESTABLISH A BASELINE

of energy use in the buildings it controls and set time-based energy and/or CO<sub>2</sub> reduction targets that will help to achieve transformative change.



## 2 PUBLISH A POLICY

for minimum energy performance levels in its buildings.



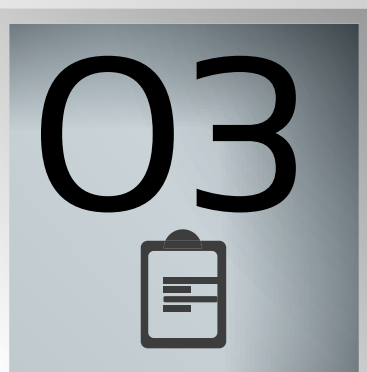
## 5 ADVOCACY

Further promote energy efficiency among employees and other stakeholders through advocacy, R&D, education and training.



## 4 REPORT ON PROGRESS

Annually publish buildings' energy use, CO<sub>2</sub> emissions and progress against reduction targets in the annual report or other publicly available document.



## 3 DEFINE AND CARRY OUT AN AUDIT PROGRAM

and implement a strategy to meet energy targets for its buildings.



# PUTTING THE MANIFESTO INTO PRACTICE

By signing the Manifesto, our members and partners have made a clear commitment to improving the energy efficiency of their portfolio. But what does this mean in the real world? We've taken a look through a selection of annual reporting on their achievements to date.



## PHILIPS

EEB Signatory 2010.  
A diversified technology company in healthcare, consumer lifestyle and lighting

*“In 2013, CO<sub>2</sub> emissions from non-industrial sites decreased 20%, in large part attributable to our Work Place Innovation program which enables flex-working and thus reduces the floor space in our building portfolio. But also our continuing focus on buildings’ energy efficiency and the increased share of purchased electricity from renewable sources have helped achieve this.”*

(Extract from Annual Report 2013)



## HANG LUNG PROPERTIES

EEB Signatory 2011.\*  
Real estate development

*“This year, we launched the Hang Lung Green Office initiative with the aim of promoting a 'SmartGreen' workplace. We encourage our employees to practice the concept of 4Rs: Reduce, Reuse, Recycle and Replace. Green Office Ambassadors are nominated in our Hong Kong and mainland China offices to promote and drive this initiative. Green tips are shared with employees on a monthly basis highlighting easy-to-do pointers to integrate green actions into the workplace.”*

(Extract from Sustainability Report 2013)



## ACCIONA

EEB Signatory 2009.  
Development, production and management of renewable energies, water and infrastructure

*“ACCIONA continues to implement the Sustainable Office Management Plan, which is in force until 2015 and seeks to reduce overall energy consumption and CO<sub>2</sub> emissions of offices by 15% and water consumption by 7% compared to 2009. On average, in 2013 the energy consumption, CO<sub>2</sub> emissions and water consumption per square meter of the offices amounted to 210 kWh/m<sup>2</sup>, 23 kg CO<sub>2</sub>/m<sup>2</sup>, 0.5 m<sup>3</sup>/m<sup>2</sup>, respectively.”*

(Extract from Sustainability Report 2013)

## ERNST & YOUNG (EMEIA FINANCIAL SERVICES)

EEB Signatory 2010.  
Professional Services

*“We are challenging our existing business practices with initiatives to reduce office energy consumption. Two examples of this are our offices in the Netherlands and Germany. Our headquarters in Amsterdam are 10% more efficient than the Dutch environmental targets and address a range of environmental impacts as well as improving the working environment for our employees. Likewise in Germany, the EY Eschborn office saves 74 tonnes of carbon annually following the implementation of more efficient environmental management systems.”*

(Extract from Sustainability Report 2013)

## AXA

EEB Signatory 2010.\*\*  
Financial services

*“Seeking improved environmental performance is one of my key concerns as an asset manager. It guides my work on a day-to-day basis: conducting energy and environmental audits of our buildings, monitoring equipment and consumption, obtaining certification or quality labels...”*

**Veronique Mattei, AXA Senior Real Estate Manager**

(Extract from Annual Report 2013)



## SWIRE PROPERTIES

EEB Signatory 2010.\*  
Development and management of commercial, retail, hotel and residential properties

*“We are working to achieve our target to reduce energy consumption by 40 million kWh by 2016 through optimizing the performance of the plant and equipment in our properties and by adopting various energy efficiency initiatives. By the end of 2012, we had reduced energy consumption by 23 million kWh from the 2008 baseline, equivalent to the annual electricity consumption of 6,500 Hong Kong households, which puts us halfway towards our 2016 target for our Hong Kong portfolios.”*

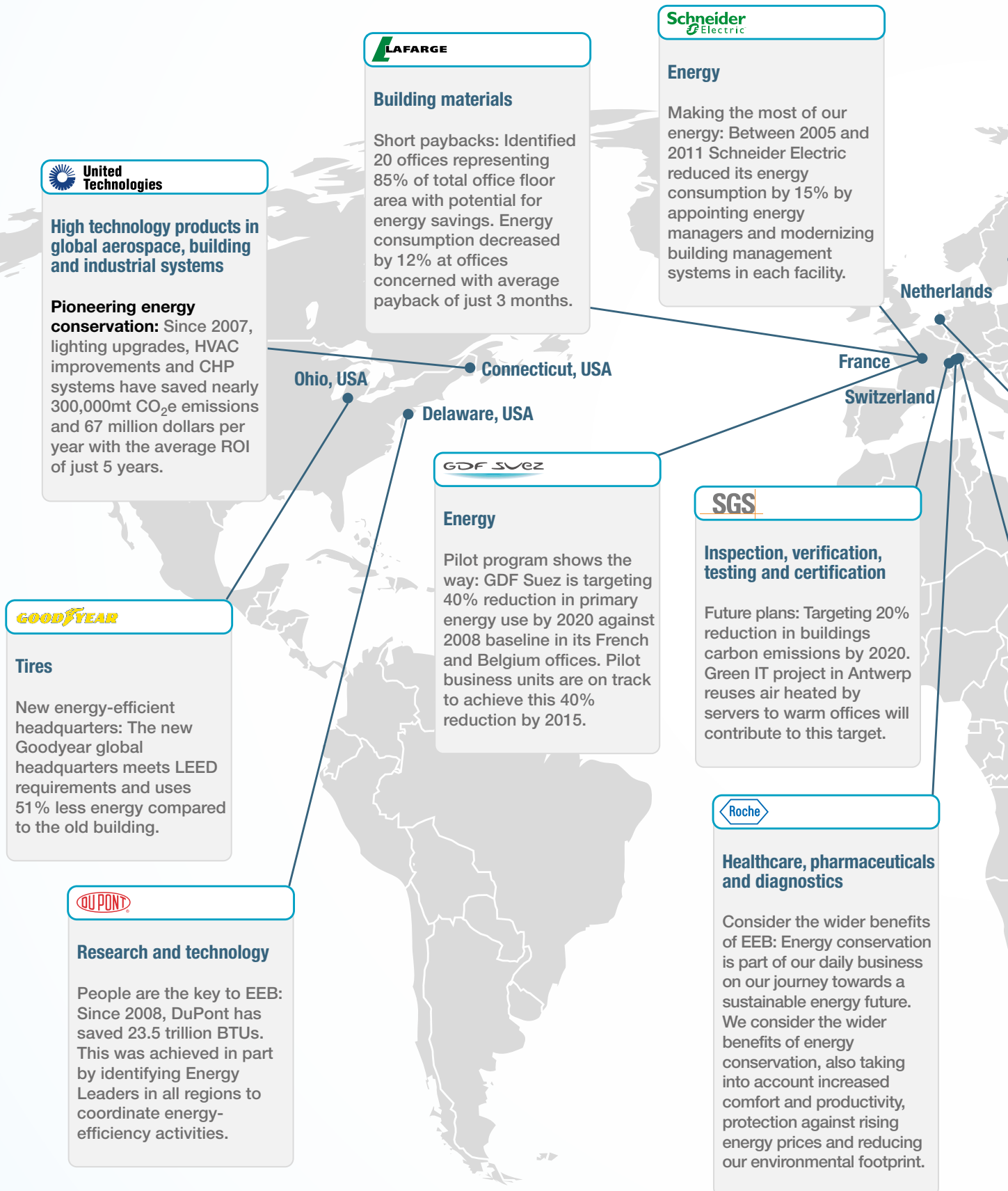
(Extract from Sustainability Report 2013)

