



## Poland: Energy Efficiency and Renewable Sources

Proposal regarding the use of EU cohesion policy funds 2014-2020 for the improvement of energy efficiency in Poland

### Introduction

Poland is the biggest recipient of EU Cohesion Policy funds in the 2007-2013 period with an allocation of 67 billion euro. This position is an input to preparations for the new programming period 2014-2020. Poland is likely to receive a similarly large funding allocation under Cohesion Policy, however, priorities for funding are changing, with the transition to low-carbon economy becoming one of the thematic objectives receiving particular attention. Experts<sup>89</sup>, NGOs<sup>90</sup> and politicians agree that improving energy efficiency is the most beneficial method of reducing Poland's CO<sub>2</sub> emissions, contributing to creation of new jobs, better competitiveness of the economy and energy security. It is therefore essential to use effectively the limited public funds earmarked for the promotion of energy efficiency, including European funds.

This position is based on summary of an expert paper commissioned in the first half of 2012 by Polish Green Network and the Polish Climate Coalition, with input from CEE Bankwatch Network and written by experts of the Polish National Energy Conservation Agency.

### Current state: lessons learned and investment needs

#### Summary of main experiences in using EU funds 2007-2013 for promoting energy efficiency

The limited EU funds for improving energy efficiency in the 2007-2013 period (only 0.7% of the entire Cohesion Policy allocation) were directed to both the private and public sectors, with a clear focus on the latter. Demand for the available funding was high, resulting in tough competitions between projects. The funds were disbursed:

- on national level, under Operational Programme Infrastructure and Environment (measure 9.1 highly efficient co-generation, measure 9.2 effective energy distribution and measure 9.3 thermo-modernisation of public utility buildings), as well as the Operational Programme Innovative Economy;
- on regional level via the 16 Regional Operational Programmes.

**Small renewable sources need to be supported as part of achieving high energy efficiency criteria in buildings. Apart from that, they also help create jobs in the country like these solar thermal collectors, made in Poland.**



Photo: Watt S.A.

<sup>89</sup> The Polish National Energy Conservation Agency

<sup>90</sup> Climate Coalition, an association of nongovernmental organisations, mainly environmental ones, engaged in climate protection activities. It consists of: Aeris Futuro Foundation, Client Earth Foundation, Polish Foundation for Energy Efficiency, Ecological Foundation "Green Action", Ecological Foundation "Arka", Foundation for Sustainable Development (FER), Foundation for Sustainable Development (FRZR), Institute for Sustainable Development, GAP Poland Foundation, Ecological-Cultural Association Gaia Club, Nature Conservation League, Polish Ecological Club - Lower Silesia, Upper Silesia, Mazovia, East Pomerania, Swietokrzyski, Eko Unia Association, Social Ecological Institute, Polish Green Network, Green Mazovia Association



Evaluations have shown that significant improvements could be made in the implementation system of EU funds for energy efficiency, addressing issues raised by beneficiaries which included:

- delays and changes in the timeline of announcing project competitions;
- short duration of the competitions from announcement until the deadline;
- exclusion of enterprises from thermo-modernisation projects;
- high minimum thresholds for grants;
- prolonged project assessment;
- unclear project selection criteria, particularly on regional level

A common problem for many local authorities in Poland is the excessive level of debt, preventing them from applying for EU funds, as it's necessary to provide at least 15% co-financing. A solution for this could be provision of loans e.g. for 5 years, which could be repaid from the savings in energy consumption in public buildings.

Another issue which could be improved in relation to experiences from the 2007-2013 period is enhancing the role of energy efficiency in project selection criteria for all investment and innovative projects, not only those directly aimed at promoting energy efficiency. Benchmarks should be established for different types of investments, allowing the projects bringing benefits in reduction of energy use to score higher in competitions. Otherwise, there is a risk of supporting projects failing to use the potential of improving energy efficiency.

