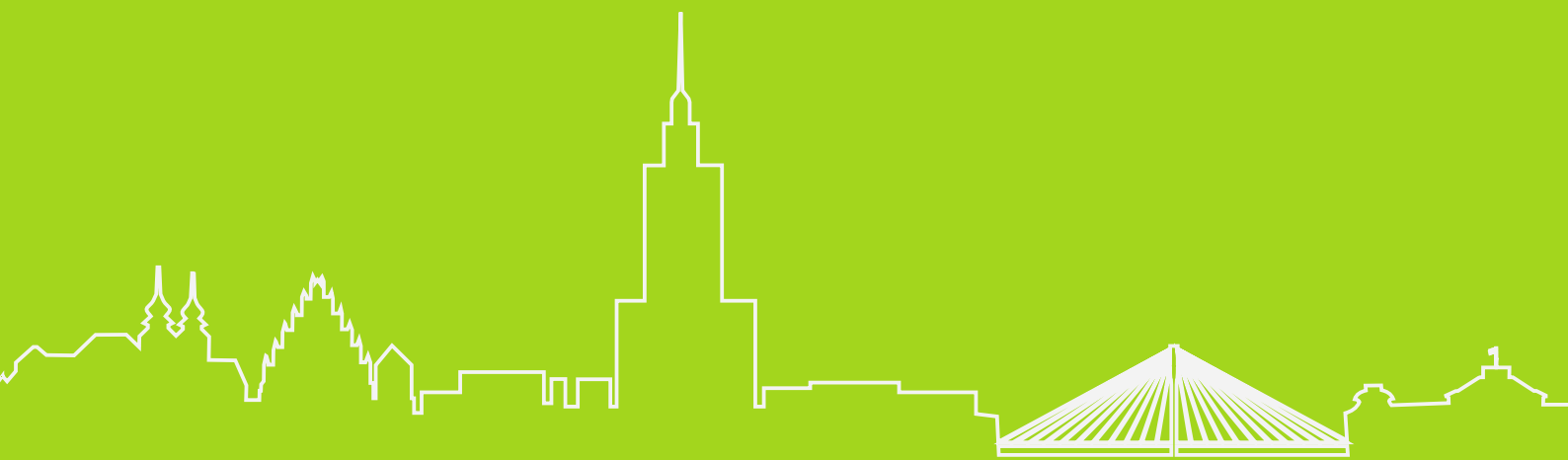


# Market Review - Poland

July 2014



Energy Efficiency in Buildings

## WBCSD

The World Business Council for Sustainable Development (WBCSD) is a CEO-led organization of forward thinking companies that galvanizes the global business community to create a sustainable future for business, society and the environment: [www.wbcd.org](http://www.wbcd.org).

## Disclaimer

This Market Review has been prepared for the [Poland Energy Efficiency Laboratory](#) (June 10-12, 2014) organized by the World Business Council for Sustainable Development and partners as part of their Energy Efficiency in Buildings Initiative. The purpose of the report is to provide an overview of information on the Energy Efficiency in Buildings market in Poland by consolidating information that the WBCSD and partners had access to prior to the Laboratory. This report is not meant to provide an exhaustive overview of materials published and neither does the review represent a WBCSD opinion. The Review is primarily prepared to provide background information for the interview process that is an integral part of the Laboratory. The Review will be updated after the Laboratory and published as part of Final Report on the Poland Energy Efficiency Laboratory.

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## Introduction

### Energy Efficiency in Buildings Project

The WBCSD initiated the cross-sector Energy Efficiency in Buildings (EEB) project in 2006 in response to climate and development challenges in the building sector. In the first phase the project identified the challenges and opportunities and used a unique simulation model to show that urgent action to transform the building sector could cut energy use in buildings by 60% by 2050 (see the appendix.)

The EEB2.0 project follows the first phase with the aim of stimulating action. It aims to work with partners to trigger market transformation, seeking 1000 commitments from decision makers to undertake ambitious action on energy efficiency in their buildings.

The objective of the EEB2.0 project is to unlock financially viable energy efficiency investments that are not being realized due to “non-technical” (i.e. financial, regulatory, organizational) barriers.

The project has developed a structured, replicable stakeholder engagement process to diagnose and tackle key barriers to energy efficiency in local building markets. It will pioneer at least eight market engagements where, EEB2.0 will act as facilitator. The cornerstone of each local market engagement is the EEB Laboratory, which aims to get a clear understanding of the market situation by identifying local barriers and enablers that could drive change. Most importantly, the Lab will enable recruitment of key stakeholders who will further collaborate on the development of an action plan for the region.

The EEB2.0 project is co-chaired by Lafarge and UTC. AkzoNobel, ArcelorMittal, AGC, GDF SUEZ, Infosys, Schneider Electric, SGS, Siemens and Skanska are active members of the project. EEB2.0 is leveraging the experience and member base of the WBCSD Global Network as well as the expertise and skills of project partners: International Energy Agency (IEA), Urban Land Institute (ULI), and the World Green Building Council (WGBC).

### Poland Laboratory

EEB2.0 created the Poland Laboratory to deliver an action plan for Poland to achieve market transformation with a set of clear stakeholder commitments. The project worked closely with several local organizations.

- The National Energy Conservation Agency – NAPE - <http://www.nape.pl/en/home>
- The Institute of Environmental Economics – IEE - <http://www.iee.org.pl/index.php>
- The Construction Marketing Group – CMG - <http://www.burohappold.com/knowledge-and-news/article/new-construction-marketing-group-for-poland-1734/>
- Responsible Business Forum– FOB - <http://odpowiedzialnybiznes.pl/english/>

The Polish Business & Science Climate Platform (PBSC) and the Prince of Wales’s Corporate Leaders Group (CLG) were partners for the high level feedback plenary that was part of the Laboratory.

EEB2.0 is also working with RenoValue to host topical roundtables on valuation, co-benefits and financing of energy efficiency in buildings. RenoValue is a two-year project funded by the Intelligent Energy Europe Programme of the European Union, the World Green Building Council (WGBC) and the European Bank for Reconstruction and Development (EBRD).

# 1. The Building Stock in Poland

## 1.1. Building typologies

The housing stock in Poland consists of approximately 13.7 million dwellings in around six million buildings (at the end of 2011). The total floor area was about 1 292 million m<sup>2</sup>, with 980 million m<sup>2</sup> residential and 312 million m<sup>2</sup> non-residential.

Urban multi-family buildings (apartment blocks) and detached rural single family houses are the most common residential types, accounting for almost three quarters of the total (see Figure 1). There is also a significant proportion of floor area in detached single family urban houses.

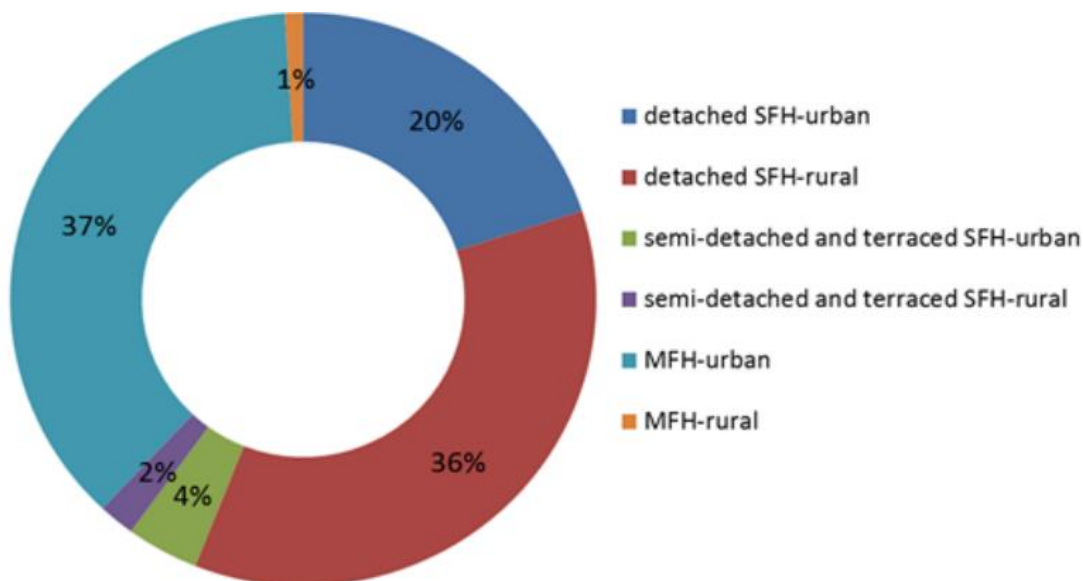


Figure 1. Distribution of residential building types by floor area

Three building types with more or less equal floor area account for the bulk of the non-residential sector: office buildings (26%), educational facilities (26%) and retail buildings (25%) (see Figure 2). These three building types comprise approximately 77% of non-residential building stock. Hotels and restaurant are the only other significant non-residential sector.