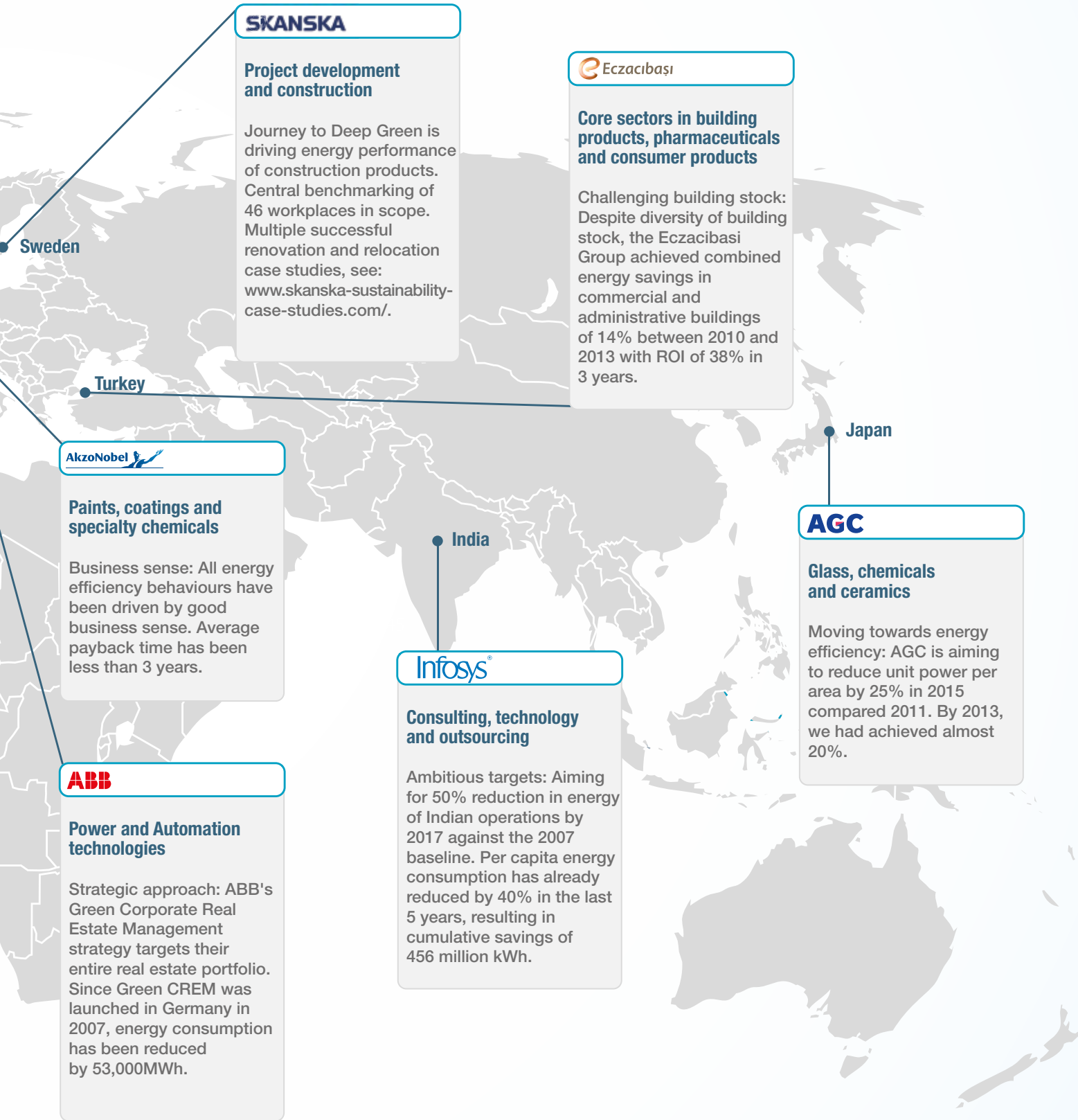
\* signed through BCSD Hong Kong

\*\* signed through EpE

# An Insight from Companies

In our previous magazine, *An Insight from Companies*, we heard stories from 14 companies from around the world, with diverse and challenging building portfolios, that had already made a commitment to the EEB Manifesto. These insights described the challenges, opportunities, and successes encountered on the road to EEB and provided powerful lessons learned for others. This map summarizes some of these key opportunities, achievements or the challenging targets they have set themselves, so if you would like to know the full story behind their approach, *An Insight from Companies* is available to freely download on the WBCSD website ([www.wbcds.org](http://www.wbcds.org)).





**SKANSKA**

**Project development and construction**

Journey to Deep Green is driving energy performance of construction products. Central benchmarking of 46 workplaces in scope. Multiple successful renovation and relocation case studies, see: [www.skanska-sustainability-case-studies.com/](http://www.skanska-sustainability-case-studies.com/).

**Eczacıbaşı**

**Core sectors in building products, pharmaceuticals and consumer products**

Challenging building stock: Despite diversity of building stock, the Eczacıbaşı Group achieved combined energy savings in commercial and administrative buildings of 14% between 2010 and 2013 with ROI of 38% in 3 years.

**AkzoNobel**

**Paints, coatings and specialty chemicals**

Business sense: All energy efficiency behaviours have been driven by good business sense. Average payback time has been less than 3 years.

**AGC**

**Glass, chemicals and ceramics**

Moving towards energy efficiency: AGC is aiming to reduce unit power per area by 25% in 2015 compared 2011. By 2013, we had achieved almost 20%.

**Infosys**

**Consulting, technology and outsourcing**

Ambitious targets: Aiming for 50% reduction in energy of Indian operations by 2017 against the 2007 baseline. Per capita energy consumption has already reduced by 40% in the last 5 years, resulting in cumulative savings of 456 million kWh.

**ABB**

**Power and Automation technologies**

Strategic approach: ABB's Green Corporate Real Estate Management strategy targets their entire real estate portfolio. Since Green CREM was launched in Germany in 2007, energy consumption has been reduced by 53,000MWh.



# Analysis of 150 own office buildings

First, we determine the general state of construction concerning the basic structure and sustainability of the building. The aspects covered in the evaluation of a building include building structure, energy consumption and the condition of windows, ventilation systems, heating and illumination as well as socio-functional aspects. The project team then establishes the most economically viable recommendations to optimize the building. Building management is then responsible for implementing these measures.

BASF is evaluating its office buildings worldwide in terms of sustainability. The assessment method, which was developed by BASF, is based on standards

of sustainable building labels and on the system of the DGNB, the German Sustainable Building Council, of which the company is a founding member.

This method grants us the opportunity to evaluate our worldwide portfolio in a way that covers all our specific characteristics but without being too complex.

The recommendations range from small modifications in building equipment to insulating façades. For structural alterations, we favor our own products for sustainable construction. As a result, we will recommend improvement measures for each building which yield

## Profile

**World's leading** chemical company

**Headquartered in** Ludwigshafen, Germany with operations in more than 80 countries

**Employees:** 112,000

**Sales:** €75 billion (2013)



The North American of BASF in Florham Park, New Jersey, USA



sustainable changes. In addition, an independent analysis of whether specific improvement measures should be implemented is carried out. The assessment method also provides valuable input to building management decisions over the life cycle of the building.

### Analysis of 150 buildings at 50 BASF sites

Globally, BASF will examine 150 of its own office buildings until the end of 2015. Meanwhile, more than one-third of these buildings have been evaluated together with the international consulting and engineering company Drees & Sommer. We started with a pilot evaluation of office buildings in Ludwigshafen, Germany; Antwerp, Belgium; Wyandotte, Michigan; Demarchi near São Paulo, Brazil; Dubai, United Arab Emirates; and Kuala Lumpur, Malaysia.



These buildings were selected because they vary widely from one another. Our consultants were able to get a solid understanding

of how the rating scale should be applied, as well as the different building characteristics in our portfolio. Indeed, distinctive regional and site-specific features represented a challenge. For instance, at some sites, our Production Verbund system intelligently links production units, energy demand and buildings so that excess energy can be used to heat office buildings. At other sites not included in the Verbund system, this intelligent use of energy may not be possible.

Another challenge is the understanding of sustainability. With sites all over the world, different green building labels posed an immense challenge to BASF. Without worldwide consensus, our own assessment method grants us the opportunity to evaluate our worldwide portfolio and covers all our specific characteristics but without being too complex.

This project will provide a detailed overview of the condition of BASF's real estate portfolio and will highlight where the biggest leverage is, which optimization measures should be implemented first with quick wins prioritized.

### Building stock

150 BASF-owned office buildings with a floor area of over 1,000 square meters are being analyzed in 50 sites. BASF operates six Verbund sites and 376 other production sites worldwide.

### Claudia Neumann-Liedemit

Project Leader in the Group Real Estate & Facility Management of BASF



### High-performance sustainability profile for the North American headquarters

Our North American headquarters in the US has achieved outstanding results and a high performance sustainability profile. To achieve this we implemented the following measures:

- Indoor water usage was reduced by 40% using low-flow toilets, lavatory faucets, and shower heads, waterless urinals, and a rainwater harvesting system that reduces the need for potable water.
- More than 40% of the site has been built as open space.
- About 75% of the office and meeting spaces are day lit and 90% have an outdoor view.
- More than 20% of the materials purchased for the project had recycled content.
- Approximately 75% of the construction waste was diverted from landfills and incineration facilities.

It is foreseeable that learnings from this project can be transferred to our whole corporate real estate portfolio of more than 1,200 sites.

