

Financing Baseline

Country Report: Poland

Project acronym:	E-FIX
Project full title:	DEVELOPING AND TRANSFERRING INNOVATIVE ENERGY FINANCING MIX IN ORDER TO ACTIVATE PRIVATE SECTOR INVESTMENTS IN SUSTAINABLE ENERGY PROJECTS
Grant agreement no.:	785081
Doc. Ref.:	E-FIX WP1-1 – Financial Sector Overview
Responsible:	Mazovian Energy Agency Ltd
Author(s):	
Date of issue:	July 2018
Status:	Final
Security:	Public



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1. INTRODUCTION

This report is part of the baseline analysis of the E-FIX project. The E-FIX project aims at triggering private finance for sustainable energy projects using innovative financing mechanisms. In the target countries of Central and South-Eastern Europe as well as the countries of the Caucasus region there is considerable idle potential for sustainable energy products and services. Both potential energy project developers and financiers face diverse financing barriers. An innovative energy financing mix is needed in order to activate new source of finance and facilitate an increased implementation of sustainable energy projects. Accordingly, the objective of the E-FIX project is to facilitate the take up and intensified usage of innovative energy financing mechanisms in the energy sector.

In order to accurately assess the idle potential of both financing sources and energy project implementation in each of the focus countries the E-FIX experts are conducting a baseline study including Gap Analysis. The present report presents one part of the baseline analysis focusing on the financial sector for Poland.

2. FINANCIAL SECTOR OVERVIEW

2.1. BANKING SECTOR

In general banking sector in Poland has a relatively similar structure comparing to other mid European countries. Apart from Polish banks, many international financial institutions are present on the Polish financial market.

General overview

The financial system in Poland consists of Banks, Cooperative savings and credit unions, insurance companies, investment funds, open pension funds and brokerage entities. The banking sector is the largest part of the financial system in Poland - assets of the banking sector (1.8 trillion PLN at the end of 2017) are over two-thirds of the financial system assets.

The ratio of banking sector assets to GDP in Poland remained stable and at the end of the third quarter of 2017 amounted to 90.4%. It was more than three times lower than in the euro area (278.9%). The level of banking in Poland (in terms of people over 15 years of age, holding a bank account in a financial institution) remained below the average for the euro zone countries and was about 78% compared to about 95% in the euro zone countries.

At the end of 2017, there were 616 banks operating in Poland, including 35 commercial ones, 553 cooperative banks and 28 branches of credit institutions. The stable, low level of concentration of the banking sector was maintained, measured by the share of the three largest banks in assets and amounted to 34.5% while in almost all Central European markets this ratio is above 40%. In some countries even more than 50% (e.g. Czech Republic, Slovakia, Croatia).

In 2017, there was a significant change in the ownership structure of the banking sector. In connection with the takeover by PZU SA and PFR SA of control over Pekao SA, for the first time since 1999, the share of domestic investors holding the banking sector's assets was higher than the share of foreign investors. At the end of the third quarter of 2017, it amounted to 54.5% (43.4% at the end of 2016).

In 2017, banks operating in Poland functioned in favorable macroeconomic conditions. The continuing economic recovery created favorable conditions for the stable development of business operations. The good economic situation resulted mainly from the dynamically growing private consumption (introduction of the "500+" social subvention program), an increase in exports (10.2% more than in 2016) and an increasingly stronger investment revival (in the fourth quarter of 2016, investment expenditures decreased by 5.8% y/y. The sharp investment slowdown was mainly caused by the reduction of EU funds spending after the end of the EU financial perspective for the years 2007-2013 – in 2017, investments in Poland increased by 5.4% and economists believe that the next year will be even more favorable). An important factor affecting banks' operations in Poland was the environment of low interest rates, which had a negative impact on the level of the interest margin, with a positive impact on the quality of the loan portfolio. Profitability of the banking sector equity (ROE) in 2017 decreased to 7.1% (7.8% in 2016) while remaining under the influence of high regulatory burdens (e.g. taxation of banks assets).

Net profit and profitability of banking sector

PLN 13.6 billion Net profit of the banking sector in 2017	-2.3% y/y Rate of change in net profit of banking sector in 2017	+7.1% Return on equity of the banking sector in 2017
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Source: GUS

In 2017, the financial and business results of the banking sector were supported, among others, by high level of economic growth (4.6% according to GUS), favorable financial situation of households (low unemployment level) and good corporate sentiment. The banks continued to function in the environment of low interest rates.