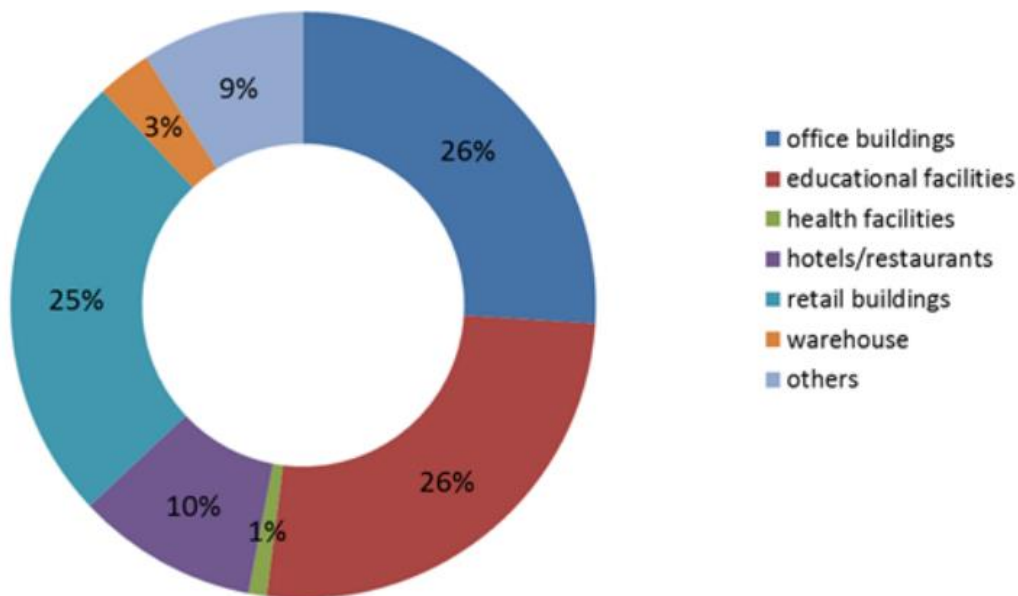


Figure 2. Distribution of non-residential building types by floor area.

For more information see: *Implementing nearly Zero-Energy Buildings (nZEB) in Poland* by BPIE  
[http://www.ecofys.com/files/files/bpie\\_ecofys\\_2012\\_implementing\\_nzeb\\_in\\_poland.pdf](http://www.ecofys.com/files/files/bpie_ecofys_2012_implementing_nzeb_in_poland.pdf)

## 1.2. Building ownership in the residential sector

Residential ownership changed significantly after 1989 and private individuals are now the biggest ownership group following a transformation from rental to private ownership of urban dwellings. Housing cooperatives are prominent in big cities and the majority have private ownership of individual apartments within a collective management structure. This private ownership status is twice as high as the number with condominium status, where residents own a share in the cooperative. Community or municipality ownership is also quite common, while The Treasury of Poland owns three percent of the stock as a result of state company privatization (see Figure 3).

Some multi-occupied housing has mixed private and communal ownership because in 2009 residents of social housing built since 1995 (known as TBS) were given the right to buy the dwellings that they occupied.

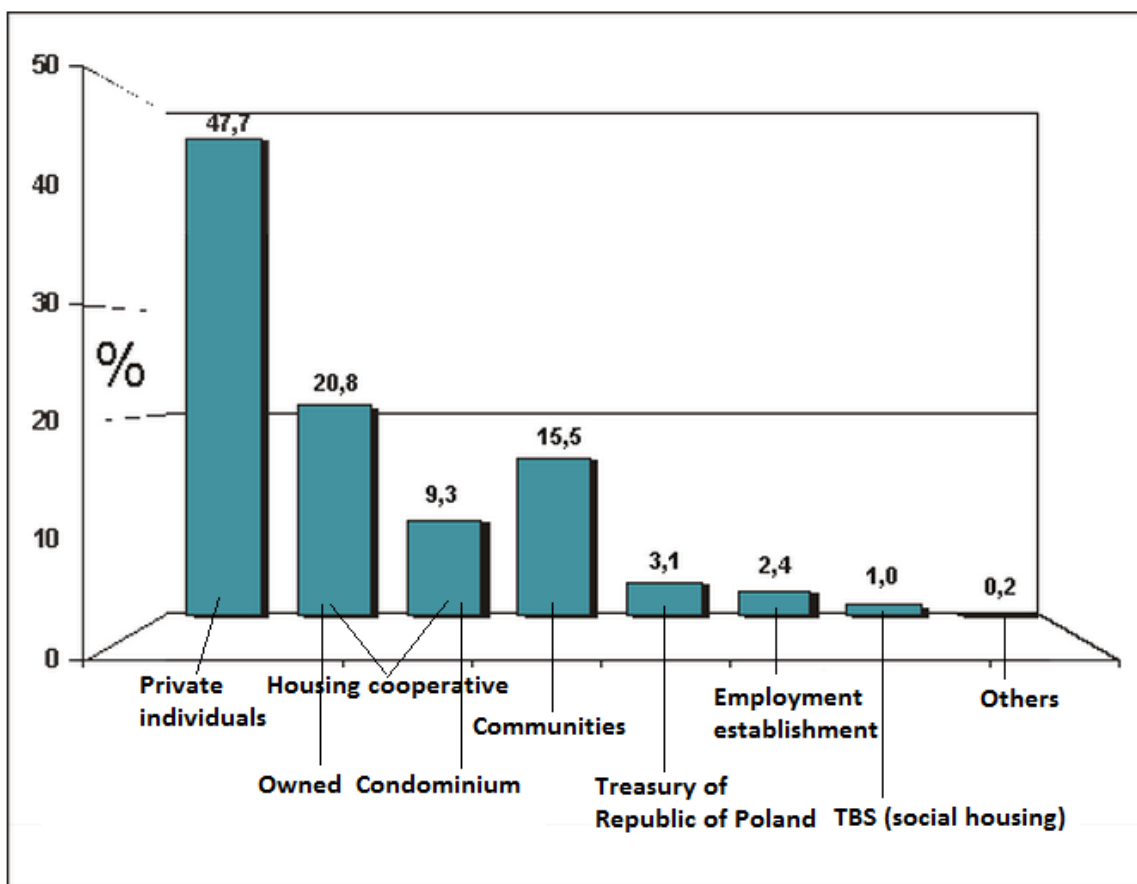


Figure 3. Ownership of the residential buildings in Poland

For more information see: Central Statistical Office: - [http://inf.stat.gov.pl/szczec/69\\_308\\_PLK\\_HTML.htm](http://inf.stat.gov.pl/szczec/69_308_PLK_HTML.htm)

### 1.3. Energy consumption

Energy consumption in the residential sector in Poland is higher than in other Western countries with a similar climate. The residential sector consumes about 40% of the country’s primary energy, emphasizing the importance of improving the situation and the opportunity to make substantial energy savings<sup>1</sup>.

New buildings are much more energy efficient. In 2011, the weighted average primary energy use (EP) of new residential buildings in Poland was 136 kWh/m<sup>2</sup>/year. Non-residential buildings used 298 kWh/m<sup>2</sup>/year. Energy use in existing residential buildings was between 40 percent and 50 percent higher.

Figure 4 shows how the energy consumption varies across different types of buildings.