### BASF pursues ambitious sustainability goals

Sustainability is increasingly important as a key factor for growth and value creation. Customers want sustainable products and system solutions, and the company's employees expect BASF to integrate sustainability firmly into its day-to-day activities. We have set voluntary long-term global goals in the areas of economy, environment, safety, employees and society. Through these goals, sustainable development at BASF is transparent and verifiable.

The Corporate Real Estate Management of BASF has derived its own sustainability strategy, also of course considering economic, ecological, and social factors. All office real estate transactions, new office projects, office renovations and refurbishments have to comply with these guidelines that were approved by BASF's Sustainability Council as of March 2012, demonstrating the importance of the topic within BASF. □



中電控股

CLP Holdings

# CLP's energy management opportunities

In 2009, CLP signed the WBCSD Manifesto for Energy Efficiency in Buildings. The implementation of the manifesto was initially coordinated by the Group Environmental Affairs team, and has been subsequently managed by the Group Sustainability team since 2014.

We started by first defining and establishing the scope for the company across which the Manifesto would apply. We then collected baseline energy consumption data covering buildings and offices in our portfolio in Hong Kong, Mainland China, India and Australia, according to our pre-established scope.

To gain a thorough understanding of the energy performance of CLP buildings, we carried out energy audits from 2012 to 2013 on selected buildings. The scope of the audit of the building universe was designed through exercises with our technical consultant. We then proposed energy management opportunities



(EMOs), which included everything from behavioral changes such as switching off the air-conditioners during unoccupied hours, to operational changes and capital investments such as upgrading existing light systems or chillers.

In 2013, our progress on prioritizing and implementing the identified EMO actions encountered some challenges which are discussed in the experience sharing section below. The region that made the most significant progress on the EMO front was Hong Kong, where progress on a portion of the identified building universe was successfully tracked.



CLP Shamshuipoo Office, Kowloon, Hong Kong

## Energy savings in 2013

Based on the energy audit findings and recommendations for the building universe in Hong Kong, we selected six buildings for which we set out energy reduction targets and published their respective performance data. In 2013, a reduction of 5.4% in

energy consumption was recorded compared to 2009 baseline data. This represents more than 900 MWh of electricity saved, which is equivalent to a reduction of 522 tonnes of CO<sub>2</sub>.



**Profile**

Electricity generation, transmission and distribution company with **operations** in Hong Kong, Mainland China, Australia, India, Southeast Asia

**CM Choi**  
Group Environment, CLP

with **headquarters** in Hong Kong  
**Employees:** 6,968 (2013)  
**Revenue:** HK\$ 104,530 mil (2013)



building management and not necessarily by the occupant. A further complication was the need to continuously update our baseline data because of changes within our building universe. For example, CLP’s head office was relocated to a new location in 2012, and thus a new baseline needed to be established.

- Continue to progress on the implementation and reporting on EMOs and targets across the defined building universe;
- Conduct regular energy audits for the relevant buildings within the building universe according to local regulatory requirements;

**Experience sharing: project implementation has proven to be challenging**

At the initial stage, agreeing on the definition of a commercial building itself was more difficult than we had anticipated, as many of our buildings, due to the nature of our operations, are mixed use, with

workshops, stores and other non-commercial activities included. Sometimes energy meters do not exist at the point-of-interest or are not accessible to us. It is also not uncommon in Asia that the most significant portion of electricity consumption be attributed to air-conditioning systems. However, they are mostly centrally controlled by

**Way forward on energy efficiency for building**

- Review our definition of commercial buildings and thus our criteria for the building universe;
- Develop an energy management plan to ensure regular updating of the building universe;
- Finalize the minimum energy performance levels policy for our commercial buildings;
- Enhance the data collection and management process for external reporting;
- Continue to promote energy efficiency and nurture a green culture. □



# Energy efficiency is in EDF's genetics

EDF is a world leader in low-carbon electricity production. The Group intends to reinforce this leading position by investing even more in low-carbon technologies, such as renewable resources, as well as by providing energy-efficiency services to help our customers lower not only their bills, but also their environmental impact. As a promoter of energy efficiency, EDF must begin by setting a good example, in particular on its own premises. This is based mainly on internal actions, as energy efficiency is already part of EDF's genetics.

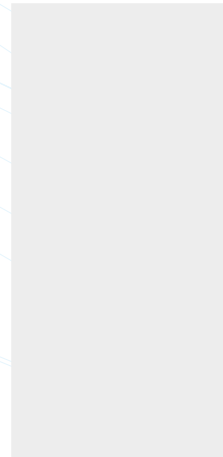
## Early actions

Since 2007, the EDF Real Estate Division has been implementing large programs to improve the knowledge of its group buildings stock, mainly in France, but also in other countries — especially the UK. This program encompasses data collection (energy consumption, meteorological data, etc.) and descriptions of the buildings and of their main equipment, audits, etc.

We did not wait for all of the information to come in before



*A flagship building occupied by EDF and which showcases EDF Group know-how: EDF Tower in Paris La Défense, the most energy-efficient tower in Paris La Défense, built in 2001, designed and managed by EDF Group, heated and cooled by a groundwater source heat pump, with a high-performance building energy management system.*





taking action to improve the performance of our buildings. Since 2007, we have been focusing on three main types of actions:

- Improving technical management of our buildings and their equipment — reviewing and adjusting set points, stopping heating and cooling outside of regular business hours, etc.;
- Optimizing building occupancy, moving from inefficient to efficient buildings;
- Refurbishing some older buildings, either directly, if owned by EDF, or in partnership with their owners.↳

**Jean-François Vaquieri**

Senior Vice President,  
Real Estate Division,  
EDF



**Profile**

**World leader** in electricity production and a prominent actor in energy trading and energy services

**Installed capacity** of 140 GW electricity, the Group produced 654 TWh of electricity in 2013, 85% of which was carbon-free

**Active** in 26 countries, with headquarters in Paris, France

**Employees:** 158,467

**Revenue:** €75.6 billion (2013)

**Commitments and objectives**

Having considerably improved our knowledge of our buildings stock, we formalized our commitment in 2012, first by defining objectives included in the EDF sustainable development policy for 2013, 2014 and 2015. Second, at the end of 2013, EDF signed a Charter for Energy Efficiency of Commercial Buildings. This Charter is proposed by the French government to building sector actors (developers, managers, occupants, etc.) to publicly engage them in the development of energy efficiency in the built environment. In the framework of this ↓

Charter, EDF committed to reducing the energy consumption of its office buildings by 30% from 2006 to 2020. ←

**Building stock**

EDF real estate holdings In France, 4.5 million m<sup>2</sup>, 60% owned, 40% leased; approximately 0.5 million m<sup>2</sup> in the rest of the world, mainly in Europe.

**And now**

In 2013, we had already reduced energy consumption levels at our sites by 21% compared to the 2006 baseline. This is a great accomplishment thanks to our technical teams' skills and dedication, and proof of the abilities of EDF Group.

But we know the challenge is not only to achieve our final goals; it is also to secure

this result over the long term: managing buildings requires constant focus as bad habits and drifts are quick to appear and may ruin previous efforts.

Another challenge is to more thoroughly engage the people in these buildings — EDF Group employees. Their behavior has an impact (up to 10%) on the energy efficiency of the building they work in, and

they also must be informed of the actions taken by the company in line with its ambition to be a low-carbon electricity leader. A significant step has been taken this year to foster this engagement by partly basing the employee profit sharing scheme on the office building energy-efficiency objective. A major communication campaign is being launched in support of this. □





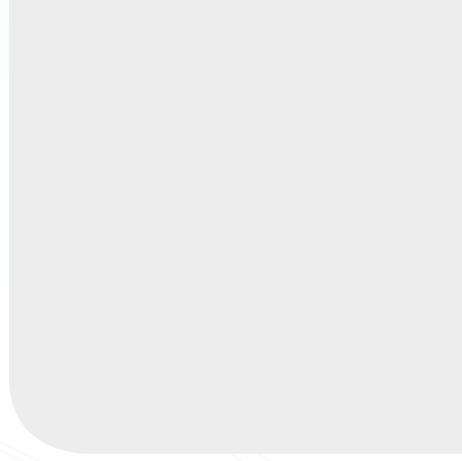
# Grassroots initiatives drive global change

ERM is the world's leading sustainability consultancy – we have been helping our clients with their sustainability challenges for more than 40 years. Over the past several years, we have increased our focus on energy efficiency, concurrent with our refreshed approach to sustainability as part of our core business strategy.

At ERM, our employees are passionate about sustainability, so many of our efficiency initiatives start at the office level. Our Sustainability Teams in 150 offices around the world take action to increase energy efficiency in our spaces, while sharing lessons learned and best practices globally. For example, our Boston, Massachusetts office won the Energy "STAR" Cup competition among other tenants in its building in 2013. The month-long competition challenged tenants to reduce energy consumption, which was tracked transparently in a common building space.

ERM Boston reduced its energy consumption by 20%, the highest in the competition, even after starting with the lowest energy use among all participants.