JESSICA (Joint European Support for Sustainable Investment in City Areas) is a new scheme introduced in the 2007-2013 EU funds system, a common initiative of the European Commission, the European Investment Bank and the Council of Europe Development Bank. Revolving funds in the form of loans, guarantees and equity can be implemented on a voluntary basis in the framework of Cohesion Policy. In Poland, five regions have chosen to use JESSICA in their Regional Operational Programmes:

- Wielkopolskie (293.7 million PLN);
- Zachodniopomorskie (160 million PLN);
- Śląskie (617.8 million PLN);
- Mazowieckie (137 million PLN);
- Pomorskie (236 million PLN).

In those regions, JESSICA is implemented in the form of Urban Development Funds managed by banks. Only those investments which are included in local urban rehabilitation plans can benefit from the schemes. The detailed scope of eligible projects varies from region to region, but normally includes a wide variety of measures promoting energy efficiency (refurbishment of housing and public buildings, upgrades of district heating etc.) Nevertheless, it is clear that energy efficiency is not the main focus of JESSICA in Poland and only a limited variety of measures in this field can be financed using this financial mechanism in the 2007-2013 period.

Energy efficiency criteria required to be reached in the project in order to make it eligible for JESSICA funding are not ambitious, they are merely following current Polish building technical norms and do not require extra measures. Public funding through JESSICA thus does not lead to the best possible result regarding the energy performance of the retrofitted buildings.

It is necessary to ensure that JESSICA funding is linked to high energy efficiency requirements, bringing the buildings to near-zero energy standard. Recommendations on benchmarks benefiting projects with higher efficiency performance are valid here as well. Taking a closer look on guidelines for applicants, like in a Mazovia region<sup>91</sup> (JESSICA operates under regional Operational Programmes), we can see no requirements for effects to be delivered – just a list of types of investments to be financed. It is especially vital regarding the fact, that The European Court of Auditors has recently found out that the projects selected by Member State authorities for financing did not have rational objectives in terms of cost-effectiveness, i.e. cost per unit of energy saved.<sup>92</sup>

## **Main investment needs concerning improvement of energy efficiency according to strategic documents**

Improving energy efficiency is one of part of EU's climate and energy headline targets included in the Europe 2020 strategy. This is reflected in national strategic documents which constitute the basis for programming EU funds 2014-2020 in Poland.

91 <http://www.jessica.mazovia.pl/efektywnosc-energetyczna/nabor/>

92 <http://eca.europa.eu/portal/page/portal/pressroom/Presspacks/PresspackSR212012>



In particular, the following strategic documents relate to the need for improvement in energy efficiency:

- the long-term national development strategy until 2030;
- the medium-term national development strategy until 2020;
- the “Energy Security and Environment” integrated strategy;
- the National Reform Programme. Europe 2020;
- Poland’s Energy Policy until 2030.

All the above listed documents point at very similar priorities in terms of improving energy efficiency, including:

- implementation of integrated smart metering and development of smart electricity networks;
- modernisation of the distribution network aimed at reducing system disruptions and distribution system energy losses, allowing integration of new renewable energy sources;
- development of local hybrid energy systems;
- development of highly efficient cogeneration from biomass;
- development of ESCO (Energy Saving Company) services;
- thermo-modernisation of buildings and district heating networks;
- education programs concerning improvement of energy efficiency;
- support for R&D and innovation;
- introduction of the obligation of using energy performance certificates for flats and buildings;
- reduction of energy use in products and appliances, including setting minimum standards.

Apart from the above, a significant potential for improving energy efficiency and reducing energy use exists in the transport sector. These measures, which should become part of the transport program for EU funds include:

- purchase and/or upgrades of urban transport vehicles;
- construction of bicycle paths;
- construction of park&ride and bike&ride facilities;
- introduction and extension of urban transport connections;
- implementation of traffic management systems in cities;
- development of infrastructure for car-sharing systems;
- introduction of multi-modal transport systems reducing car freight traffic.

### **Other funds for improvement of energy efficiency**

Besides EU funds, a variety of mechanisms of supporting energy efficiency exists in Poland, directed to households, the public sector and the private sector, including SMEs.

The Thermo-modernisation and Renovation Fund for 2008-2016 channels national budget money for the energy efficient refurbishment of housing. The funds are disbursed in the form of premiums covering part of the loan obtained by a household to cover the investment costs. The annual budget is around 200 million PLN, however, it is not stable, e.g. in 2010 no public budget money has been transferred to the fund. This lack of predictability is in fact one of the major barriers in planning investments contributing to energy efficiency.