<sup>1</sup> Source: <http://www.odyssee-mure.eu/publications/national-reports/energy-efficiency-poland.pdf>

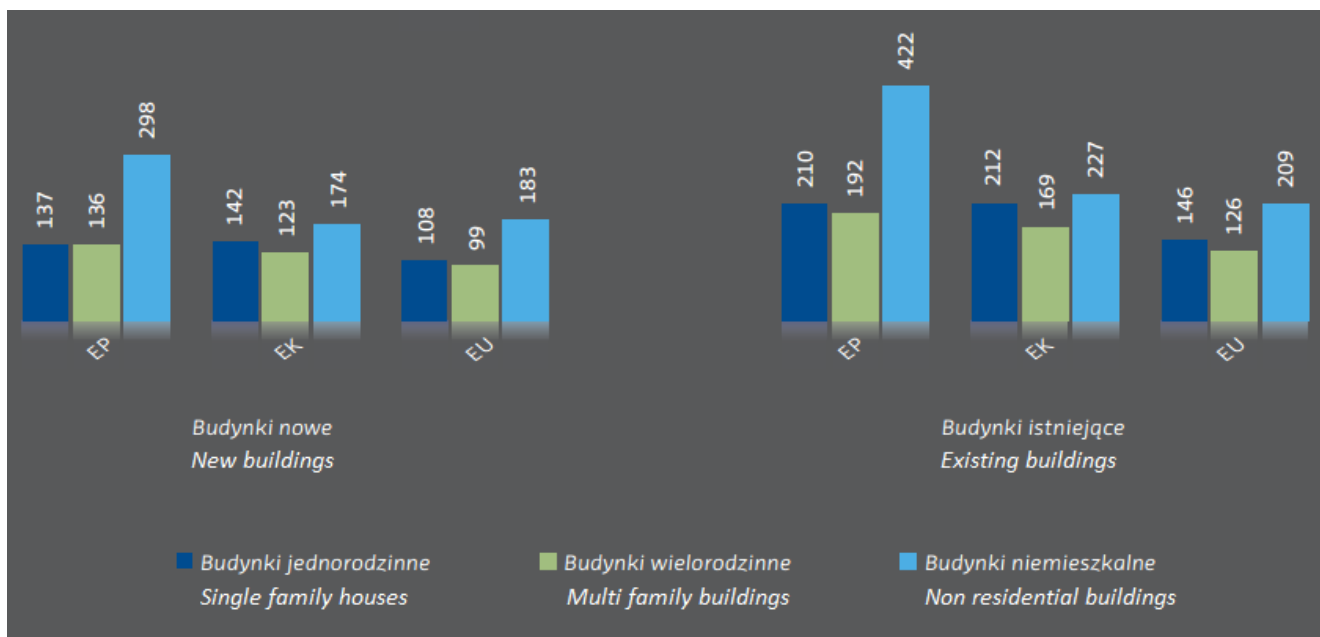


Figure 4. Energy consumption based on EP across different types of buildings

EP – Primary Energy

EK – Final Energy (amount of energy delivered)

EU – Usable Energy (amount of energy available after heat losses.)

For more information see *Energy conditions of buildings in Poland* by BuildDesk: <http://www.builddesk.pl/files/BuildDesk/Consultancy/PL%20BD%20Analytics/2010-12-stan-energetyczny-budynkow.pdf>

The biggest opportunity for improvement in residential buildings is in “thermo modernization”, as heating uses the most energy by far – almost three quarters of the total.

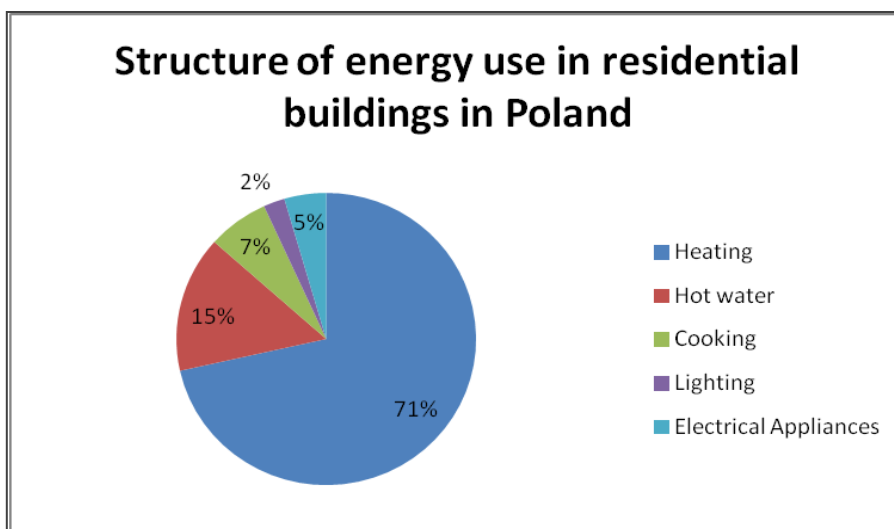


Figure 5. Structure of energy use in residential buildings in Poland (Source: Building Energy Data Book)



In commercial buildings the biggest energy consumption comes from Heating Ventilation and Air Conditioning systems and lighting, although equipment uses almost a quarter of the total.

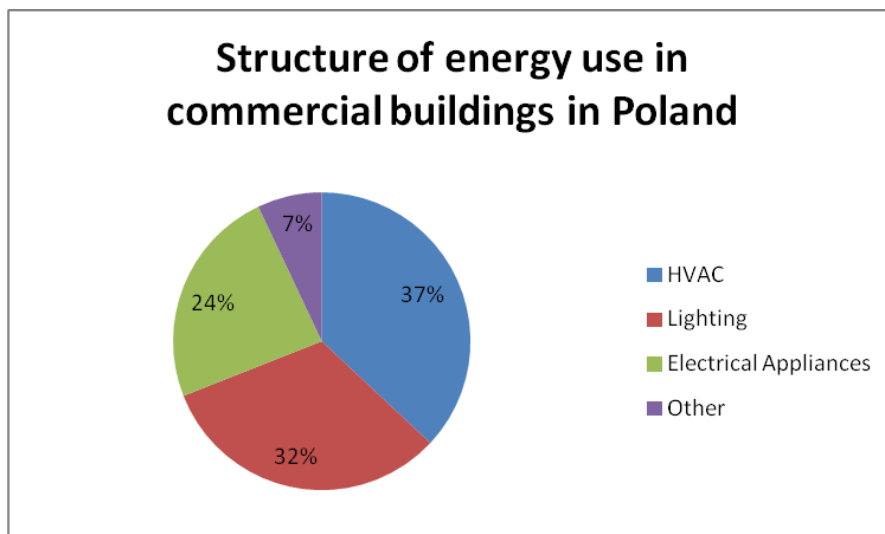


Figure 6. Structure of energy use in commercial buildings in Poland (Source: Building Energy Data Book)

Healthcare and retail sectors are the biggest non-residential energy users (see Figure 7) but the scope of the Laboratory and therefore this report is limited to offices and residential. EEB2.0 addresses other segments through segment specific engagements.

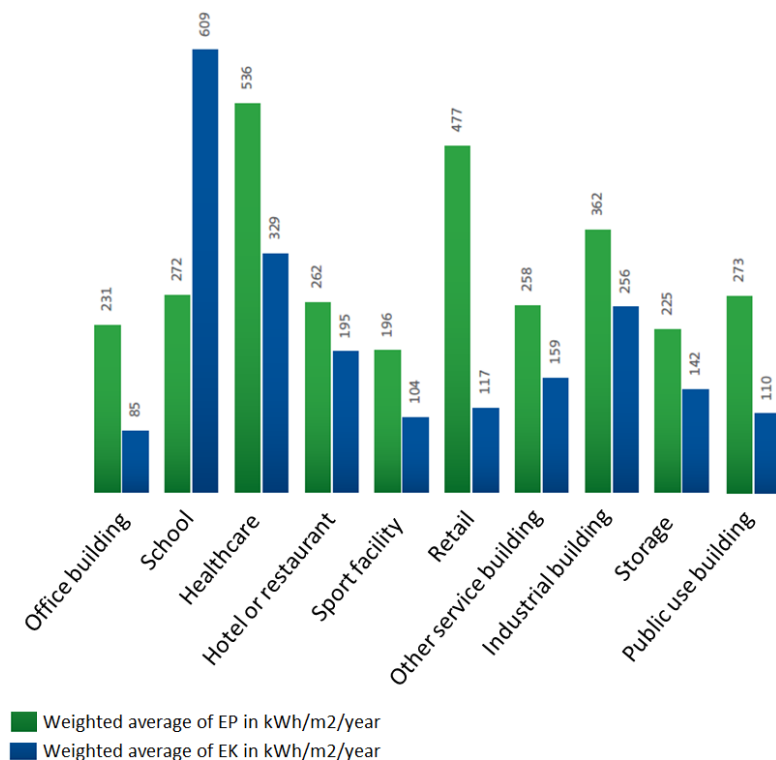


Figure 7. Energy consumption across different types of non-residential buildings

For more information see “Energy conditions of buildings in Poland by BuildDesk”: <http://www.builddesk.pl/files/BuildDesk/Consultancy/PL%20BD%20Analytics/2009-12-stan-energetyczny-budownictwa-w-polsce.pdf>

## 1.4. Energy Performance of Residential Buildings

Recent analysis<sup>2</sup> of 60,000 residential buildings in Poland (mostly new) shows that:

1. The insulation of buildings is systematically improving, thereby reducing their energy intensity,
2. The extent of renewable energy use is unclear. Biomass appears to be the main source of renewable energy,
3. Coal is replacing gas for heating in single-family buildings, increasing greenhouse gas (GHG) emissions and affecting air quality in urban areas (e.g. Krakow, Zakopane),
4. District heating is used increasingly in multifamily buildings,
5. The availability of funding affects technology choices. For example, solar water heating is promoted by the National Fund for Environmental Protection and Water Management and is gaining popularity. On the other hand, heat pumps, which have not been supported, are rare.