Loans and deposits

In 2017, there was a revival in lending (due to subsidies for mortgage loans available in the governmental "Mieszkanie dla Młodych" program (which ended in 2018), continuing low level of interest rates stimulating both demand for loans and housing, as well as an increase in wages and the resulting increase in the availability of houses), however, due to the strengthening of the Polish zloty, it was not visible in the annual growth rate of total loans, which slowed to 3.7% in 2017 (4.9% in 2016).

The growth rate of corporate loans accelerated and amounted to 6.2% y/y vs. 5.4% in 2016 (excluding exchange rate effect).

Volume of the portfolio of total housing loans decreased y/y (-1.5%), although the growth rate of housing loans in PLN in 2017 decreased by 0,1 p.p. (10.4% in 2017 against 10.5% in 2016). The number of consumer at the end of 2017 grew at a similar pace to that reached in 2016 (7.4% vs. 7.3%, respectively).

Lower attractiveness of bank deposits resulting, among others, from the record low level of basic interest rates and regulatory burdens of the banking sector influenced the gradual deceleration of rate of deposits in 2017 (to 4.4% y/y vs. 9.5% y/y in 2016).

Searching for more profitable forms of investing by households affected the decline of time deposits in 2017 (-6.6% y/y vs. + 0.9% y/y in 2016) and a slowdown in the growth rate of current deposits to 12.6% y/y (18.5% y/y in 2016).

Annual growth rate of corporate deposits significantly slowed down (3.4% compared to 8.2% in 2016).

At the same time, there was an increase in the net inflow of funds to the investment fund market and a high share of real estate purchases for cash. In the fourth quarter of 2017 as many as 74% of new apartments in major cities were bought by cash. This means a return to the record high level from the fourth quarter of 2016. Last year, balance of household term deposits shrunk by almost PLN 22 billion. Many people with large savings bought apartments for rent, which bring them much higher profits than interest they can get at the bank. Hence the high share of cash purchases.

In 2017, the liquidity situation of the banking sector remained good. The loans/deposits ratio was below 100% (98.1% in 2017, -0.6 pp. y/y). Despite the slowdown in deposit growth, a reduction in the ratio of loans/deposits was possible thanks to the strengthening of the Polish zloty.

Forecast for 2018

External environment of Polish economy should continue to support the development of banks. The European political cycle in 2018 should be calmer than in 2017.

The source of uncertainty remains growing imbalances in the asset markets. Economic recovery initiated in Europe at the end of 2016 should be continued and, as in the second part of 2017, the internal demand will play a greater role in the structure of GDP growth, which indicates the entering of the business cycle into the mature phase of expansion. A negative factor may be the increase in commodity prices (and total inflation), limiting the real purchasing power of consumers and increasing the cost pressure on enterprises.

Despite the continuation of strong economic growth and persistence of inflation close to the inflation target, many economists believe that the Monetary Policy Council will most likely leave the NBP interest rates unchanged throughout 2018. The interest rate stabilization is supported by the MPC change of reaction function (with a higher than historically wage of GDP growth rate and perception of current level of interest rates as neutral), appreciation of the zloty, maintaining a stable current account surplus, relatively stable situation in the housing market and no clear symptoms of a stronger wage pressure on inflation.

Rising regulatory requirements (higher capital requirements, introduction of IFRS 9 regarding how entity should classify and measure financial assets, liabilities, and some contracts to buy or sell non-financial items) combined with a reduction in interest rates on the NBP mandatory reserve account means that despite the ongoing economic expansion supported by low interest rates (and growing demand for loans), the dynamics of loans in the entire banking sector will remain moderate. Despite the strong decline in the potential for extending lending to the entire sector, high demand may induce individual banks (with higher level of own funds or issuing subordinated debt) to provide loans more actively. The high dynamics of the wage funds, as well as the continuing strong growth in sales (domestic and export) should contribute to a slight acceleration in the dynamics of deposits. The scenario of stable NBP interest rates means that the outflow of household term deposits and an increase in interest on the part of households towards alternative forms of saving, including shares, investment fund units and real estate, will most likely continue to be observed.

2.2. MICROFINANCE SECTOR

In the countries of the European Union, the basic financial instrument in microfinance is microcredit (micro-loan). In the European Union, the micro-credit has been defined as a loan with a value of less than 25 000 EUR, addressed primarily to entrepreneurs (in particular micro), social entities and individuals starting their business activity.