Other most important relevant schemes include:

- programs managed by the National Fund for Environmental Protection and Water Management: o aimed at improving energy management in public buildings (Green Investment Scheme) o aimed at upgrading heating networks (Green Investment Scheme) o aimed at improving energy efficiency in enterprises (both audits and investment projects); o supporting intelligent energy networks;
- an operational programme financed from the EEA and Norwegian Financial Mechanisms dedicated to energy efficiency and renewable energy, to be implemented between 2012 and 2017, with an allocation of 75 million PLN;
- the Polish Sustainable Energy Financing Facility (PoISEFF) of the European Bank for Reconstruction and development providing credit and leasing up to 1 million euro for SMEs;
- regional programs managed by Voivodship Funds for Environmental Protection and Water Management
- awareness raising campaigns financed by the National Fund for Environmental Protection and Water Management.

In addition, between 2013 and 2016 it will be possible to generate funds for investments in energy efficiency from the system of white certificates. However, the short period of its implementation and lack of certainty about its future can undermine the importance of this system for investors.

EU funds 2014-2020 should complement and extend the programs described above, contributing to achieving Poland’s reduction in energy use. It is particularly important to include those smaller beneficiaries who could not effectively use EU funds for thermo-modernisation so far (households and SMEs).



The potential for improving energy efficiency in industry should be addressed as well. EU funds can supplement national schemes by providing grants for energy audits or grants combined with preferential loans (loans should be prioritized, especially for medium size companies) for investments by enterprises which use under 50 000 MWh of energy annually (which could not benefit from the program offered by the National Fund).

EU funds should also play a demonstration role by promoting the most energy efficient technologies. One of such measures can be the deep thermo-modernisation of public buildings including technologies of heat recovery, high isolation parameters and installation of renewable sources on the buildings, as well as support for construction of passive buildings to be used for public purposes. Private passing buildings should be able to get the funding as well – but as public buildings serve the society sensu largo, they should be prioritized.

## **Implementation of EU funds in 2014-2020 – priorities, allocations, specific objectives, result and output indicators**

According to the Ministry of Economy, energy efficiency of the Polish economy is still around twice lower than the EU average and around 3 times lower than in most developed European countries<sup>93</sup>. Therefore, the field for EU funds intervention in relation to energy efficiency is very large, with the highest potential in the residential building and public building sectors. The most important strategic directions for action concerning improvement of energy efficiency are outlined below.

### **Thermo-modernisation of buildings**

Improving energy efficiency in residential buildings, as well as in public buildings, is hindered by the low credit score of target groups and the lack of available funding for any investment. This translates into limited opportunities to carry out thermo-modernisation by market forces and the unused potential of energy reduction in buildings. Thermo-modernisation is carried out as part of buildings' renovation and optimal solutions are not being applied – usually, the actions are limited to medium-level isolation of walls and sometimes roofs. Comprehensive thermo-modernisation can lead to a better utilization of the potential reduction of electricity and heat use in the building sector. It is essential that energy audits and the design phase could also be eligible for EU funding in the form of grants; in addition, for small beneficiaries it should be possible to carry out only a simplified audit. Estimated investment needs connected to improvement of energy efficiency in Polish buildings are 426 billion PLN. This amount concerns thermo-modernisation of buildings and their autonomous heating systems, including residential buildings, public buildings and buildings used by SMEs.

Current measures under the Thermo-modernisation Fund lead to an average of 30% reduction of energy use in buildings, while the potential reduction is normally higher. The consequence is “freezing” of the energy efficiency potential for many years, and even if it's used later, this two-stage approach is more expensive. Therefore it seems justified to finance deep thermo-modernisation (such as holistic building renovation approaches, that eliminate the need for costly central heating equipment, passive house design, extensive insulation and installation of heat recovery ventilation system<sup>94</sup>) in public, as well as private, buildings. Apart from the energy results, a synergy with information and promotion results can be achieved, allowing the new and tested solutions to be copied also by individual consumers. However, it is essential to monitor the real savings and widely inform the public visiting those buildings. It is also essential to build up a relevant know-how regarding deep retrofitting, possibly supported by EU funds, as lack of such knowledge and skills Poland contributes to ineffective increase of energy efficiency in Poland.