In their analysis (see report reference below), Marek Zaborowski and Piotr Pawlak recommend:

1. Promotion of energy-efficient technologies – reducing energy demand decreases carbon dioxide emissions and other pollutants, regardless of the fuel used,
2. Focus on other technologies such as lighting – not only insulation,
3. Incentives to increase the use of renewable energy for heating,
4. Consideration of banning solid fuels (biomass and coal) in new buildings within areas with air quality problems – especially when district heating and gas networks are available.

The authors also point out that the government has failed to fully implement the EU Directive on the energy performance of buildings because there is currently no enforcement for buildings on the resale market (See 2.4 below).

For more information see “*Energy Efficiency in Poland 2012 Review* by Instytut Ekonomii Srodowiska”:  
<http://www.iee.org.pl/?a=text&b=32>

## 2. Energy Efficiency Policies

Construction has been governed by a 1994 law and supporting technical regulations but these are being superseded by new laws and regulations, partly to implement EU Directive. The new requirements will simplify but also weaken the construction regime so far as energy efficiency is concerned.

### 2.1. Existing construction law

The law is based on the Act of July 7, 1994 which set standards for the design, construction and supervision, maintenance and demolition of buildings, and the role of public authorities. The law regulates issues related to:

- Environmental protection during construction of new facilities, their maintenance and demolition,
- Location of new buildings, including prohibition of building on floodplains and minimum distance between buildings and a building permit procedure,
- The process for authorization of the type of use of the buildings,
- Professional conduct, rights and obligations and liability of participants in the construction process,

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<sup>2</sup> “Report on Newly Constructed Buildings in Poland”, Piotr Pawlak and Marek Zaborowski, 2012  
[http://www.iee.org.pl/files/editor/files/\\_ies\\_ee\\_review\\_2013\\_09\\_24\\_web.pdf](http://www.iee.org.pl/files/editor/files/_ies_ee_review_2013_09_24_web.pdf)

- Procedures for a construction disaster such as fire or explosion.

For more information see “*Construction Law, the Act of July 7, 1994* by Speaker of the Polish Parliament”: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20102431623&min=1>

## 2.2. Existing technical requirements for buildings

Every building in Poland must meet standards established in 1994 as the ordinance of the Ministry of Infrastructure: *Technical Requirements for Buildings and their Location*. It covers how buildings have to be planned, designed, built and modernized as well as requirements for thermal renovation of all types of buildings. In January 2014, new requirements came into force for thermal protection, energy efficiency and technical systems using energy in buildings (see 2.4 below).

Designers also use several Eurocodes (e.g. EN 1990-Basis of Structural Design or EN 1997-Geotechnical Design) or Polish norms (e.g. PN-EN 12464-1:2012 - Light And Lighting - Lighting Of Work Places) for specific aspects. These standards are highly recommended and frequently used but are not obligatory.

For more information see “*Voluntarily or obligatory use of Polish Norms* by Inżynier Budownictwa”: [http://www.inzynierbudownictwa.pl/biznes,prawo,artykul,dobrowolnosc\\_czy\\_obligatoryjnosc\\_stosowania\\_pn\\_w\\_sprawie\\_dwuglosu\\_,6328](http://www.inzynierbudownictwa.pl/biznes,prawo,artykul,dobrowolnosc_czy_obligatoryjnosc_stosowania_pn_w_sprawie_dwuglosu_,6328)

## 2.3. Expected changes in the Construction Law and Technical Requirement for Buildings

### The New Building Code

The government is consolidating the standards and regulations, which should make administrative procedures simpler and more efficient.

The new Construction Law will replace several dozen Acts. It is also likely to eliminate many detailed technical regulations for building design and replace multiple requirements for building permits with a single building consent. The new law will also make interactions with bodies such as the fire service and sanitary inspectorate less formalized and will replace a building permit for single-family houses or small buildings with a requirement merely to notify the authorities.

Detailed regulations are expected to be presented in November 2014, which should lead to the Construction Law being adopted by parliament in 2015.

For more information see “*Poland: The Awaited Revolution in Polish Construction Law – Will it Speed up the Investment Process?* By Jan Bagatela”: <http://roadmap2014.schoenherr.eu/poland-awaited-revolution-polish-construction-law-will-speed-investment-process/>

## 2.4. Implementation of the Energy Performance of Buildings Directives (EPBD)

The first EU Directive on the Energy Performance of Buildings (EPBD) - Directive 2002/91/EC - was intended to be implemented by 2009 but was revised following the early experience. The recast EPBD (Directive 2010/31/EU), adopted in 2010, requires Member States to:

- Establish and apply minimum energy performance requirements for new and existing buildings,
- Ensure the certification of building energy performance,
- Require the regular inspection of boilers and air conditioning systems in buildings,
- Ensure that by 2021 all new buildings are so-called 'nearly zero-energy buildings'.

To implement this Directive, the Minister of Transport, Construction and Maritime Economy published the amending *Regulation on Technical Requirements for Buildings and their Location*, which entered into force on 1 January 2014. The most important changes concern the supply-exhaust ventilation system and the limits for the EP index, which defines the annual demand of the building for non-renewable primary energy.

In July 2014, Parliament passed a new Act on Energy Performance of Buildings. This Act amends the Construction Law and partly implements the EU Directive. It describes a systematic approach to assessing the energy performance of buildings, especially concerning Energy Performance Certificates and Nearly Zero Energy Building (see 2.4.1 and 2.4.2 below), and the principles of control systems, heating and air-conditioning systems.

Full text of the Act is at: <http://www.sejm.gov.pl/Sejm7.nsf/druk.xsp?nr=2444>

#### *2.4.1. Energy Performance Certificates*

Energy Performance Certificates (EPC) became obligatory on 1<sup>st</sup> of January 2009, following implementation of the first EPBD, but the 2014 Act on Energy Performance of Building has reduced the requirements.

The EPC system is governed and administered by the Ministry of Infrastructure and Development. There is no central register of EPCs in Poland and therefore it is not possible to estimate the number of issued EPCs.

Building Performance Certificates are valid for 10 years. The regulations base performance on the EP indicator, expressing the demand for non-renewable primary energy.

- For new buildings and buildings undergoing major renovations, the energy assessment must be made at the planning stage, when conformity with regulatory requirements is verified, and at the start of the operation, when an EPC is required by the building control authorities.
- For existing buildings, an EPC is required when the property is subject to change of ownership, is sold or rented.

Under the 2014 Act:

- There is no sanction or penalty for not preparing an EPC on change of ownership or renting,
- Monitoring and verification of issued EPCs are foreseen but there is no requirement for verification of a random sample,
- The Ordinance on Methodology for preparing an EPC for Buildings retains the weak points of the old regulation, especially the lack of energy classes for buildings and flats.

Implementation of the Act is likely to reduce the number of EPCs issued, contrary to the required increase in energy efficiency of buildings but in line with the unofficial policy of the Ministry.

### **Act on the energy performance of buildings and launch of registers for issued energy performance certificates of buildings. (Ministry of Infrastructure and Development)**

This act will implement the provisions of Art. 9 (Nearly zero-energy buildings), Art. 11 (Energy performance certificates) and Art. 18 (Independent control system) of the recast EPBD (Directive 2010/31/EU). It defines the following:

#### **Principles of preparing energy performance certificates**

The introduction of regulations concerning the preparation and issuance of energy performance certificates should contribute to the popularisation of energy-efficient construction and raise the awareness of owners and tenants of buildings and building units about the possibility of achieving energy savings.