In Poland, the microfinance sector has not been officially identified and the definition of this sector and the institutions / entities included in it have not been defined and adopted. There is also no national strategy for the development of this sector of financial services and the potential of this sector, as well as the lack of verified, general and individual statistical data concerning the results of their activities, hence the difficulty in clearly assessing the effects of these entities, defining them role in the financial services market and participation in shaping economic processes in local and regional terms.

2.3. LEASING SECTOR

General overview

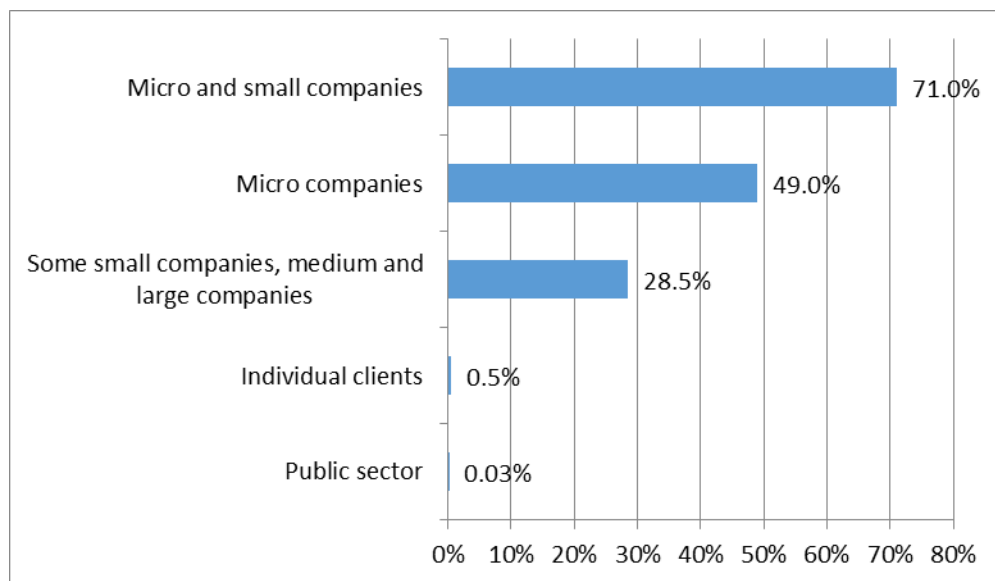
In 2017 leasing companies financed investments of Polish companies with a total value of PLN 67.8 billion. Dynamics of the leasing industry at the end of 2017 amounted to 15.7%.

According to the European Commission's research, the intention to take advantage of leasing is declared by 60% owners of companies from the SME sector in Poland. This is the third highest result in Europe, with the European average at 48%.

Sources of financing for SMEs in Poland, clients of leasing companies

According to the results of the SAFE survey, published at the end of 2017 by the European Commission, leasing is the most important source of investment financing for 60% Polish entrepreneurs from the sector of small and medium enterprises. Estimates of the Polish Leasing Association show, that the largest group, ca. 71% is made up of clients with a turnover of up to PLN 20 million. This group includes micro and small companies. 28.5% are customers with a turnover of over PLN 20 million, and individual clients – 0.5%. Public sector financing remains marginal.