This local passion spreads across our offices and has become a company-wide initiative. In fiscal year (FY) 2012, we aimed to reduce office electricity consumption by 6.5%. We have now expanded that goal to include energy consumption from shared and common areas, as well, to have a more accurate picture of the energy consumption of our office spaces, allowing us to more effectively manage what we consume. Our new goal is to achieve a 3% reduction in total greenhouse gas (GHG) emissions per employee from the FY 2013 baseline. In FY 2014, we achieved a 2.1% reduction, close to our goal. We are committed to tracking energy consumption and reporting on our progress each year in our Sustainability Report.



In general, we continue to seek new office spaces with a smaller footprint or to retrofit existing office spaces to reduce our footprint, adopting a "hoteling" or "hot-desking" work environment. As an example, our Mexico City office recently relocated to a new building constructed to LEED Gold standards. The local team has been able to significantly reduce the energy used for lighting per square

meter by sectioning work stations with LED lighting and maximizing the use of natural light. A more efficient air-conditioning system has delivered energy savings of more than 20% and improved indoor air quality. In our Houston, Texas, office, one of our largest offices, we moved from a space with a FY 2013 carbon footprint of 916.67 tCO<sub>2</sub>e to a space with a FY 2014 carbon footprint of 671.93 tCO<sub>2</sub>e, a

27% reduction in total GHG emissions. We anticipate the FY 2015 total footprint to be even lower, as the office will have been in its new space for the entire fiscal year.

environment in an open, shared floor plan has been a collective learning experience for employees in new offices, and the environmental and social benefits have been obvious. □

As many of our employees have adopted flexible work schedules or travel often, the need for individual offices or permanent working spaces has diminished. When relocating or renegotiating leases, we look for innovative ways to address the changing needs of our employees while reducing our footprint. Adapting our habits to work in a paperless



**Profile**

Environmental, health, safety, risk and social consultancy  
**Headquartered**  
in London, UK  
**Employees:**  
5,000 worldwide  
**Revenue:**  
US\$ 923 million (2013)

**Linden Edgell**  
Global Sustainability  
Program Director,  
ERM



# At the forefront of best energy performance practices in new buildings

Italcementi Group was an early adopter of the WBCSD Energy Efficiency in Buildings Manifesto, signing the same year it was launched, underlining the Group's commitment to the program. In line with this commitment, the Group's Energy Policy was published in 2011, addressing, among other issues, energy efficiency in production sites and offices. This includes setting public targets to reduce the carbon footprint of operations and products and achieving results at or beyond international expectations. For buildings, our aim is to reach the highest affordable local efficiency standards in new or refurbished buildings, while continuing to reduce energy consumption in our commercial buildings.

The process of improving the energy efficiency of our commercial buildings started in 2011. The baseline of our owned or leased properties, located in 13 countries covering four climatic zones, was defined; and to push for

improvement, all Group country subsidiaries were required to carry out energy audits for buildings, define energy performance according to national and regional rating systems, identify energy hot spots, and plan reduction measures prioritizing those with near zero costs. Communicating reduction measures and increasing employee awareness towards energy efficiency in buildings has helped to promote best practices. Compared to the published baseline, 2013 results show a relatively stable situation for the Group's energy efficiency in buildings. Some major interventions have been identified though delayed due to long financial payback.

In some countries, prescriptive performance indicators are set by local regulations (in terms of kWh/m<sup>2</sup>) and this is mainly applicable to new or refurbished buildings. The Group intends to outperform these indicators, as in its newly built technological

i.lab technological center, in the new plant offices now under construction in Bulgaria, and in its guesthouse in India. This target also applies to existing buildings and will yield a progressive increase in building efficiency through the implementation

commitment to energy-efficient buildings and mirrors our concepts of innovation, sustainability and architectural excellence. It features a wide range of green technologies to cut energy consumption and CO<sub>2</sub> emissions. Designed and built to conform to LEED standards, it was awarded the LEED NC Platinum award. Its features include a highly insulated building envelope, thermally broken curtain wall segments, and high solar reflectance. Installed renewable energy technologies include photovoltaic panels, solar thermal panels, and geothermal heating.

**Profile**  
**Cement production**  
**Headquartered in Bergamo,**  
**Italy**  
**Employees:**  
 18,700 worldwide  
**Revenue (2013):**  
 €4.23 billion



of sustainable features in harmony with their historical settings.

## Living energy efficiency in our buildings — brown- and greenfield sites

With near zero net energy usage and heat loss, our new i.lab research center in Kilometro Rosso Science Park clearly demonstrates the Group's

During the design phase, energy simulation software was used to establish a baseline building that was then compared with the designed building based on the building's location, construction, heating, ventilation, and air conditioning (HVAC) systems, plants, occupancy and operation.





**Manuela Ojan**  
Head of climate protection, Italcementi



**Building stock**  
135,900m<sup>2</sup> in 13 countries and 4 climatic zones  
66% owned  
**Density:** 9-60m<sup>2</sup> per employee



thermal bridges. Renewable energies are available, such as thermal solar to heat sanitary water and an HVAC system with a heat pump running on heat recovered from recirculating air. To save HVAC-related energy, brise-soleil (permanent sunshade structures) and green barriers to prevent heat surcharges in areas facing south have been installed, as well as photocatalytic external coating and high solar reflectance index coating for the roof. To save electricity on lighting, top lights achieve daylight in windowless rooms (to reduce the need for artificial lighting) and lighting systems are LED based (low consumption, with dimming systems). □

2013 monitoring data showed that the building's primary energy consumption is approximately 10 kWh/m<sup>3</sup>, a very low value for a mixed-use building (offices and laboratories). Production from geothermal heating and cooling and photovoltaic panels reached 9% self-sufficiency of total energy needs. Thanks to geothermal power, a

23% reduction in costs was seen compared to a standard methane boiler. Emissions savings related to the use of renewable energy sources amounts to 30% of emissions from non-renewable energy sources.

Addressing offices at production sites, our in-house architects apply best practice design

Photo courtesy of Luca Merisio

features inspired by the LEED NC criteria used at i.lab. One example is the two new buildings constructed alongside the erection of the new kiln system in Devnya. Particular emphasis was placed on the building envelop, with exterior insulation and high-performance finishing touches such as insulated doors and window frames and avoidance of

# Novartis is setting ambitious targets

## Global healthcare company

Innovative medicines, eye care, cost-saving generic pharmaceuticals, preventive vaccines, over-the-counter and animal health products

## Headquartered

in Basel, Switzerland, with operations in more than 150 countries

**Employees:** 135,000

**Net sales:** US\$ 57.9 billion (2013)



## Global energy-efficiency program

At Novartis, we are on track with an ambitious target to reduce total greenhouse gas (GHG) emissions by 20% by 2020. Every division is actively identifying and implementing energy projects to reduce energy consumption by 2% per year up to 2020, using our 2008 energy consumption levels as a baseline. At the five-year mark, we find that energy efficiency is reducing our carbon footprint and makes good business sense: it improves both environmental and economic bottom lines.

## Comprehensive energy management system

Clean rooms for pharmaceutical manufacturing are the

main GHG driver and account for more than 80% of our energy usage. Office and research buildings contribute the remainder of the total energy used. When we signed the Manifesto in 2009, it further strengthened our existing energy management system. This system provided a road map of the core elements and processes needed to achieve our Energy and Climate Strategy. The next step was to develop and implement specific tools to manage, monitor and evaluate how energy projects were progressing toward our energy savings target. The result is a very robust energy management system with



clearly defined roles and responsibilities, energy reviews and energy audits, energy challenges in capital projects, performance targets, and reporting processes.

## Group-wide initiative

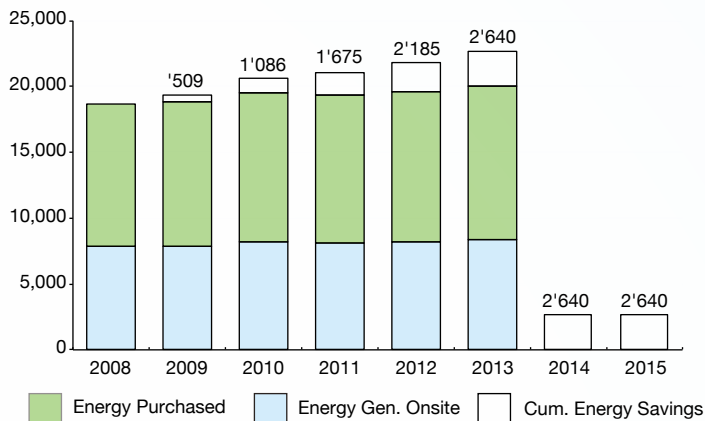
In our first response to the Manifesto, we provided energy data on heating, ventilation, air conditioning and plug loads from 40 selected Novartis commercial



buildings. Energy-efficiency targets were determined for each individual building using a combination of on-site interviews and energy audits. Site energy managers compared the buildings' energy-efficiency performance to the dedicated targets and reviewed the efficacy of the energy management system implemented at their sites.

Now, we report on identified energy improvement opportunities at all sites, not just commercial buildings. We discovered that simple steps, like fine-tuning the level of air change rates or adjusting operating schedules, deliver significant energy savings. Replacing large utility units, such as chillers

### Novartis energy use and energy savings by projects



or steam boilers, saves energy while safeguarding business continuity and increasing efficiency. We created an awards program to encourage energy managers, engineers and project leaders worldwide to submit energy saving projects. This scheme has gathered remarkable savings and innovative ideas.