Information contained in the energy performance certificates will allow users to determine the approximate annual demand for usable, final and primary energy, thus allowing them to determine the maintenance cost for heating and ventilation, domestic hot water preparation, cooling and lighting.

#### **Principles of control systems, heating and air-conditioning systems in buildings**

Regulations regarding the performance of heating and cooling system inspections are to contribute to maintaining their proper regulation, pursuant to product specification, thus ensuring optimum operation concerning the environment, safety and energy.

The Act will contain solutions for energy performance certification of government buildings (occupied by judicial authorities, the prosecutor's office or public administration authorities) with a usable floor area, exceeding 500 square meters – 250 square meters as of July 2015.

#### **Rules for the Central Register of energy performance of buildings**

A system of registers related to the energy performance of buildings will be introduced, the aim of which will be to ensure an independent system for auditing, a regularly updated lists of experts, and information on the energy standard of buildings occupied by public authorities.

#### **Rules to develop a national action plan aimed to increase the number of nearly zero-energy buildings.**

##### **Timetable**

- Adoption of the draft Act by the Council of Ministers: April 29, 2014
- Expected date for the adoption of the act by Parliament – Q3/Q4 2014
- Planned date for the act to enter into force – Q1/Q2 2015

Source: National Reform Program, 22 April 2014

[http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index\\_en.htm](http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm)

*Act on Energy Performance of Buildings* by Modern Buildings Association

<http://www.snb.org.pl/?strona=2-1&id=449&l=1>

#### *2.4.2. Nearly Zero-Energy Buildings (NZEBs)*

Under article 9 of the recast EPBD, Member States are required to draw up national plans for increasing the number of NZEBs, including:

- A detailed definition of NZEBs (including a numerical indicator of primary energy use expressed in kWh/m<sup>2</sup> per year),
- Intermediate targets for improving the energy performance of new buildings by 2015,
- Information on the policies and financial or other measures aimed at promoting NZEBs.

In the absence of a clear definition of NZEB performance standards, a consortium led by Ecofys carried out a study for the EU Commission to provide more guidance. The study developed an analytical framework for evaluating national plans, identified benchmarks and investigated the convergence between optimal cost levels and NZEBs. The final report *“Towards Nearly Zero-Energy Buildings – Definition of common principles under the EPBD”* includes an overview of targets and elements of policy packages for promoting NZEBs in Poland. The most notable observation was that there was no definition of NZEB performance standards.

See [http://ec.europa.eu/energy/efficiency/buildings/doc/ms\\_nzeb\\_national\\_plans.zip](http://ec.europa.eu/energy/efficiency/buildings/doc/ms_nzeb_national_plans.zip)

Poland has not yet submitted a national plan for NZEBs but independent research has produced proposals for an affordable yet ambitious definition and roadmap. The Building Performance Institute Europe (BPIE) published *“Implementing nearly Zero-Energy Buildings (nZEB) in Poland”* in 2012. It included an in-depth survey of the Polish building stock, construction practices, market prices for materials and equipment, existing legislation and support measures. It defined and evaluated new reference buildings for detached single family houses, multi-family houses, and office buildings.

The research included several simulations for each of these building types, testing improved thermal insulation and equipment for heating, cooling, ventilation and hot water, and photovoltaic compensation.

The financial implications of each variant were analyzed to determine the most suitable and affordable solutions under the country’s specific circumstances. Finally, the optimal solutions were extrapolated at national level to determine the direct and indirect benefits and impacts. As well as the CO<sub>2</sub> saving potential, impacts on job creation and industry/technology development were also considered.

The study showed that by improving the thermal insulation of new buildings and increasing the share of renewable energy use, NZEBs in Poland can generate macro-economic and social benefits. It concluded with an indicative roadmap for the implementation of NZEBs in Poland and three key policy recommendations:

1. Tighten the ambition levels of the building envelope and of the maximum primary energy use.
2. Gradually move actual subsidies on fossil energies and on energy prices to support energy efficiency measures and renewable energies in buildings.
3. Adapt the structure of regulation, including obligations regarding the building envelope quality, primary energy use, CO<sub>2</sub> emissions and the use of renewable energy. Bypassing options should be removed.

It also noted that new regulations should be accompanied by financial support schemes, capacity building programs and awareness-raising campaigns.

For more information see *“Implementing nearly Zero-Energy Buildings (nZEB) in Poland”*, BPIE, 2012: [http://www.bpie.eu/documents/BPIE/publications/Poland\\_nZEB/Executive\\_Summary\\_nZEB\\_Poland.pdf](http://www.bpie.eu/documents/BPIE/publications/Poland_nZEB/Executive_Summary_nZEB_Poland.pdf)

## **2.5. Implementation of Energy Efficiency Directive (EED) - Directive 2012/27/EU**

The new EED entered into force on 4 December 2012. It established a common framework of measures for the promotion of energy efficiency within the EU to achieve the 2020 20 % headline target on energy efficiency and to pave the way for further improvements. Most of its provisions were to be implemented by Member States by 5 June 2014.

### **Poland National Energy Efficiency target for 2020**

Under the EED, Poland set a target reduction of 13.6 Mtoe in primary energy consumption by 2020. This was based on data compiled for the government document *“Polish Energy Policy until 2030”*. The analysis shows that reducing primary energy consumption will be driven by several existing projects, as well as further planned measures ([http://ec.europa.eu/energy/efficiency/eed/reporting\\_en.htm](http://ec.europa.eu/energy/efficiency/eed/reporting_en.htm)).

Member States were required to submit to the Commission by 30th April 2014 their long-term strategy for mobilizing investment to renovate the national stock of residential and commercial buildings. The strategy should give an overview of the national building stock; identify policies to stimulate cost-effective deep renovations; and estimate the expected energy savings. The strategy is submitted as part of the National Energy Efficiency Action Plans under the Energy Efficiency Directive. Poland is among several EU countries that have not yet submitted such plans.

See [http://ec.europa.eu/energy/efficiency/eed/article4\\_building\\_strategies\\_en.htm](http://ec.europa.eu/energy/efficiency/eed/article4_building_strategies_en.htm)

A consortium of energy and environment organizations are developing a “shadow buildings renovation roadmap for Poland” to provide the government with advice on the best renovation strategy. The consortium consists of the Institute of Environmental Economics (IEŚ) in the National Energy Conservation Agency (NAPE), Polish Foundation for Energy Efficiency (FEWE), National Energy Efficiency Agency (KAPE) and Buildings Performance Institute Europe (BPIE).

### **EED Article 5 Renovation of Public Buildings**

Article 5(1) of the Directive requires each Member State to ensure that, from 1 January 2014, 3% of the total floor area of heated and/or cooled buildings owned and occupied by central government is renovated each year. The improvements must meet at least the minimum energy performance requirements the government set in application of Article 4 of Directive 2010/31/EU. However, Poland has opted for an alternative.<sup>3</sup>

This alternative approach is for a planned 2014-20 Infrastructure and Environment Operational Program to include a new priority: 'Supporting energy efficiency and renewable energy use in the public and housing sectors'. The program will increase energy efficiency and renewable energy production and reduce CO<sub>2</sub> emissions. It will focus on comprehensive energy modernization of buildings used for services offered to the public and residential buildings, together with replacing such buildings' fittings and equipment with energy-efficient alternatives.

The National Fund for Environmental Protection and Water Management is implementing a series of programs to promote energy savings through thermal modernization projects, increasing environmental awareness and fostering environmentally friendly attitudes. The aim is to limit or prevent emissions of CO<sub>2</sub> by financing improved energy efficiency in the buildings of selected public entities. See section 2.7 below *Funding of Energy Efficiency in Poland*.

An overview of the key policies and regulations in force to date and other relevant data can be found on: <http://www.buildingsdata.eu/country-factsheets>

## **2.6. Progress on harmonization**

Critics such as Arkadiusz Weglarz and Ewa Winkowska argue that Poland does not have effective energy planning and a long-term climate policy. (See “*Sustainable Energy Management as a Tool for the Development of a Low Carbon Economy*”) They say the government’s approach<sup>4</sup> is not adjusted to the needs of a modern, low-carbon economy. The scope of energy planning in municipalities is too narrow and does not support the main objectives of state energy policy, sustainable development policy and climate protection policy.