Client structure of leasing companies



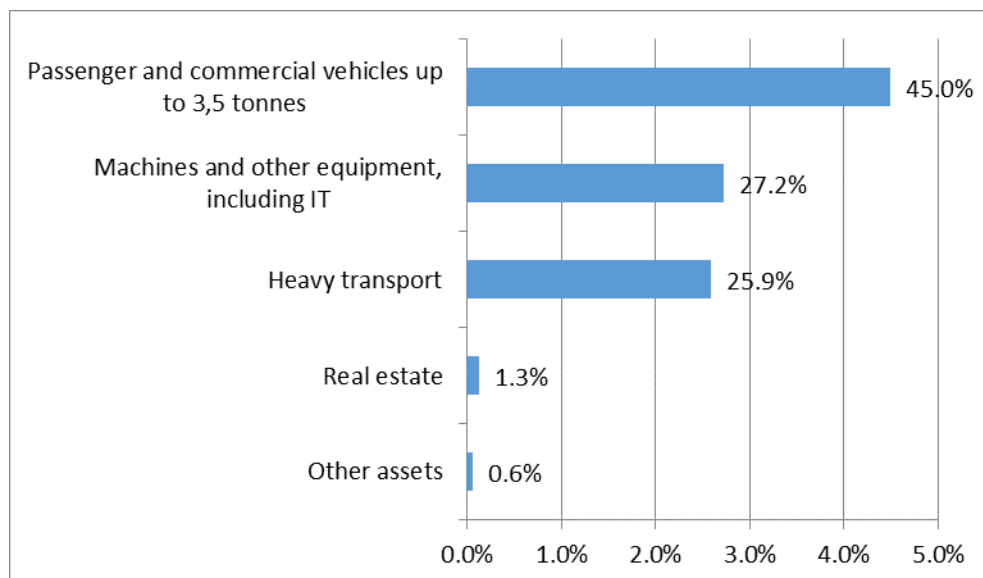
Source: ZPL

At the end of 2017 the total value of the active leasing portfolio in the amount of PLN 119.3 billion was comparable to the value of the balance of investment loans granted to companies by banks (PLN 127.0 billion).

Market structure and results in terms of products

Customers of leasing companies, last year, most often financed passenger and commercial vehicles up to 3.5 tonnes (45.0% share in the market structure), machines and other equipment, including IT (27.2% share) and heavy means of transport (25.9% share). Other transactions concerned real estate (1.3%) and financing of other assets (0.6%).

Financing structure of leasing objects



Source: ZPL

Largest activity in the leasing market was observed in three main categories of the market: passenger and LCV vehicles up to 3.5t (+ 21.9% y / y growth), machinery and other equipment, including IT (+ 20.4% yoy dynamics) and real estate (+ 26.5% y / y growth).

Forecast for 2018

The dynamics of the leasing market in 2018 at the level of 15.1 percent will be consistent with the forecasted increase in private investment and the scenario of economic development in Poland. The structure of economic growth and the acceleration of the use of EU funds from the financial perspective for 2014-2020 make financing of machines main driving force behind the development of the entire leasing industry. Market development will also be based on: light vehicles (due to strong domestic demand and favorable fiscal provisions) and financing of heavy vehicles (growing volume of transport and further economic growth in the euro zone).

3. ENERGY EFFICIENCY/RENEWABLE ENERGY FINANCE ACTIVITIES

Introduction

Mazovia Energy Agency Ltd. (MAE) – was established in 2009 by local government of Mazovian Region in Poland as a non-profit firm to support public local governments structures and public structures in modernization of Regional energy infrastructure to meet EU energy low emission policy. Initial charter activity of MAE was supported by EU grant.

In the period of 9 years, MAE completed numerous international projects financed from EU funds as well as from Polish governmental and local Mazovian financing programmes devoted to low emission and sustainable energy economy at Mazovian territory for public institutions.

Cooperation with international as well as Polish research and scientific institutions built up MAE knowledge, good practice know-how and allowed to understand necessity for sustainable and closed cycle economy implementation in Mazovian region. Within 10 years' time by 2014 Mazovian energy demand and consumption has increased by 25%.

At the turn of the 2014/2015 MAE took part in the review and update of low emission Mazovian programmes for the next 4 years in prospect to year 2020, when the results of EUROPE 2020 “Energy and Environment” programme would be evaluated.

The actual program for Mazovian Region “Mazovian Low Emission Energy Economy” consists of 4 parts and targets:

- Lower emission of CO₂ by 20%;
- Lower energy demand and consumption by 20%;
- Increase of Renewable Energy Sources in energy balance by 15%;
- Increase of Renewable Fuels in transportation balance up to 10%.

Due to the character of energy consumers, programs had been developed for 3 main groups of consumers:

- Cities;
- Rural Areas;
- Industry.

At the moment chances for achieving targets specified for 2020 are rather doubtful, so it is necessary to review and modify programs in order to minimize the gaps.

MAE range of activity

The main competences of MAE can be specified as listed below:

- improvement of energy efficiency used in buildings and buildings infrastructure as well as in energy generation and distribution;
- effective application of RES in buildings and building complexes – district heating as well as in industry and agriculture;
- promotion of low emission fuels in energy generation as well as in highly efficient cogeneration combined with chilling – application of heat pumps;

and recently:

- use of wastes for energy generation (biomass, biogas);
- energy auditing, an early design engineering, development of feasibility studies, project financing and contracting, documentation development for thermo-modernization of buildings and building districts including district heating;
- low temperature district heating and close loop cycle energy management.