### Encouraging achievements

Achievements are above expectations: in the first five years of the program, the cumulative energy savings from more than 1,000 individual projects have already attained the 14% envisioned for the entire

seven-year target period. Annual savings were around 3% during in the first years of the program and are currently still above 2%.

From 2008 to 2013, our business and operations were growing by 30% in terms of production and 25% in terms of building space, but energy use increased only by 7.6%. Thanks to our energy saving projects, energy consumption is considerably lower than the expansion of our operations.

In 2013, total annual energy savings achieved with energy projects amounted to 2.64 million GJ in terms of energy and US\$ 72 million in terms of energy costs, representing 16.7% of the US\$ 430 million

of total energy costs for the Novartis Group for 2013.

### Next steps

Our initial goal has been achieved but the program remains a key driver in daily operations. To reach our overall target for 2020, we are evaluating how to best maintain the speed and efficiency of ongoing energy improvements. We want to be certain that we have the right conditions and tools to capture the energy savings opportunities that still exist. Our energy and climate strategy is a long-term commitment at Novartis and we are actively taking steps toward 2020 and beyond. □



**Markus Lehni**  
Group Global Head of Environment & Energy, Novartis



# Going the extra mile



**Jochen Schweitzer**  
Sustainability  
Manager, Siemens



Energy efficiency in buildings is not only a business segment for Siemens — it is also a necessity for the company itself. With 15.8 million square meters of floor space (2013) Siemens is one of the world’s largest real estate owners. Its portfolio includes offices, production plants, warehouses and specialty real estate across 2,500 sites in 190 countries. The costs involved in running this enormous real estate inventory make up a significant proportion of our running costs, and they impact directly our ability to compete successfully. A key to reducing these operating

costs lies in improving energy efficiency — a goal Siemens Real Estate (SRE), the real estate company of the Siemens group, has been pursuing for years.

The real estate sustainability strategy is based on energy efficiency as a cornerstone. The strategy applies first and foremost for new builds: all Siemens new builds should be at least 25% more energy efficient than local regulations prescribe, regardless of whether the building is a production plant or an office building. Since 2006, Siemens has set itself the goal of gaining LEED accreditation for all the group’s new

builds, and whenever possible reaching Gold status. And the goal has been achieved: 41 new builds have won LEED accreditation, 23 of them Gold. Four have been awarded Platinum status, the highest available.

Among the leaders is the Crystal in London, one of the world’s most sustainable buildings. Designed by architect Wilkinson Eyre and with a total floor area of over 6,300 square meters, the Crystal consumes 46% less energy than comparable buildings. This is achieved by a wide range of measures, such as solar panels, heat pumps, and roof-mounted photovoltaic

panels, and Siemens’s own building management system.

Another example will be the new Siemens Corporate Headquarters in Munich, intended to serve as a showcase project for future-oriented, innovative construction. The new building is designed to achieve DGNB (German Sustainable Building Council) Gold and LEED Platinum accreditation.

Not all efforts are concentrated on new builds. Siemens has completed energy-efficient programs in 19 factories and introduced





**The Crystal in London**  
 is a 100% electric building, around 20% of which is generated by the 1,580 square meters of solar photovoltaic roof panels that cover two-thirds of the roof.



CO<sub>2</sub> emissions for the Siemens offices in the Crystal are around 70% lower than in comparable office buildings in the UK



**Profile**  
 Leading provider of products, technologies and solutions in the fields of industry, energy, healthcare and infrastructure; partner of choice

technical service and structural measures that have enabled energy cost savings of over EUR 4.3 million and a reduction in CO<sub>2</sub> emissions of over 16,000 tonnes every year. At the same time, cost effectiveness is key. For existing properties, a maximum payback period of just four years

applies. The savings Siemens makes each year through its energy-efficient projects continue through the entire use of the building, offering real sustainability. □

for electrification, automation and digitalization  
**Headquartered** in Munich and Berlin  
**Employees:** 360,000 worldwide  
**Revenue:** EUR 75.9 billion (2013)

# A further step for shopping center energy efficiency

## Profile

International shopping center specialist.  
 Owner of 47 shopping centers with gross leasable area 1.9 million m<sup>2</sup>  
**Employees 1,144**  
**Revenue (2013) = US\$ 224.3 million**

Over the last ten years, the vast majority of large companies have developed sustainability plans, following the same steps taken by a small group of companies that started adopting sustainability measures at the end of the 1990s.

At Sonae Sierra, we started working on environmental issues in 1997, organizing the first environmental audits for shopping centers in operation, approving our Environmental Policy, and implementing an Environmental Management System to address needs in this area. These first steps were the foundations for the development of our sustainability strategy, which has allowed Sonae Sierra to reduce resource consumption ever since.

Since the introduction of our sustainability strategy, we have monitored the environmental performance of our shopping centers in order to analyze progress and identify areas

where improvements were needed, taking appropriate short- and medium-term measures to reduce their impact, for example regarding energy consumption. Likewise, the company decided that energy consumption audits should be carried out every five years (every six years after 2009) in order to increase the company's energy efficiency even further. Additionally, Sonae Sierra's integrated vision of its business as a whole has led the company to create its own Safety, Health and Environmental Standards (SHEDS) for new developments and refurbishments, with the aim of preparing future or refurbished shopping centers to operate with a minimum environmental impact and lower safety and health risks. Nowadays our Safety, Health and Environment Management System, based on and externally certified according to ISO 14001 and OHSAS 18001 standards, is the baseline tool for our work on environment issues, notably on managing the

energy efficiency of the company's 47 shopping centers on two continents.

All of these measures led to a significant 40% reduction in energy consumption at the company's shopping centers in 2013 (compared





to 2002), leading to a reduction in our environmental impact and also a significant cost reduction across the entire Sonae Sierra portfolio.

In spite of these positive results and in order to continuously improve →

our energy efficiency, we have realized over the last few years that we need a deeper understanding of the way that our shopping centers use energy. Despite their diverse leisure and architectural models, all Sierra shopping centers have been conceived to use the same kind of energy systems.

A clear example of the results of this initiative can be seen in the case of LeiriaShopping, where it was possible to reduce its energy consumption by 29% in just one year, entailing annual savings of 1,238 MWh of energy and 139,000 euros. ↓

This was not a simple task: energy depends on efficiency factors as well as on local factors (climate, opening hours and size). To deal with this complexity, Sonae Sierra developed the “Standard Shopping Centre”. This tool uses sophisticated building ↓



**Elsa Monteiro**

**Head of Sustainability,  
Sonae Sierra**

energy simulating software (IESve) to calculate target consumption by each relevant system using large amounts of energy, for each shopping center. By comparing the real consumption with the target calculated, the tool allows us to detect low-efficiency systems, permitting fast action to correct inefficiencies and save money. ↑

All of this progress has had a positive impact on Sonae Sierra’s results and has reduced the company’s environmental impact, allowing the shopping center to take another step down the road towards energy efficiency. And it is also an example of how Sonae Sierra is creating shared value, a concept embedded in our sustainability strategy. □





# Embedding energy reduction into workplace practices



## Unilever Sustainable Living Plan

Unilever launched a Sustainable Living Plan in 2010, which has been instrumental in shaping our corporate vision: to double the size of the business while reducing our environmental footprint and increasing our positive social impact. It has empowered each function of the business to own specific actions to meet this objective.

### Specific targets

Also in 2010, we signed the WBCSD's EEB Manifesto, pledging our commitment to reduce the energy consumption of our buildings. We translated this pledge into a challenging energy reduction target: to

halve the energy (kWh) purchased per occupant for the offices in our top 21 countries by 2020 against a 2010 baseline. Our latest reported results (2013) show us on track at 13% reduction against the 2010 baseline. So how are we going to build on this over the next six years to meet our target?

### *We are focusing our efforts on three areas:*

1. A global, action-biased, energy audit program, which has already been completed in 50% of our in-scope sites in our top 21 countries
2. Our real estate activities — forward planning to improve space use and reduce energy usage per occupant
3. Leveraging our facilities management partners to embed energy efficiency in our properties

produce site-specific improvement plans.