Article 5 (7) of energy efficiency Directive says Member States shall encourage public bodies, including at regional and local level, to:

- Adopt an energy efficiency plan, freestanding or as part of a broader climate or environmental plan, containing specific energy saving and efficiency objectives and actions, with a view to following the exemplary role of central government buildings,

<sup>3</sup> described in: [http://ec.europa.eu/energy/efficiency/eed/doc/article5/2013\\_pl\\_eeed\\_article5\\_en.pdf](http://ec.europa.eu/energy/efficiency/eed/doc/article5/2013_pl_eeed_article5_en.pdf)

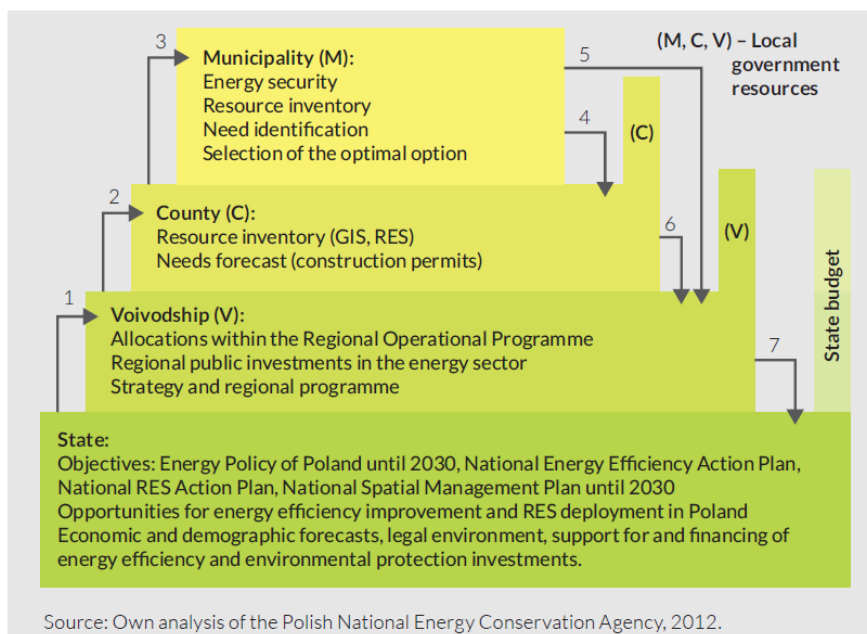
<sup>4</sup> In The Preparation of Assumptions for Municipal Plans for the Supply of Heat, Power and Gaseous Fuels (pursuant to the Energy Law Act

- Put in place an energy management system, including energy audits, as part of the implementation of their plan,
- Use, where appropriate, energy service companies (ESCOs) and energy performance contracting (EnPC) to finance renovations and implement plans to maintain or improve energy efficiency in the long term.

According to Weglarz and Winkowska, the EU guidelines show that Poland needs a new system of energy planning and management at the local and regional level, which should consist of:

- A definition of the needs of respective municipalities, counties and voivodships (provinces) for energy security, energy efficiency improvement, application of renewable or low carbon energy sources,
- A definition of their potential in energy supply, energy efficiency improvement, application of renewable energy and economic development,
- A definition of the criteria for choosing investment, organization, promotion and education measures and the specification of their desired effects,
- The optimal choice of the above measures by the relevant local authority. The results of this optimization procedure should constitute a basis for a municipal Sustainable Energy Management Plan. Energy companies, including local enterprises as well as international concerns active in Poland, should participate in the planning process.

In the next step municipal plans should be combined at the higher administrative level (the county level – powiat). The optimization of measures related to the assets and competence of the county should also be conducted at this stage. County and municipal plans should be further combined into a voivodship plan. Voivodships should submit their plans to the Ministry of Economy, Ministry of Environment and the Ministry of Regional Development. The Ministry of Economy, taking into consideration Poland’s international commitments and national policies, would balance these plans and supplement them with mechanisms at the state level, producing a National Sustainable Energy Management Plan (see Figure 8).



**Figure 8: A layered system of energy planning**

A monitoring system should be an integral part of sustainable energy management. It is needed to gather the data that will be used to identify optimal measures in a particular administrative area and to assess the effects of measures implemented. It is necessary to know the status quo prior to investments and data such as heat energy consumption by education institutions and other municipal buildings before and after thermal modernization. For many financial support programs it is necessary to define the expected effects of planned investments and monitoring data would be extremely helpful to fulfill this requirement.



It should be noted that energy efficiency projects around Europe have been problematic. A report of the European Court of Auditors in 2013 concluded that the energy efficiency improvement projects co-financed under the Cohesion Policy lacked rational objectives. They were economically unviable, with an excessive cost per unit of saved energy. The auditors recommended that financing for energy efficiency improvement should be conditional on regular monitoring and application of comparable effect indicators.

For more information see “Energy Efficiency in Poland 2012 Review” by Instytut Ekonomii Srodowiska.

## 2.7. Funding of Energy Efficiency in Poland

Several domestic and international schemes make funds available for energy efficiency investments. Some are for specific technology, such as solar, others for particular buildings, such as those owned by the state. In some cases the amount of support depends on the improvements achieved.

### Thermo modernization fund

This fund is a form of state help provided by the state-owned Bank Gospodarstwa Krajowego (BGK) for an investor who borrows to finance a thermal modernization project, BGK repays 25% of the loan so the investor only has to repay 75%. In addition, the investor receives a grant equivalent to two years’ heat cost savings up to 16% of the investment cost. The fund only applies to investors using a loan from banks co-operating with BGK. They can be communities, housing co-operatives, private partnerships, housing associations, as well as individuals and owners of detached family houses.

For more information please see: <http://www.bgk.com.pl/Thermomodernization-fund-en> and <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20082231459>

### The energy-efficient housing program

This program was launched in the first quarter of 2013 and will run until the end of 2018. Grants are available for people who build or renovate homes to meet minimum energy efficiency levels:

- PLN 50,000 (EUR 12 500) for homes that use no more than 15 kWh/m<sup>2</sup> a year from external sources of heat and electricity;
- PLN 30,000 (EUR 7,500) for homes which use no more than 40 kWh/m<sup>2</sup> a year.

The program is targeted at individuals building (or renovating) a single-family house or buying a house or apartment from a developer (including as a housing association).

The grant is in the form of a partial repayment of the bank loan to build or buy a home. The grant is paid at the end of the project, after final calculations confirm that the desired energy level has been met. The exact amount of funding depends on the achieved rate of individual energy demand for heating and ventilation, and other conditions including the efficiency of the heating and water treatment systems.

The budget of PLN 300 million (around EUR 75 million) will support improvements in at least 12,000 homes and flats over five years.

For more information see: <http://www.nfosigw.gov.pl/srodki-krajowe/programy/doplaty-do-kredytow-na-domy-energooszczedne/>

### Green Investment Scheme

The international Green Investment Scheme (GIS) links sales of carbon credits or so-called Assigned Amount Units (AAUs) to investments that reduce GHG emissions. It allocates proceeds from the sales of AAUs for projects and programs focusing on GHG emissions reduction and adaptation to climate change. Credible monitoring and verification measures are needed to confirm that the proceeds from the sale of AAUs are used to finance agreed projects and programs.

Poland met the criteria in 2008 and became eligible to engage in international emissions trading, including trading of AAUs. The Polish Act on management of GHG emissions defines:

- Eligible projects to receive proceeds, which include “hard greening” (achieving the greenhouse gases emission reductions) as well as on “soft greening” (building the necessary framework for this process),
- Transparent rules for projects that can be co-financed from the GIS proceeds,
- Robust but flexible regulations for monitoring, reporting and verifying the effects provided by the projects,
- Other operational rules of the National Green Investment Scheme including the use of GIS proceeds to refinance project costs covered from other sources.

For more information please see:

<http://www.nfosigw.gov.pl/en/priority-programmes/green-investment-scheme/>

### **Energy Efficient Public Buildings – LEMUR**

This program aims to avoid CO<sub>2</sub> emissions through the design and construction of new energy efficient public buildings. The program runs from 2013 2020 with a budget of 300 mln PLN (30mln PLN for a single grant). It offers co-financing grants up to 30 mln PLN and loans up to 270 mln PLN. Grants can be up to 30%, 50% or 70% of the cost, depending on the energy efficiency of the proposed building.

Eligible beneficiaries are:

1. public sector entities,
2. local government units and their associations and companies,
3. public service utilities,
4. universities,
5. hospitals, medical entities,
6. non-governmental organizations, churches and other religious organizations.