MAE with cluster partners first of all focus on EPC (mainly EE and RES projects), taking advantage of governmental regional and countrywide financing lines, also applying soft loans and credit lines from Polish banks.

Recently MAE directs its attention into ESCO mode of operation.

3.1. INTERNATIONAL AND LOCAL FINANCE INSTITUTIONS WORKING IN EE SECTOR

Financing energy investments by Banks in Poland

More and more banks and financial institutions refuse to support energy companies with a large share of coal in the mix. The ING Group has decided to accelerate the reduction of coal financing and intends to reduce its involvement in this sector "almost to zero" by 2025. This tight coal financing policy is part of the transition towards a low-carbon economy. ING is one of several groups that cease financing coal - Societe Generale and Crédit Agricole groups (present on the Polish market) have also decided to reduce their presence in those type of investments.

Despite the above information about banks reversal from conservative projects, polish banks and other financial institutions still plan to co-finance energy investments. Polish Development Fund have already financed energy projects in Poland, and earlier this year announced that it is ready to engage financially in the Ostrołęka C project, and could co-finance the construction of a nuclear power plant. In March 2018, Tauron signed an investment agreement with the Investment Funds managed by the Polish Development Fund and a shareholders' agreement specifying the terms of engagement in the construction of the 910 MW power unit in Jaworzno. PFR will invest in construction up to PLN 880 million.

The banking sector has gradually developed its involvement in the RES market, responding to the investors' demand and encouragement from former and present Polish governments, indicating the need to build infrastructure for renewable energy in Poland, among others due to the necessity to fulfill international obligations of the country in the scope of CO² reduction. In 2017, total amount of loans granted by banks for financing renewable energy projects amounted to PLN 11 billion. According to the data of the Polish Financial Supervision Authority, loans financing wind projects amounted to approximately PLN 6 billion at the end of 2016.

Representatives of the banking community assess the prospects for further development of this market in Poland as being subject to relatively high risk. The main problem is, above all, the huge instability of the national regulatory environment, especially the legal one.

Examples are especially:

- destabilization of the green certificates market;
- modification of the calculation method of the so-called substitution fee without introducing a minimum level (only the maximum level was introduced), which led to a negative stability change in the economic conditions for the continuation of long-term renewable energy projects;
- the ease with which the energy companies controlled by the State Treasury are trying to completely withdraw from the execution of the long-term CPA and PPA agreements that were the basis for financing the RES projects in the project finance formula.

All of the above factors caused either the lack of interest of banks in financing investments in renewable energy sources or a significant limitation of accessibility and raising the prices of their financing. As a result, the problems with access to external financing are also noted by investors seeking EU funds. The financial and timely feasibility of these projects may be questionable.

Bankers stress the need for the Polish state to rebuild confidence among investors and financial institutions. Lack of this confidence will cause reluctance to finance not only the RES sector, but also other projects exposed to regulatory risk.

Bankers also emphasize the need to undertake information and education activities in the public space on the economics of renewable energy sources, including the role of the banking system. Attention was drawn to appearing of unreliable or misrepresented information about banks participation in the development of renewable energy in Poland.

BOŚ Bank

Bank Ochrony Środowiska S.A. is a Polish bank whose majority shareholder is the National Fund for Environmental Protection and Water Management. The Bank specializes in supporting projects and activities for environmental protection.

BOŚ offers a wide range of banking products and services:

- investment and revolving financing;
- supplementing the offer of NFOŚiGW and WFOŚiGW;
- European Offer - a package for companies interested in EU subsidies;
- investment advisory;
- leasing;
- preferential financing - implementation of projects that reduce the heat demand for heating the building or water, reducing primary energy losses in the local heat source and other investments aimed at reducing the negative impact on the environment.