### Measurement

In 2013 we established an energy audit program targeting a range of Unilever properties. The purpose was to identify opportunities to become more energy efficient and use the findings to

One of the challenges we faced in implementing these plans was how to prioritize these opportunities given finite capital expenditure funds. In order to overcome this, we are looking to build a global sustainability financing structure that will ensure funds flow

### Profile

**Fast-moving**  
consumer goods  
**Headquartered in**  
London and Rotterdam  
**Employees:**  
174,000 worldwide  
**Revenue:**  
€49.8 billion (2013)

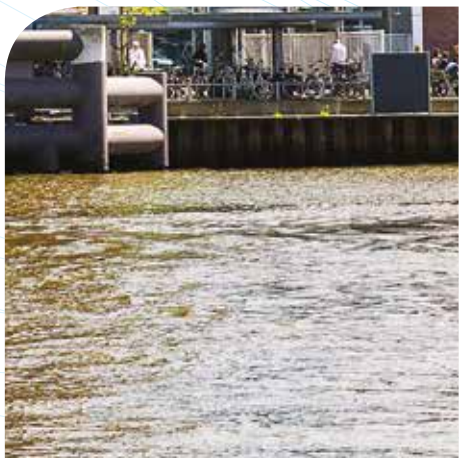




**Ken Manke**  
Vice President,  
Employee Services  
Workplace, Unilever



**Building stock**  
ca. 1,200 offices and  
buildings;  
9.4 million m<sup>2</sup>



to the best efficiency opportunities. The audit program has helped us develop a standardized offering for all of our properties, and we will continue to use it in the coming years.

**Agile organization**

Our real estate strategy helps to support Unilever’s “Agile” program — a formal

program led by senior management which allows our people to work how and where they want and focuses on an outputs-based philosophy. Human resources professionals have recognized the program as a leader in the industry, and it allows us to use our space more efficiently.

For example, in 2014 we made strides towards

our goal by consolidating two large office buildings in Sao Paolo, Brazil. At sites in Canada and Mexico, we have reduced the number of floors we used within a single building, which resulted in a reduced amount of energy per occupant in both buildings. Future plans include more of these activities as well as a focus on building certifications and green lease clauses in contracts. These projects are great examples of how we are decreasing our total energy usage, reducing emissions and reducing future operating costs.

**Engaging partners and employees**

Through our facilities management transformation, we are moving from many

suppliers to two, allowing us to get better value for money. We work together with our partners to identify opportunities to improve our sustainability performance. For example, we are jointly creating an employee engagement campaign which will spell out specific actions people can take to reduce their environmental impact while at work.

In signing the EEB Manifesto, Unilever signaled its intent to bring about sustainable change to our communities and environment through a series of business actions. We are still only part of the way along the journey, but now, in 2014, we are much clearer about what we need to do to realize our corporate vision. □





"Energy is at the top of the agenda in Turkey due to its increasing demand and its position as a net importer. When we first established our Energy Working Group, we aimed to create a measurable, scalable and impactful solution for efficient energy use. The WBCSD's EEB project provided us with scientific facts and trends about energy use in operational buildings. We are proud to say we have reached 29 signatories. With the support of the Ministry of Energy, we believe that Turkish companies are becoming more aware of how important energy savings are both for the bottom line and the environment. Here, we showcase three EEB manifesto signatories, Boyner Grup, Garanti Bank and TSKB, who are leading the way on energy efficiency in Turkey."

Konca Çalkıvık Executive Director, BCSD Turkey



# Setting sustainability standards



## Pioneering role

Founded in 1950, TSKB (Industrial Development Bank of Turkey), Turkey's first private development and investment bank, has assumed a pioneering role in the banking sector in Turkey by actively supporting projects that enable the transition to a low-carbon economy. We believe that it is the responsibility of all stakeholders of the economy, including the business world and financial institutions, to assume the responsibility for more sustainable development.

We have embraced this responsibility by actively supporting renewable energy and energy-efficiency projects. We have extended loans to 97 renewable energy projects within Turkey, with a total project capacity of 3,460 MW (15.5% of Turkey's total renewable energy capacity). Via these projects, CO<sub>2</sub> emissions have been reduced by more than 6 million tonnes

annually. By providing loan packages to 55 energy-efficiency projects, we have contributed to an estimated 1 million tonne reduction in CO<sub>2</sub> per year.

This responsibility extends to integrating globally recognized sustainability practices into all our banking processes. In 2005, we established an Environmental Management System, and in 2012, we upgraded to a Sustainability Management System, satisfying our ISO 14001 and ISO 14064 standard requirements. In 2006, we became the first Turkish bank to receive the ISO 14001, a standard which sets out criteria for environmental management systems; in 2012, we were awarded the ISO 14064-1 certificate, which specifies principles for greenhouse gas reporting.

Our signing of the Energy Efficiency in Buildings Manifesto, through the BCSD

## Profile

Development and investment banking  
**Headquartered** in Turkey  
**Employees:** 320 (all in Turkey)  
**Total operating income:** TRY 522.3 million (2013)

Turkey, the WBCSD's partner in Turkey, further demonstrates our commitment to contributing to the transition to a low-carbon economy by improving the energy efficiency of our buildings.

## A dedicated Sustainability Management System

All our sustainability and energy-efficiency projects are conducted by a dedicated Sustainability Management Team and the Sustainability Committee within our Sustainability Management System. Sustainability

Management Team activities are coordinated by the Sustainable Management Representative, who reports directly to the CEO. This active support from our CEO and members of executive management has been one of the driving forces behind the success of our energy-efficiency projects.

Through our Sustainability Management System, we have been closely measuring and monitoring internal environmental impacts, our footprint, and consumption arising from our activities since





**Hülya Kurt**  
**Sustainability Management System (SMS) Representative and Head, Engineering Department, TSKB**



decrease the carbon footprint of our operations. In 2008, guided by our belief that proactive solutions are needed to tackle climate change, we launched our “Carbon Neutral Project”. The aim was to measure our carbon footprint and make TSKB the first “carbon neutral” bank in Turkey. Subsequently, we switched to renewable energy for all our electricity needs and started offsetting our remaining carbon emissions. We are continuing to reduce our carbon emissions on an annual basis and have targeted a further 10% reduction in our carbon footprint in 2014.

We periodically share our sustainability targets and results in our sustainability reports.

**Increasing awareness**

Thanks to our Sustainability Management System, we did not face major difficulties implementing our energy-efficiency projects. But we recognize that energy-efficient behavior from our employees is crucial to achieving significant and sustainable energy savings. Internal awareness projects within the scope of the program are drawing attention to the importance of energy efficiency. Moreover, we reach out to society via our Cevreciyiz and TSKB Enerji Verimliliği social responsibility platforms [www.cevreciyiz.com](http://www.cevreciyiz.com) where we share significant information about sustainability, the environment and energy efficiency. □

2006. The scope of these monitoring activities includes electricity, water, natural gas, and paper, and has contributed to establishing baselines for our CO<sub>2</sub> emissions

The TSKB building stock consists of two five-story buildings in Istanbul and all energy reductions and improvements relate to these buildings. When we first launched the energy-efficiency project, we carried out maintenance work for electricity, natural gas and water consumption, with the aim of achieving maximum

efficiency. We renovated our buildings in 2006-2007, improving our heating and air conditioning systems, modernizing our lighting systems, and using stronger exterior insulation. We reduced our energy costs within the scope of this work in the first two years.

To date, these energy-efficient projects have delivered significant energy and resources savings. We have achieved the following reductions:

- 40% less CO<sub>2</sub> emissions;
- 25% less electricity use;

- 32% less natural gas use;
- 27% less paper waste;
- 32% less water use.

The initial budget reserved for energy-efficiency projects repaid itself in the first two years via electricity, natural gas and water savings.

**The first and only “carbon neutral” bank in Turkey**

TSKB has played a pioneering role in Turkey by supporting the transition to a low-carbon economy. In addition to financing low-carbon projects, we are doing our best to

# Boyner Grup

intermediary material, energy and water. Before signing the Manifesto, we had already started in 2012 to calculate our energy consumption, as per the ISO 14064-1 standard. The scope was initially limited to the head offices of group companies and emissions sources included those related to energy consumption inside the premises.

This assessment included an evaluation of 1) natural gas usage, HFC leaks, fire extinguishers and LPG tanks, 2) electricity and 3) waste water. As such, much of the data required to assess the energy efficiency in our buildings was readily available. Natural gas, electricity, fire extinguisher filling, LPG tanks and wastewater are



Boyner Grup is a diverse group dedicated to non-food and non-consumer electronics retail. It is well known through its subsidiaries for the design and manufacture of fabrics and other textiles and ready-made garments for men, women, and children.

It is a group priority to minimize the adverse ecological footprint of our products and services. We have taken a top-down approach to environmental sustainability by implementing strong sustainability policies which shape our core corporate policy, business strategies and activities. As a result we have set up several working groups tasked with identifying activity areas where we can improve our environmental performance.

One of them, the Green Office Team, deals with our environmental performance, including energy efficiency but also water efficiency, waste management and cleaner production, all which have an impact on the energy usage of our building stock.

So for us, the EEB manifesto was the next logical step on our journey to more energy-efficient and sustainable buildings. We signed the EEB Manifesto in December 2012 through BCSD Turkey, WBCSD's Turkish partner.

### Starting with head offices of Group companies

Group companies are requested to develop and implement projects to diminish the consumption of raw and ↓



### Profile

Headquartered in Istanbul, Turkey  
**10,200 employees** worldwide  
**Revenue (2013):** 2,790 million TRY





monitored via utility bills. Meanwhile, HFC leaks via air conditioners are calculated through inventory checks. These data are requested from the relevant departments via data forms, and archived by the Corporate Responsibility and Sustainability Department, which carries out the necessary calculation. The resulting total CO<sub>2</sub> emissions

are divided by total area (m<sup>2</sup>) in order to arrive at a productivity index. We are using this index to monitor our Group companies' performance every 6 months and we aim to reduce our energy consumption by 5% in 3 years by focusing on employee behaviors.