### **Nearly zero-energy buildings**

In addition, our proposal is to ensure that all buildings constructed from 2013 onwards with the support of public money (EU funds, National Fund for Environmental Protection and Water Management, National Health Fund etc.) are built according to the standard of nearly zero energy buildings. Such measures, similarly as deep thermo-modernisation, will be an important input into building the demonstration role of public administration in relation to improving energy efficiency.

93 <http://www.mg.gov.pl/node/8139>

94 Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme in Poland; Centre for Climate Change and Sustainable Energy Policy, Central European University, 2012, [http://www.europeanclimate.org/documents/raport\\_eng.pdf](http://www.europeanclimate.org/documents/raport_eng.pdf)



Sufficient funding should be made available in order to move newly constructed public buildings, social housing and housing in disadvantaged regions to nearly zero-energy standard. It is necessary to ensure that this funding is limited to support only the extra costs of effective efficiency measures. One of measures that could ensure proper construction of such buildings could be a designated priority axis.

### **Awareness raising actions**

Actions undertaken towards the reduction of electricity use in Poland are of special importance in view of the domination of electricity production from coal, with technologies of low efficiency and generating high CO<sub>2</sub> emissions. Improving the efficiency of electricity use in households, SMEs and public buildings should be one of the main directions of action. In this context the role of large, national information campaigns for more effective use of energy are crucial, allowing to use the potential of improving energy efficiency among the smallest energy users.

### **Support for ESCO companies**

The operation of ESCO companies is aimed at carrying out energy efficiency measures by private entities, following market rules. Their development leads to implementation of the cost-effective measures concerning reduction of energy use. According to the 2006/32/EC directive, member states have the obligation to promote those companies. Informing about ESCO activity is important especially given the big needs which these companies could address in Poland. However, the barrier to this solution is the low trust among enterprises, as well as the high cost of investment required from ESCOs.

A special fund should be considered allowing ESCOs to give preferential loans, which would allow implementation of the most cost-effective measures by the private sector. It will be in the interest of ESCOs to identify the most promising energy efficiency measures among both private entities and local authorities.

### **Upgrading networks and introduction of Smart Grid systems**

When programming funds for energy efficiency, upgrade of network infrastructure should be particularly supported – including reconstruction of the network to minimize losses, as well as development of intelligent energy networks and installing microsources of energy for energy consumers. The last measure, involving creation of a new group of small producers (prosumers) will help reduce network losses, especially on medium and low voltage sections of the network. However, this will require construction of infrastructure allowing integration of dispersed micro- and small sources. The upgrade should go beyond the needs related to the technical degradation of the network due to its long exploitation.

Outdated energy infrastructure is not only reason of high energy losses in Poland, but also an obstacle for further integration of decentralised renewable sources of energy. Cohesion and Structural funds should be provided for distribution networks upgrades with installations of smart grid elements allowing smart regulation of both supply and demand, creation of clusters of renewable sources or virtual power plants including micro-generation.

## **Proposal for investment priorities, specific objectives and measures to be financed under Cohesion Policy 2014-2020**

The priority directions identified above have been matched with investment priorities according to the menu provided in draft regulations concerning the European Regional Development Fund and Cohesion Fund for 2014-2020. Each investment priority has been divided into priority axes with a dedicated allocation and specific objectives. The selection of specific objectives has been justified in relation to the baseline situation and the identification of necessary measures in EU and national strategic documents. For each specific objective, result indicators have been proposed, taking into account relevant annexes to the above-mentioned draft regulations. The results of this analysis are displayed in following Investment priorities table.

The preliminary proposals for allocation of funds to various priority axes have been made on the basis of estimated investment costs of the elements of each specific objective. The administrative costs of disbursing the allocation and reserves for the fluctuations of the exchange rate have not been taken into account. An exchange rate of 4.2 PLN/EUR has been used in the calculations.