Financial support is available for the design and construction of:

- 1) public buildings - i.e. buildings intended for public administration, culture, education, higher education, science, education, health, social, or social, tourism and sport,
- 2) collective residential buildings – e.g. dormitories, student houses, orphanage, elderly homes.

For more information please see: <http://www.nfosigw.gov.pl/srodki-krajowe/programy/lemur-energooszczedne-budynki-uzytecznosci-publicznej/>

### **EEA Grants (former Norway Grants)**

The objectives are to reduce economic and social disparities in the European Economic Area and to strengthen bilateral relations between the Donor States (Iceland, Liechtenstein and Norway) and the beneficiary states. The allocation for Poland is EUR 578 million, available for projects approved up to 30 April 2016.

The supportable area is broad but the largest part of the funding (EUR 247 million) has been allocated for protection of environment –EUR 137 million for the carbon capture and storage program and the remaining EUR 110 million is for protection of biological diversity and ecosystems, improvement of environmental monitoring and inspection, as well as on saving energy and promoting renewable energy sources.

Another EUR 93 million was allocated to Energy Efficiency program, supporting projects for:

- Improved energy efficiency in buildings,
- Increased renewable energy production in relation to buildings,
- Increased awareness of and education in energy efficiency.

For more information see: <http://www.nfosigw.gov.pl/en/eea-grants/> and <http://www.nfosigw.gov.pl/en/eea-grants/pl04-energy-efficiency-programme/>

### Promotion of solar collectors in residential sector investment

The National Fund for Energy Protection and Water Management (National Fund) offers co-financing of loans for solar collectors for households. Approximately 52 000 households have joined the program. In 2011, the offer was extended to include grants and loans for home wastewater treatment plants and connecting buildings to collective sewage systems.

In 2013 the National Fund launched a program of co-financing loans for construction or purchase of energy-efficient buildings, in cooperation with banks. It also introduced the “Prosumer” program for co-financing the purchase and installation of renewable energy micro-installations.

For more information see:

<http://www.nfosigw.gov.pl/en/priority-programmes/>

## 3. The role of the public sector in Energy

### Efficiency in Buildings

The public sector can play an exemplary role in energy efficiency improvement measures and are required to do some by EU Directives (see box).

Research<sup>5</sup> shows that stakeholders expect this and public sector leaders see the potential. It is particularly important in relation to improved energy performance in buildings because:

- a) public institutions are significant investors and their buildings, such as libraries, hospitals, schools, offices, are usually visited by many people;
- b) new possibilities for co-financing the construction of public buildings with improved energy performance have appeared (see above – including the LEMUR program of the National Fund),
- c) the exemplary role is defined in the implementation scenario for NZEBs, as public buildings will have to be constructed according to the standard two years earlier than other buildings.

However, Pytlinski, Zaborowski and Gula found that stakeholders identified numerous barriers that hinder this process.

#### NGOs said:

- Those responsible for managing public buildings are largely unaware of the exemplary role in efficient energy use that should be fulfilled by the public sector,

#### Requirements for exemplary action

The public sector’s exemplary role in energy efficiency has been defined directly and indirectly in Polish strategic documents and legislation. The discussion about the ways and means to fulfil this role in Poland has been inspired by European Directives 2010/31/EC (EPBD) and 2006/32/EC (end-use efficiency). The latter states that “Member States shall ensure that the public sector fulfils an exemplary role in the context of this Directive. To this end, they shall communicate effectively the exemplary role and actions of the public sector to citizens and/or companies, as appropriate. Member States shall ensure that energy efficiency improvement measures are taken by the public sector, focusing on cost-effective measures which generate the largest energy savings in the shortest time-span. Such measures shall be taken at the appropriate national, regional and/or local level, and may consist of legislative initiatives and/or voluntary agreements [...] or other schemes with an equivalent effect.” This provision is strengthened by the EPBD, which after 2018 obliges the public sector to construct all its buildings in accordance with the nearly zero energy standard. Public institutions should, therefore, be equipped with relevant tools and measures in order to fulfil this exemplary role. This role should be implemented in all areas of government involvement. However, it should be particularly visible in investments that have a direct impact on energy consumption (from green procurement, through construction of new buildings, to education)

<sup>5</sup> Local Governments’ Exemplary Role in Rational Energy Management – A Summary, Łukasz Pytlinski, Marek Zaborowski and Andrzej Gula

- They have a highly negative opinion on the implementation of the energy efficiency Directives in Poland,
- Many projects including thermal renovation of public buildings have been mainly to modernize the buildings rather than reducing their maintenance or energy costs,
- There is little public interest in energy efficiency and the environmental performance of buildings,
- Most of the public buildings in Poland are constructed at the lowest possible costs, ignoring future maintenance costs,
- The public sector has limited knowledge on the legal requirements that will come into force in 2018.

#### **The private sector said:**

- It has a largely negative opinion about the public sector's involvement in the promotion of modern construction standards. Public procurement laws force lowest cost solutions and individuals are unwilling to go beyond minimum standards because of the reaction of their supervisors and local communities,
- The public sector could be more effective in fostering positive energy efficiency practices than the business sector but the private sector has achieved much more,
- Construction norms are lagging behind technological development,
- Public bodies lack specialists in modern energy management,
- Energy performance is influenced by available funding and the availability of funding for renewables means these energy sources are often included in investments even though the buildings are not properly adapted to use this energy,
- Energy education should be targeted at professionals, including architects and construction designers,
- Central bodies are neglecting preparations for the changes that will come into force in 2018 and do not send clear messages about legislative changes,
- Technologies for nearly zero energy buildings have not been finalized,
- Legislative changes, the introduction of financing mechanisms and the development of integrated technical solutions will not bring the expected results without proper awareness-raising initiatives.

#### **Local authorities said:**

- They have highly negative opinions about state support for their energy management initiatives. Central bodies do not monitor whether existing obligations imposed on local authorities are followed. And while they welcomed the wide availability of funding, they criticized legislative measures such as the transfer of responsibilities for local energy policy and the lack of enforcement mechanisms,
- They had considerable reservations about energy management legislation, saying it does not specify clearly local authorities' energy management obligations,
- The provisions of the Energy Law Act on energy planning increases the importance of local authorities
- There are limited opportunities to communicate with central bodies and the central administration does not treat local authorities as partners but marginalizes their role,
- The public sector is largely unaware of its obligation to fulfil an exemplary role in energy efficiency,
- All municipalities that have successfully implemented energy efficiency schemes started from comprehensive metering and energy consumption analysis,
- Energy planning may require special units to be set up,

- Local authorities are completely unprepared to introduce the new construction standards, envisaged for 2018. They lack knowledge of the requirements and are even unaware that such changes are going to take place.

For more information see “Energy Efficiency in Poland 2012 Review” by Instytut Ekonomii Srodowiska.

#### 4. Public Awareness on Saving Energy

Energy saving is gaining importance with the public, but this has not yet replaced wasteful habits fostered by cheap energy during socialist rule. Many Poles lived in a system that did not stimulate rational energy use. Cheap energy encouraged negative consumer habits and despite the ever increasing costs of utilities, these habits remain.

Opinion research<sup>6</sup> has found that the most important driver for saving energy is to save money but Poles are also beginning to perceive this problem from the perspective of issues such as environmental pollution, global warming and even state energy security.

The research analyzed three components of social attitudes towards energy saving: knowledge on how to save energy, emotional attitudes towards the idea and actions taken to reduce energy consumption.

The results show that information on energy saving comes from a variety of sources. Poles are familiar with education campaigns but also look for information independently. Nevertheless, knowledge of energy saving issues remains limited. Energy saving is associated mainly with using less electricity, while rational use of energy for heating is frequently disregarded, partly because information and education campaigns often ignore energy saving in heating and domestic hot water .

Poles are convinced that rational energy management can bring positive tangible results, not only for individual consumers but also for the whole country.

For more information see “Energy Efficiency in Poland 2012 Review” by Instytut Ekonomii Srodowiska.

#### 5. Energy Services Companies (ESCOs) and Energy Performance Contracting (EnPC)

The ESCO market was estimated to be worth EUR 10-25 million in 2012<sup>7</sup> but the market has been changing. ESCO projects in the public sector have been decreasing for several years due to unfavorable legislation and some significant players have virtually exited this market due to lack of tenders. Nevertheless, the public sector remains an important market segment, accounting for 40-50% of the total market for ESCO contracts in 2011. And the Polish ESCO market as a whole is expected to grow, based on expected further investments in the private sector.