**Green office at BBM**

We have already achieved good results in particular at the Boyner Büyük Mağazacılık (BBM) head office by investing in energy automation, sensors and environmentally friendly insulation. Between 2012 and 2013, electricity consumption dropped by 4.80% per m<sup>2</sup> and water consumption fell by 16.48%. The active ↓

campaigns, personnel were encouraged to decrease their use of water, paper and electricity. The work was given the in-house brand "Green Touch." In addition, the visual design team came up with the eye-catching "Activist Pandas" concept that increased the visibility of the campaign across the company. Messages were delivered to employees via seven 3-D panda bears, which encouraged their participation in the Green Office activities.

**Also looking at the supply chain**

However, this is just the start of our journey towards improving the energy efficiency in our buildings. Going forward, we are hoping to rollout a similar methodology across our building portfolio and expect to see good returns on investment and significant energy savings. Our environmental awareness includes not only the performance of our companies but also that of our supply chain. To this end, we carry out social compliance audits to track the energy, water and waste management of our suppliers pursuant to applicable laws and regulations. □



participation of the employees contributes significantly to achieving this result. BBM head office employees set up a "Green Team" to prevent excessive consumption of water, paper and electricity inside the building, ensure the correct separation of waste, and raise employee awareness about the issue.

The team organized awareness campaigns to ensure that these capital investments are supported by employee actions. During these →

**Aysun Sayın**  
 Corporate Responsibility and Sustainability Senior Manager, Boyner Grup



# Managing the environmental impact of banking operations

## Sustainability from top to bottom

Garanti Bank firmly believes in the importance of integrating sustainability into all its activities and corporate culture. We define sustainability as a commitment to build a strong and successful business for the future while minimizing negative environmental and social impacts, and sharing long-term values with its customers, staff, shareholders and the communities in which we operate. We signed the EEB Manifesto through BCSD Turkey in 2013.

The Bank's Sustainability Committee, established in 2010, is chaired by a Board member and has executive

vice presidents of Project and Acquisition Finance and Support Services as members. The committee coordinates all initiatives related to sustainability, including energy-efficiency projects (EEPs), and oversees an EEP program to manage direct environmental impacts and reduce resource consumption in an effective and systematic way.

In 2012, a full-time Sustainability Team was established to work with relevant departments to embed sustainability into every aspect of our business, including energy-efficiency initiatives. This commitment continued in 2013 with the publication of our

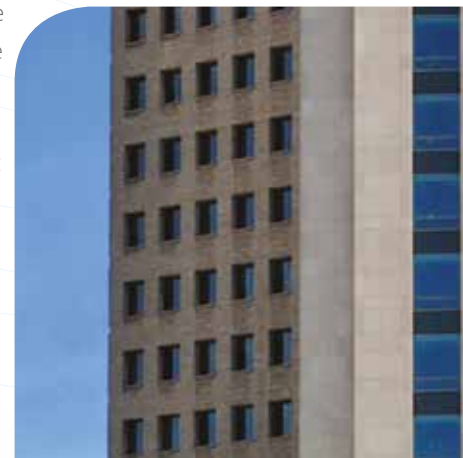
Sustainability Policy, which identifies our key areas of impact on six fundamental principles, including focusing on managing the environmental impact of operations, aiming to measure and monitor our environmental footprint, and implementing measures to increase resource and energy efficiencies. Energy efficiency projects are implemented as stand-alone projects as well as within the scope of the Bank's ISO 14001 certified environmental management system (EMS).

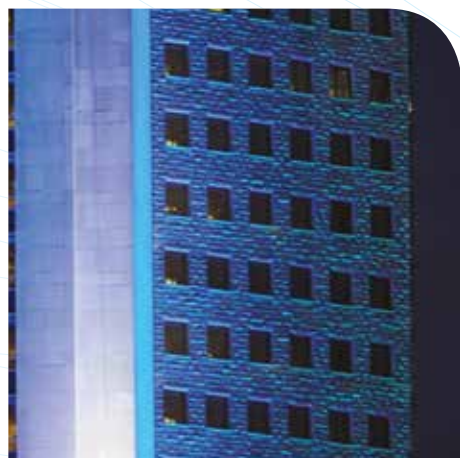
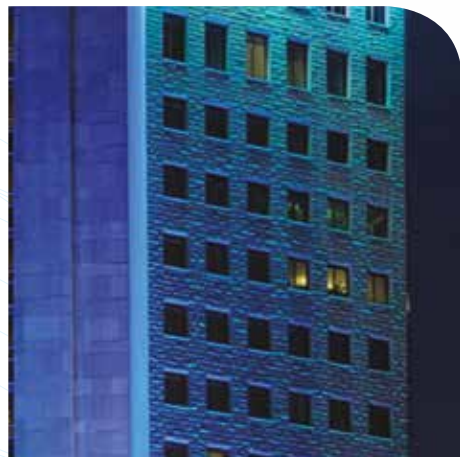
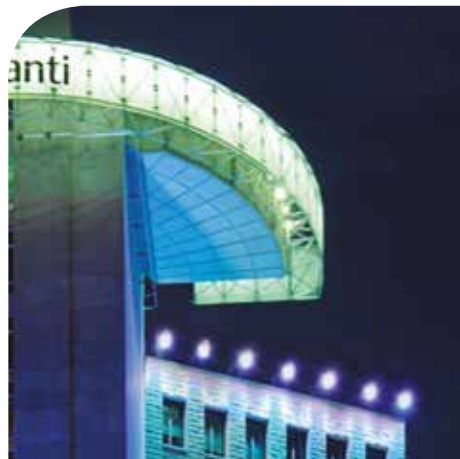
The EMS was established in 2012 to manage and measure our environmental impacts effectively and



## Profile

Financial services  
Headquartered in Istanbul Turkey  
**Employees:** 18,738 worldwide (2013; bank only)  
**Net income:** US\$ 1.6 billion





systematically. We are the first Turkish bank to operate a global EMS, and we aim to extend today's 50% workforce coverage to all service points by the end of 2015. A handbook and 19 different procedures have been prepared and related strategies and policies have been established in accordance with ISO 14001 standards. As of 2013, a total of 325 sustainability representatives have been selected. These representatives are responsible for gathering data and facilitating the implementation of decisions made by the Sustainability Committee at each unit.

### Green headquarters

In 2014, Garanti Bank's headquarters were awarded the WWF Green Office certificate. The Bank aims to continue to collaborate with WWF and extend the scope of the Green Office initiative to the whole organization. We are targeting the LEED New Construction-Gold certificate for the Pendik Technology Campus Project, which is currently under construction, and the LEED Platinum certificate for the headquarters.

### Achievements to date

Garanti Bank has been submitting its greenhouse gas (GHG) emissions and climate change strategy to the Carbon Disclosure Project (CDP) since 2010. The Bank received the highest score in the performance category among 32 participating companies and the

2012 Turkey - Carbon Performance Leadership award. For the 2014 report on 2013 GHG emissions and climate change strategies, the disclosure included an independent limited assurance of Scope 1 and Scope 2 emissions for 2013.

By the end of 2013, Garanti had reached its second GHG emissions goal: to reduce total emissions by 1.5% per total assets under management by 2013 against its 2012 baseline. Garanti has set a new target to reduce GHG emissions by 3% per total assets under management by 2014 against 2013 emissions.

The energy-efficiency activities undertaken by the Bank during 2013 include:

- The consolidation and virtualization of 300 servers in data centers, with total server needs, cooling demand and associated electricity use expected to decline;
- The launch or completion of several lighting initiatives at the headquarters, including conceptual changes applied to the lighting and down-light armatures replaced with hanging lights in new or renovated branches;
- A refurbishment program for existing buildings that includes replacing air conditioning with systems that are up to 40% more efficient and reducing the overall electricity



**Ebru Dildar Edin**

**Executive Vice President, Responsible for Project and Acquisition Finance and Sustainability (BCSD Turkey Board Member), Garanti Bank**

consumption of a typical branch by 10%;

- The launch of two projects to replace advertising board lighting with LEDs, an ongoing process that aligns with refurbishments and renovations.

In 2013, all energy-efficiency improvements combined saved 5,017,107 kWh. This is equal to a total annual monetary saving of TL 1,813,169 (approximately US\$ 836,000). Training technologies to reduce travelling saved an additional TL 97,750 (US\$ 45,000). □



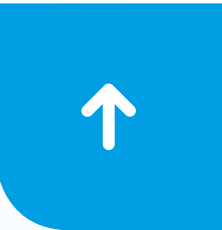


“When companies sign the EEB Manifesto, they make a commitment. We needed a tool to help businesses transform this commitment into action. This is why we developed the Energy Efficiency Toolkit for Corporate Buildings”.

Roland Hunziker  
Director, Energy Efficiency in Buildings (EEB 2.0), WBCSD.