## Investment priorities with proposed allocations of EU funds by specific objective

Investment priority	Proposed EU funds allocation [EUR]	Specific objective	Result indicator
Promoting energy efficiency and the use of renewable energy in SMEs	Priority axis 1 580 mln €	Objective 1: Reduction of demand for energy in SMEs	Reduction of energy use [kWh/year]
	Priority axis 2 480 mln €	Objective 2: Reduction of primary energy use in energy production processes in SMEs	Reduction of primary energy use [kWh/year]
Promoting energy efficiency in public infrastructure	Priority axis 1 560 mln €	Objective 1: Reduction of demand for energy in public infrastructure	Reduction of energy use [kWh/year]
	Priority axis 2 140 mln €	Objective 2: Reduction of primary energy use in energy production processes in public infrastructure	Reduction of primary energy use [kWh/year]
Development of intelligent low-voltage distribution systems	Priority axis 1 240 mln €	Objective 1: Reduction of network losses	Reduction of energy use [kWh/year]
Promoting low-carbon strategies for urban areas	Priority axis 1 3.9-8.4 bln €	Objective 1: Reduction of energy use in urban areas	Reduction of energy use [kWh/year]
	Priority axis 2 620 mln €	Objective 2: Improvement in air quality through reduction of emissions	Estimated decrease in GHG emissions [tonnes of CO <sub>2</sub> equivalents]

The next step was to assign measures to be financed for each specific objective. The selection has been made taking into account the draft Common Strategic Framework.

For all measures, main groups of beneficiaries and the foreseen forms of support have been indicated. In addition, output indicators have been assigned to each measure, including the target value for 2022.

Regarding the mechanisms of support, the following principle is proposed: grants should be directed to measures such as energy audits, awareness raising campaigns or investments undertaken by local authorities. For the remaining beneficiaries and measures a combination of grants with preferential loans should be preferred. This will contribute to carrying out the more economically effective actions and will also allow returning the funds from preferential loans to a revolving fund, which can support investments in the following years, significantly extending the impact of EU funds on improvement of energy efficiency in Poland.

## Measures for each specific objective with assigned output indicators, target values

Objective	Measure	Output indicator	Value in 2022	Form of support
Objective 1: Reduction of demand for energy in SMEs	Measure 1: Energy audits	Number of enterprises with an energy audit carried out	2000	Grants
	Measure 2: Modernisation measures improving energy efficiency in enterprises, including modernisation of industrial processes			
	Measure 3: Deep thermo-modernisation of buildings in SMEs, beyond cost-effective measures			
	Measure 4: Campaigns raising awareness about energy efficiency			
	Measure 5: Support for creation of ESCO companies			



Objective	Measure	Output indicator	Value in 2022	Form of support
Objective 2: Reduction of primary energy use in energy production processes in SMEs	Measure 1: Audits of heat and energy production installations in SMEs	Number of enterprises with an energy audit of energy production carried out	200	Loans
	Measure 2: Modernisation measures improving energy efficiency in energy production in SMEs, including wider use of CHP based on RES	Number of enterprises with modernisation measures carried out	200	Grants
Objective 1: Reduction of demand for energy in public infrastructure	Measure 1: Demonstration projects concerning passive public buildings	Number of public buildings	50	Grants
	Measure 2: Comprehensive thermo-modernisation of public buildings, beyond cost-effective levels	Number of retrofitted public buildings	2000	Grants
	Measure 3: Information campaigns raising awareness about energy efficiency among public buildings users	Number of campaigns	3	Grants
Objective 2: Reduction of primary energy use in energy production processes in public infrastructure	Measure 1: Modernisation measures improving energy efficiency of energy production and installation of renewable sources in public buildings	Number of modernized installations	1000	Grants
Objective 1: Reduction of network losses	Measure 1: Development of intelligent electricity networks (smart grid) – installation of appliances, installation of network parameter analyzers	Number of projects	70	Grants and preferential loans
	Measure 2: Reconstruction of medium and low voltage networks, new connections of RES to those grids and/or inclusion of smart grid elements.	Number of kilometers of the upgraded network	500	Grants and preferential loans
Objective 1: Reduction of energy use in urban areas	Measure 1: Comprehensive thermo-modernisation of buildings beyond cost-effective levels and installation of renewable sources in buildings	Number of retrofitted buildings	320.000	Grants and preferential loans
	Measure 2: Modernisation of street lighting	Number of projects	200	Grants and preferential loans
	Measure 3: Information campaigns for households raising awareness about energy efficiency	Number of campaigns	6	Grants
Objective 2: Improvement in air quality through reduction of emissions	Measure 1: Development of micro- and small units of combined heat and power production from RES	Number of CHP installations	1000	Grants
	Measure 2: Modernisation of local heating plants and CHP plants improving efficiency of energy production and including conversion to RES, construction of energy reservoirs and installation of additional RES capacities	Number of modernized heat plants	150	Grants and preferential loans