Examples of preferential financing provided by BOŚ Bank in association with international financing institutions:

- **Bank credit in cooperation with KfW Bankengruppe** - the objects of the loan are pro-ecological investments and the loan period is 4-10 years with a maximum amount of up to 250 000 euro. The grace period for loan repayment is up to 2 years. Debt service is reduced in relation to the average market values: preparatory commission (1%), own contribution (15%), margin (by 0.3 pp). The recipients of the loan are micro, small and medium enterprises;
- **Credit from the CEB (Council of Europe Development Bank) line** - the loan is granted for a period of 4 years, with the loan amount not exceeding 50% of the investment costs. The subjects of the loan are investments related to the development and maintenance of infrastructure and environmental protection. The grace period is up to 2 years, in addition, the preparatory commission has been reduced (at least 0.5%). The loan is intended for Local Government Units and municipal companies;
- **EBI Climate Action investment credit** - a credit from the European Investment Bank for financing the Energy Efficiency and RES area), which is on the bank's offer since the third quarter of 2017. The bank grants this type of financing for a maximum of 10 years and up to 75 million euros.
- **JESSICA – Joint European Support for Sustainable Investment in City Areas** – organised by European Commission and EIB initiative operated by Polish bank - BGK as a revolving fund to finance for up to 20 years solid investments in Polish revitalised cities. Repayment reduction up to 80% as well as one year vacations for justified reasons are possible;
- **NFOŚ** worked out from national funds a new “clean air” program for owners and co-owners of single family houses in order to support their activity in improving energy efficiency and lowering dust emission of their households. The program will be in operation for a period of 10 years till the end of 2029 and financed out of national funds in the total amount of 103 billion PZL. Also thermo-modernisation of houses as well as some RES and heat recuperation installation can be supported out of the program.

Leasing of Investment in Energy Efficiency and RES

PolSEFF was the first program among all SEFF programs implemented by the European Bank for Reconstruction and Development in other countries, which enabled investment financing through leasing.

This form of financing turned out to be the most popular among Polish entrepreneurs. As much as 70% of all investment projects carried out under PolSEFF were financed in the form of leasing.

Basic causes explaining this result can be:

- leasing has become a natural choice of entrepreneurs to finance the purchase of materials and equipment from the LEME list (List of Eligible Materials and Equipment);
- simplified procedures and a very short time for the decision to grant a lease from the moment an entrepreneur applies for financing;
- categories of materials and devices registered on the LEME list were co-created with leasing institutions that were aware of the needs of small and medium-sized enterprises.

Leasing also proved to be the optimal form of financing the purchase of products registered on the LEME list (preferred by suppliers who, while promoting products covered by the PoISEFF program, also promoted the entire program).

3.2. EPCC AND ESCO MARKET IN POLAND

EPC

The term of **EPC – Energy Performance Contracting** became known in the middle of 1990 decade and was introduced to the market by international American and later on by European firms. The development of these types of contracting services to the Polish market was done very carefully with thorough full support provided by international banking institutions and international engineering firms. The first implementations were done in district heating and chemical industry. Later on this type of contracting has been rather scarcely applied due to relatively high implementation risks and low energy prices from coal fired energy generation installations.

The issue of EPC came back at the beginning of 2007 after joining EU by East and Mid European Countries, when the first 7-year period of EU energy efficiency and renewable & low emission programs financially supported from EU had been initiated. At the beginning they were mainly financed from abroad.

EPC Terminology

The terms of EPC may have in Poland double meaning:

EPC⁽¹⁾ – Engineering, Procurement & Construction contracting, defines total contractor responsibility for project execution – in this document to avoid confusion we will use the term of EPCC;

EPC⁽²⁾ – Energy Performance Contracting defines the purpose and goals of modernization contracting, which mostly calls for EPCC type of contracting responsibility range, in this case further down we will continue to apply the term of EPC;

EPCC may be applicable for both types of clients: - public as well as private. Total scope of responsibility for contract execution (engineering, procurement & construction) is assigned to the contractor except an early design development stage which specifies investment program, feasibility study, contracting conditions and financing – the stage of tender documentation development.

Energy Performance Contracting aims mainly for energy economy improvement by lowering energy demand and consumption in buildings, city building districts and industrial installation. This type of contracting is generally applicable in modernization processes of:

- building envelopes by improving their thermal insulation;
- lowering energy distribution losses in buildings and building districts;
- application of efficient combined heat and power energy generation in building districts and industrial complexes.

These mentioned above modernization processes also improve operational economy of property, leading to financial gains.

Recently investors/owners are forced to lower CO₂ emission in energy generation processes which leads to application of Renewable Energy Sources – RES and low emission fuels in energy generation as e.g. NG – natural gas in energy cogeneration (gas & heat) processes. Usage of RES is rewarded with color certificates – bonds (green, yellow, red etc.) to cover additional investment costs.

Public clients are usually unable to develop necessary for EPC documentation which specifies energy performance targets and project technical vision, feasibility study, financing and contract documentation – so called the early design stage documentation. Usually they call for support to external auditing firms which as an early design stage contractor support the client in modernization processes.