The ESCO market in Poland remains at the early stage of development, with relatively few players. But increasing energy prices and EU policy on enhancing energy efficiency should accelerate its growth. The industry expects investment in ESCO services to reach EUR 25-75 million a year.

##### Public sector

Projects for energy renovation of public buildings frequently have long payback periods and poor profitability, requiring public subsidies or grants. Combining subsidies with the ESCO mechanism would result in more efficient use of public funds, reducing the total level of subsidy and guaranteeing energy savings through an EnPC. However, it is currently impossible to combine subsidies with the ESCO mechanism and this limits the potential for ESCO services in thermal renovation and heat supply for buildings. There is potential for public

<sup>6</sup> Energy Saving in the Opinion of the Poles – Report from Research, by Łukasz Pytliński, 2012  
[http://www.iee.org.pl/files/editor/files/\\_ies\\_ee\\_review\\_2013\\_09\\_24\\_web.pdf](http://www.iee.org.pl/files/editor/files/_ies_ee_review_2013_09_24_web.pdf)

<sup>7</sup> “The ESCO market in Poland” published by Instytut Ekonomii Srodowiska, 2012

private partnerships for energy optimization in public buildings but investments in reducing electricity consumption are not very common among local authorities.

### Commercial sector

ESCO services are also not very common in commercial buildings, mainly because property lessees do not want to invest in infrastructure they do not own and property owners are not interested because they do not receive the benefits as they do not pay utility costs. (This is known as the split incentive problem). Property owners may also prefer to make such investments on their own, without third parties, but several companies (Cofely GDF Suez, Dalkia Polska) offer energy cost optimization services in this sector using EnPCs.

### Residential

Interest in third party financing is increasing for residential buildings as high demand makes it difficult to access for thermal modernization and renovation. Investments are mainly in modernization of central heating and domestic hot water, construction of new domestic hot water installations replacing bathroom water heaters, modernization of heat transfer stations, modernization and replacement of heating sources.

Such investments are most common in housing cooperatives and housing communities. They are rather rare in council buildings. Social housing associations constitute a new management form and their buildings are also rather new, with energy saving part of the design. There are, however, some projects to replace fuel oil heating as this is expensive.

## 6. Green building developments

Green building certification systems are increasingly used as guidelines in design and construction and they help to improve energy efficiency.

The two most popular eco certificates in Poland are LEED and BREEAM. Both are multi-criteria schemes that take into account aspects including land use, energy and water consumption, materials selection, waste minimization, indoor environment, management and innovation. Most of the requirements in LEED and BREEAM are similar and have the same intent.

Early in 2014 there were 24 LEED and 209 BREEAM certified projects in Poland. Most certifications are for the construction of new buildings but certification of existing buildings is starting to be more common. Total certifications include two LEED for Existing Buildings and around 70 BREEAM In Use certificates.

There is growing awareness of the benefits of green buildings but knowledge remains limited. Market research<sup>8</sup> has produced the following findings on perceptions of the values of green/sustainable buildings by developers, investors and main tenants:

- General awareness: the construction and real estate sectors acknowledge the shift towards sustainable construction and see it as an important aspect of future investment,
- Operating costs: sustainable construction is seen mainly as a way of reducing operating and maintenance costs of a building over its life, with an emphasis on lower energy consumption,
- Construction costs: sustainable buildings are perceived to require higher initial investment (average 2-10%), but this is expected to decrease in future,
- Asset value: there is low awareness around the ability of green buildings to attract tenants more easily or command higher rents and sale prices, possibly due to a shortage of available data to support this argument,
- Workplace productivity and health: awareness around these benefits of green design is still very low,

<sup>8</sup> “Analysing the sustainable construction market in Poland” the Construction Marketing Group, 2014

[http://www.burohappold.com/fileadmin/uploads/bh/Documents/PDFs/Analysing\\_the\\_sustainable\\_construction\\_market\\_in\\_Poland\\_-\\_English.pdf](http://www.burohappold.com/fileadmin/uploads/bh/Documents/PDFs/Analysing_the_sustainable_construction_market_in_Poland_-_English.pdf)

- Risk mitigation: there is still a lot of uncertainty about how effectively sustainable investments operate on the market and whether they carry lower risks than conventional assets.

For more information see “Analysing the sustainable construction market in Poland”:  
[http://www.burohappold.com/fileadmin/uploads/bh/Documents/PDFs/Analysing\\_the\\_sustainable\\_construction\\_market\\_in\\_Poland\\_-\\_English.pdf](http://www.burohappold.com/fileadmin/uploads/bh/Documents/PDFs/Analysing_the_sustainable_construction_market_in_Poland_-_English.pdf)

## Appendix – the EEB project

The WBCSD initiated the cross-sector Energy Efficiency in Buildings (EEB) project in 2006 in response to climate and development challenges in the building sector. In the first phase the project identified the challenges and opportunities.

A Facts & Trends report in 2007 combined existing research, findings from the project’s hearings, workshops and forums, and breakthrough market research into stakeholder perceptions of sustainable buildings.

The project’s second milestone was the publication in 2009 of *Energy Efficiency in Buildings: Transforming the Market*. The report is based on a unique simulation model that analyzes the energy use of key building types in commercial and residential sectors. Using the model, EEB showed that urgent action to transform the building sector could cut energy use in buildings by 60% by 2050.

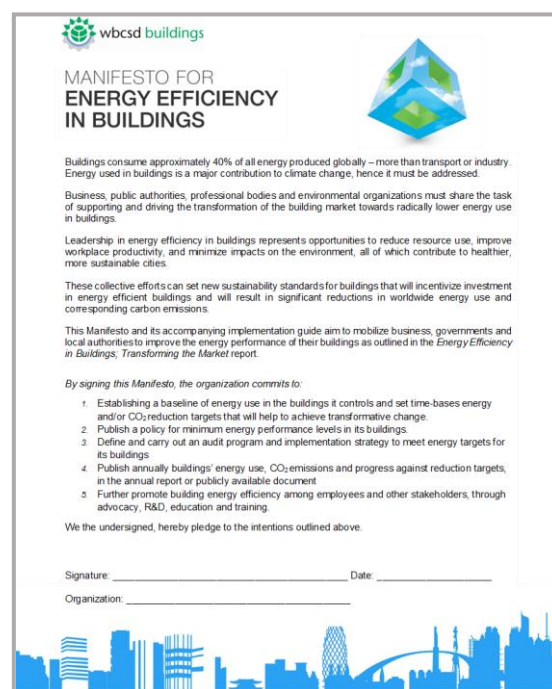
During this first phase the EEB project also created a roadmap setting out the key actions in the short and medium term for the seven groups that can contribute to meeting this challenge, from investors to government authorities.

See: <http://www.wbcd.org/work-program/sector-projects/buildings/eeb-first-phase.aspx>

### Manifesto

The WBCSD launched a Manifesto for Energy Efficiency in Buildings calling on its members to take voluntary action based on the EEB findings. It calls for five actions:

- *Create a baseline for the company's commercial buildings and set time-based energy and/or CO2 reduction targets in line with transformative change.*
- *Publish a company policy for minimum energy performance levels in the company's commercial buildings.*
- *Define and carry out the company's audit program and implementation strategy to meet energy targets for its commercial buildings.*
- *Publish buildings' energy use, CO2 emissions and progress against reduction targets annually in the company's corporate social responsibility or other report.*
- *To further promote building energy efficiency among suppliers, employees and other stakeholders through advocacy, marketing activity, R&D, education and training.*



In 2014, 142 member companies, non-member companies and regional network partners had signed the Manifesto. For more information on the WBCSD Manifesto for Energy Efficiency in Buildings, please see: <http://www.wbcd.org/work-program/sector-projects/buildings/eeb-manifesto.aspx>. See also the “EEB Manifesto magazine - An insight from companies” which describes the successes and challenges of 14 companies implementing the EEB Manifesto.

<http://www.wbcd.org/Pages/EDocument/EDocumentDetails.aspx?ID=16158&NoSearchContextKey=true>.

## EEB 2.0 Project Members active in the Poland EEB Laboratory



**Poland project leader**

**SKANSKA**

**Core group members**

**AGC**



**GDF SUEZ**



**Schneider  
Electric**

**SGS**

**SIEMENS**



**United  
Technologies**

**EEB 2.0 project members**

Lafarge (co-chair), United Technologies (co-chair), AGC, AkzoNobel, ArcelorMittal, GDF SUEZ, Lafarge, Schneider Electric, SGS, Siemens, Skanska