Objective	Measure	Output indicator	Value in 2022	Form of support
Objective 2: Improvement in air quality through reduction of emissions	Measure 3: Development and integration of strategies for CO <sub>2</sub> emission reduction, as well as plans for sustainable energy use in urban areas	Number of strategies	50	Grants
	Measure 4: Increasing energy efficiency of heating networks and modernisation of heating nodes	Length of modernized heating network in kilometers	300 km	Grants and preferential loans

## Ex-ante conditionalities

In line with Article 17 and Annex IV of the draft EU general regulation for CSF funds 2014-2020, member states will need to ensure provision of certain basic conditions ensuring the effective use of European funds. For energy efficiency, these conditions relate to implementation of relevant EU legislation. The table below outlines the necessary steps to be taken in order to fulfill those ex-ante conditionalities.

### Ex-ante conditionalities with proposed actions and timeframe

Thematic objective	Ex-ante conditionalities	Criteria	Main actions and timeframe for fulfillment of ex-ante conditionalities
4. Supporting the shift towards a low-carbon economy in all sectors (referred to in Article 9(4))	4.1. Energy efficiency Transposition into national law of Directive (2010/31/EU) of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings in accordance with Article 28 of the Directive	Implementation of minimum requirements related to the energy performance of buildings required in line with Article 3, Article 4 and Article 5 of Directive 2010/31/EU	There exists a regulation of the Minister of infrastructure on the technical conditions for buildings and their location. The regulation should be updated with new minimum requirements regarding the energy performance of buildings (i.e. higher standards in line with the directive 2012/31/EU). – Foreseen entry into force of the updated regulation - 2013
		Adoption of measures necessary to establish a system of certification of the energy performance of buildings in accordance with Article 11 of Directive 2010/31/EU;	An act on energy certification of buildings should be adopted (this form of implementation is a preliminary decision of the Ministry responsible for buildings) – Foreseen entry into force of the act: beginning of 2013
		Realisation of the required rate of renovation of public buildings	According to the directive on energy efficiency, 3% of the total floor area in public buildings would undergo renovation annually in the 2014-2020 period
		Final customers are provided with individual meters	Exchange of electricity meters for intelligent meters by energy retail companies – Deadline for implementation: 2016





Thematic objective	Ex-ante conditionalities	Criteria	Main actions and timeframe for fulfillment of ex-ante conditionalities
4. Supporting the shift towards a low-carbon economy in all sectors (referred to in Article 9(4))	Transposition into national law of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services	Introduction of support mechanisms for energy efficiency in line with directive 2006/32/EC	Entry into force of regulations implementing the act on energy efficiency of 15 April 2011  - Deadline for implementation: until the end of 2012
	Transposition into national law of Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful demand in the internal energy market and amending Directive 92/42/EEC	Efficiency in heating and cooling is promoted according to Directive 2004/8/EC.	Prolongation for at least 10 years of the yellow certificate mechanism included in the relevant regulation; foreseen time of implementation: end of 2012.  The above can be substituted by an equivalent solution of introducing a feed-in tariff mechanism supporting cogeneration.
	Transposition into national law of the 2009/28/WE Renewables Directive	Renewable energy preferential access to the grid  Promotion of dispersed renewables and micro-generation	Expected in mid-2013.

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