# Energy Efficiency Toolkit for Corporate Buildings

The **Energy Efficiency Toolkit for Corporate Buildings** provides a detailed “how to” framework for businesses to become more energy efficient. It demonstrates, step-by-step, how companies can save energy in ways that are financially viable and allow for reasonable returns on investment.



## Who is the Toolkit for?

- People within an organization who are the decision-makers on corporate investments;
- People who prepare these decisions.

The Toolkit is primarily aimed at medium-to-large corporations with a sizeable real estate portfolio and real estate management companies managing large tracts of commercial office buildings. However, any company that wishes to introduce energy-efficiency changes can use it to engage with key decision-makers on energy use in buildings.

The Toolkit addresses both new construction as well as retrofits of existing buildings. In its current form, it is primarily applicable to corporations that own and manage buildings on a long-term basis.

## Structure

The Toolkit describes each stage of the process — 1) Vision and Goals 2) Planning and 3) Implementation — to implement a successful energy efficiency program. This process is iterative. To achieve high levels of energy-efficiency savings, multiple iterations will be required, meaning energy-efficiency is a journey not a one-time program.

## Key features

Strong emphasis on the financials: the Toolkit details the approaches that the energy team can take to evaluate and pre-determine the financial viability of any given energy-efficient measure (EEM). Different financial terminologies and analysis methods are outlined and the easy-to-use tools are presented.

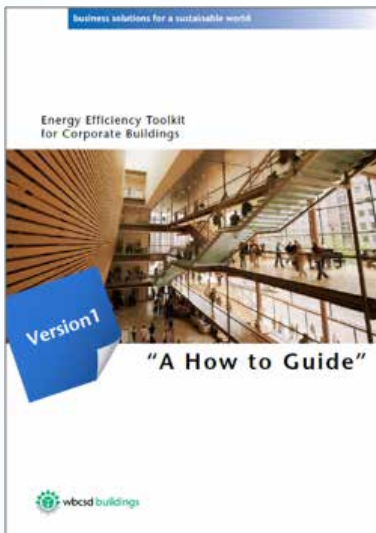
Detailed examples and case studies from Infosys,

a multinational information technology (IT) company, illustrate each step of the Toolkit.

Considerable supporting material is provided in the form of toolsets. This reference material will be useful in determining specific and targeted information related to sample visions, strategy and policies, financial terminology and analytical/calculation tools, business plan development, energy audits and baseline setting, and also a set of common energy-efficiency measures (EEMs) that could be used as a starting point.

## Find out more

The *Energy Efficiency Toolkit for Corporate Buildings* is now available to download from the WBCSD website. Do you want more information or to add your story? Please contact Delphine Garin at [garin@wbcsd.org](mailto:garin@wbcsd.org)



Lead Author:  
**Dr. Sekhar Kondepudi**,  
Associate Professor in the  
Department of Building at the  
National University of Singapore  
with support from WBCSD member  
companies.



Take Action in your Buildings with the

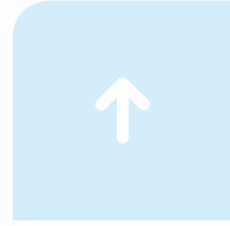
# Energy Efficiency Toolkit

Energy efficiency is a cost-effective energy-saving solution that any organization can implement in its building portfolio not only to save on operating costs but also to make a positive contribution to energy security and climate change.

The *Energy Efficiency Toolkit for Corporate Buildings* is a “how to” guide to help corporate decision-makers find ways to save energy allowing for reasonable returns on investment.



EEB 2.0 Project  
Co-Chairs **Frederic Billon, Senior Vice President Innovation-Building, Lafarge** (above) and **Bill Sisson, Director Sustainability, United Technologies Research Center, UTC** (below)



# Getting Local Markets to Embrace Energy-Efficient Buildings

Update on the EEB 2.0 project



Last year we launched the second WBCSD Energy Efficiency in Buildings project (EEB 2.0). Its aim is to unlock financially viable investments into energy efficiency in buildings by raising awareness of the shared benefits of energy efficiency in buildings and by proposing solutions to overcome existing market barriers.

## Increasing awareness

We know that raising awareness of the benefits of energy-efficient buildings is key to persuading decision-makers to invest in energy efficiency in buildings solutions. This is why we have published two magazines to share the benefits that EEB Manifesto signatories have realized from their investments. We hope it will motivate others to take the same pledge.

We have also published the *Energy Efficiency*

## Toolkit for Corporate Buildings

to complement the Energy Efficiency in Buildings Manifesto and Guidelines. This toolkit guides companies step by step on how to make energy savings, from planning all the way through to the implementation of an energy-efficiency program. We are now developing this toolkit into an easily navigable, web-based tool that will provide a platform where we can share further insights and best practices. With both the EEB Manifesto and the toolkit in place, we can help more organizations reduce energy consumption in their buildings.

## Removing market barriers

However, if we look beyond the building portfolio of an organization, there are market barriers that hinder the uptake of energy

efficiency at scale. These barriers have been well documented in previous WBCSD work (see for example *Transforming the Market: Energy Efficiency in Buildings*) and can generally be found in all building markets. In particular, the inability to articulate the value of energy efficiency in buildings to the many different stakeholder groups active in the highly fragmented building value chain remains a key barrier.

The EEB 2.0 project is taking action with local partners in a number of selected markets to remove these barriers. Since the beginning of the project, we have started local market engagements at the metropolitan level in the US, India, China and Poland. The cornerstone of each engagement is the EEB Laboratory, an approach we piloted in San

*“The EEB Laboratory in Poland has successfully built momentum towards the establishment of a multi stakeholder platform for energy efficiency in buildings and has delivered commitments of local partners to take forward Laboratory actions assisting to achieve market transformation in Poland.”*

**Roy Antink**, Director Green Support, Skanska, project leader of the EEB Laboratory in Warsaw

Francisco and Shanghai in 2013. During three days, a Technical Committee consisting of experts from WBCSD member companies and local partners works with key market stakeholders within the building value chain to identify the current state of the energy efficiency in buildings market, to analyze the barriers and to establish opportunities to accelerate investments in energy efficiency.

The EEB Laboratory is not a one-off workshop; it is intended to be the start of a longer term engagement to create local buy-in and to initiate actions. Local partners are the key actors after the Laboratory by taking the recommended actions forward.

### **EEB Laboratory in Poland**

The latest EEB Laboratory took place on 10-12th June 2014, in Warsaw, Poland. Its stated goals were to demonstrate energy-efficiency benefits that convince and commit stakeholders to investment in energy efficiency in buildings, to develop a tangible energy efficiency in buildings action plan for Poland, and to bring together a self-sustained

multi-stakeholder network of knowledgeable and skilled people who can connect with governmental organizations that will continue to drive a progressive energy efficiency in buildings agenda.

The Technical Committee interviewed more than 40 stakeholders (designers, architects, developers, capital providers, real estate advisors, building users, utilities) and, based on this input, analyzed the primary barriers to efficiency in buildings in Poland and developed recommendations for action to overcome these barriers. They range from a general lack of awareness and local evidence of the business case, a lack of a long-term, consistent regulatory framework to support the business case and help create market certainty, to a lack of a platform for public-private dialogue to develop a long-term vision on energy efficiency in buildings.

A set of actions was recommended as a result of the Laboratory, and these are now being implemented by local partner organizations. They include, but are not

limited to, the dissemination of Polish case studies articulating the real benefits of energy-efficient buildings and the establishment of a multi-stakeholder engagement platform enabling public-private dialogue in support of the development of a long-term vision and strategy for energy efficiency in buildings in Poland. More information can be found on [www.wbcd.org/buildings.aspx](http://www.wbcd.org/buildings.aspx), and a report will be published shortly.

The next EEB Laboratory will take place in Houston, US, on 8-10 October 2014, together with the United States Business Council for Sustainable Development (US BCSD) and local partner organizations. Future market engagements are already planned for Brazil, Singapore, Hong Kong and the Benelux countries, in addition to continued engagements in China and India.

### **Turning awareness into commitments**

Through the EEB 2.0 project's local market engagements, we can envisage the emergence of different sets of commitments from both private and public sector representatives. The WBCSD's EEB Manifesto

provides a simple way of expressing an organization's vision and commitment to take action on its own building stock. Furthermore, companies directly involved in constructing and renovating buildings (investors, developers, portfolio owners) can make their policies regarding development, investment and leasing of energy-efficient buildings public and thereby help create more market transparency.

What is our progress to date? Today we have 140 commitments on energy efficiency in buildings, expressed by signatories of the EEB Manifesto. As well, actions are being launched by local partners involved in our local market engagements. This is a good start, but we have a long way to go to achieve our target of 1,000 commitments. In view of the climate conference in Paris at the end of 2015 (COP 21), we commit to publishing progress from each of our local market engagements, to encouraging local energy efficiency in buildings commitments and actions from around the world, and to inspiring wider adoption of best practices on energy efficiency in buildings. We welcome you to join us! □





Join the organizations committed to action on energy efficiency in buildings.

[www.wbcSD.org](http://www.wbcSD.org)