Public-Private Partnership is a venture organised to perform difficult just for public organisation on its own complex projects due to technical (lack of expertise), financial (lack of financial resources – third party financing - TPF) or formal reasons. PPP is usually performed under long time agreement – contract of which target is to modernise public infrastructure e.g.: EPC of public property infrastructure.

For public institutions as kindergartens, schools, universities and hospitals or local governments buildings it would be difficult to collect funds for modernization of their premises as well as to receive loans for improving energy performance of their premises, so an idea of financing modernizations out of energy savings had been developed in USA and spread out in Europe.

Public-Private Partnership also defines the type of contracting relation between public property owner and private contractor which rewards himself out of operational savings after modernization. The contractor that undertakes this type of activity is called an ESCO. Unfortunately this term in Poland has double meaning.

ESCO⁽¹⁾ – Energy Saving Company, defines the type of the contractor which performs EPC rewarding himself out of energy savings in demand and consumption:

and later on the more complex one:

ESCO⁽²⁾ – Energy Service Company which performs the contracting responsibility as the one above and in addition takes care about energy operational demand, consumption and in addition, RES investments, energy supply safety and financing (TPF) being rewarded out of energy and media savings, RES bonds as well as energy and media seasonality management.

In ESCO mode contractors finance projects execution out of their own funds or out of banking loans usually not more than up to 80%. In this case, banks usually require good references and proven history of ESCO project execution from contractors.

There are several modes of ESCO contracting modes, e.g.:

- **BOO** (Build - Operate - Own);
- **BOT** (Build - Operate - Transfer);
- **BOOT** (Build - Own - Operate - Transfer).

In general there are 3 types of EPC rewarding:

- payment after fulfilment of EP conditions;
- first out payment initiated right from savings appearance in full amount to shorten the period of payment;
- shared savings payment between owner and the contractor according to the contract agreement.

General remark: it's important to keep right relation between: return time from investment, warranty period and life cycle of delivered products.

EPC Early Design Phase

In Energy Performance Contracting the phase of the Early Design Engineering plays a decisive role. It consists of several engineering activities to be performed by experienced engineering firms. Failure at this phase may lead to serious consequences and it is vital in EPC modernization contracting (which should

cover buildings, buildings technical installations and in particular energy distribution and generation as well as energy installation management). The early design engineering phase should include:

- building and installation inventory and exploitation characteristics;
- energy performance auditing;
- technical concepts of improvements;
- feasibility studies with life cycle analysis of life cycle concepts and project financing concept;
- early design modernisation engineering concept;
- project financing;
- contracting documentation proposal.

For large scale EPCC should be performed according to EPCC procedures and consists of 6 stages:

- financing institutions selection including usually an Investment Fund and Banks if necessary;
- preliminary offers collection, analysis and contracting condition adjustments;
- final offers collection and contractor selection;
- modernisation part of contract execution with commissioning;
- exploitation in warranty period;
- contract completion.

EPC financing

Depending on the project size, ESCO projects in Poland are financed by international banks in cooperation with Investment Funds, where they usually play roles of payment guarantors.

It's possible to finance EPCC projects in combined mode e.g.: in ESCO mode out of savings and in leasing mode the parts not generating savings as e.g.: reconstructions and extensions.

At the moment basic banking interest is at the level of 1.5%, total interest varies between 7% to 15%.

The large scales of EPCC usually are financed by consortia of Investment Funds and Banks. In case of public firms EPCC can be financed from Public Support mechanisms'.

The EPC early design phase is usually financed out of bank credits.

3.3. INVESTMENT FUNDS

Investment Fund (IF) may be a public or private investing institution usually specializing in certain branches of activities. Usually they operate in consortiums with banks and insurance institutions providing finances to large scale of EPCC projects execution resulting in development of new business opportunities, e.g an EPC modernization project of DH installation which creates new business opportunities to interested bodies. At investment completion IF may sell, lease or hire a professional operator to run a newly developed installation.

3.4. GREEN BONDS

At the edge of 2016/2017 Poland issued Green Bonds in cooperation with HSBC, JPMorgan and PKO BP at the amount of 750 000 000 Euro. They are granted in countrywide auctions to private companies interested in RES technology investments. They might be used for financing and refinancing projects that

coincides with Green Bond Framework worked out by The Ministry of Finance according to ICMA Green Bond Principles.

3.5. CROWDFUNDING

Crowdfunding (subscription) – is a form of financing for different type of projects organized by a group of people. In crowdfunding case a project is financed by a group of people donating relatively small sums of money by those interested in project execution.

In principle, the crowdfunding is an activity consisting in some kind of funds collection and allocation for financing a project execution in order to achieve certain goals, eg.: improvement in energy distribution installations within a building by occupiers in order to decrease costs of living.

In most of the European countries crowdfunding is not legally regulated. In Poland a Polish Society of Crowdfunding operates, which provides legal support to interested groups of people.

3.6. PUBLIC SUPPORT MECHANISMS

Public support mechanisms financed by EU for investments in EE, RES and low emission energy generation technologies are organized in Poland at two levels:

- **regional** – organized by regional governments for regional and local public institutions investing in modernization or developing public infrastructure to meet EU EE, RES and low emission requirements:
 - RPO WM – Regional Operational Program;
 - MFOŚ – Regional Mazovia Fund of Environment Protection;
 - De Minimis Aid – Program of subsidies not colliding with principles of European free market for SME in the value up to 200 000 euro for 3 years.
- **countryside** organized by Polish government:
 - NFOŚ – National Fund of Environment Protection;
 - POIŚ – Program for Infrastructure and Environment Protection;
 - Jessica – Joint European Support for Sustainable Investments in Citi Areas;
 - FROM – Development Fund for Cities in 3 Polish regions including Mazovia.

These public funds form regionally and nationally wide programs may be applied for EPC and RES projects financing.

4. CONCLUSIONS

Modernisation of public buildings and their infrastructures with the aid of the public support mechanisms is in progress.

More issues still exists with existing private groups of buildings and their infrastructure as well as with RES application. However it is necessary to stress that EPC in Poland is already in progress with an aid from public support mechanisms, as well as ESCO financing.

Very popular example of effective ESCO financing in Poland is modernization of street lighting with LED lamps as well as modernization of public buildings as schools etc.

EPC of district heating infrastructure including energy sources, transportation and distribution networks as well as buildings in living estates has also been done, however in development phase it requires rather meticulous work as well as specific knowhow.

The main issue in ESCO financing is to win over a contractor with right technical experience and financial rating.

Problems with RES has appeared over the last 2 years mainly with the development of windmill power generation and necessary infrastructure, however recently some review of legal regulations has been done to identify problems and to introduce appropriate modifications to legal regulations.

Financing activities

-> common practice

-> rarely used

-> not used

-> not applicable



Projects in need of financing

Sources of funds	Improvement in building sector		Industry	Financing of energy performance improvements incl. ee equipment			Project preparation and development	R&D projects	Start-ups	Renewable energy production plants	
	Public	Private		Large companies	SMEs	Public infrastructure				Large/ utility scale	Small-scale
Equity financing	Red	Yellow	Green	Green	Red	Yellow	Green	Yellow	Red	Red	Yellow
Financing through local finance institutes	Green	Yellow	Green	Yellow	Green	Green	Red	Green	Yellow	Yellow	Yellow
Financing through intern. finance institutes	Yellow	Yellow	Green	Green	Red	Yellow	Red	Red	Yellow	Green	Red
Microfinancing											
Subsidies	Green	Red	Red	Red	Yellow	Yellow	Red	Red	Yellow	Green	Yellow
Leasing	Red	Green	Green	Green	Yellow	Red	Red	Red	Red	Red	Green
Energy Performance Contracting	Yellow	Red	Green	Green	Red	Green	Yellow	Red	Red	Yellow	Yellow
Investment funds	Red	Yellow	Green	Green	Red	Yellow	Red	Red	Yellow	Green	Red
Green bonds	Yellow	Green	Green	Green	Yellow	Red	Red	Red	Red	Green	Red
Crowdfunding/ Energy Cooperatives	Yellow	Green	Yellow	Red	Yellow	Red	Red	Yellow	Yellow	Red	Yellow

ANNEX: BIBLIOGRAPHY

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ABBREVIATIONS

CPA Certificate Purchase Agreement

GDP Gross Domestic Product

IFRS 9 International Financial Reporting Standard (IFRS) promulgated by the International Accounting Standards Board (IASB)

MPC Monetary Policy Council

NBP National Bank of Poland

PPA Power Purchase Agreement

RES Renewable Energy Sources

ROE Return on equity

SME Small and medium enterprises