**1. Where do Member States see their main investments gaps ?**

**Infrastructure**

Investment is needed to develop and/or modernize:

* road and railway networks (including green transport)
* Central Transportation Hub
* inland waterways
* seaports (one of the greatest multimodal nodes crucial for creating sustainable transport connections)
* electrical and gas transmission and distribution networks (including interconnectors)
* electromobility charging systems

Despite significant investments in the development of transport infrastructure in recent years, the Polish transport system requires further investments, both in the scope of completing a coherent system of the most important road and rail connections as well as the further modernization of transport infrastructure at the regional and local level. Moreover, there is need to create a universal passenger transport system through the construction and operation of a profitable innovative transport hub - Central Transportation Hub, which will integrate the road, rail and air transportation system.

Electrical power infrastructure in Poland is generally obsolete, not sufficiently deployed in some parts of the country, malfunctioning, generates high network losses and limits the power reception capability (including Renewable Energy Systems).

Gas infrastructure does not ensure independence from one source of gas supply, neither creates the possibility of gas storage in appropriate quantities, prevents greater use of this fuel as more environmentally friendly (in particular distribution infrastructure). Only 58% of Poland is covered by gas infrastructure. Despite the extensive extension program of the distribution network, without additional funds by year 2022, this share will increase only by 3% (up to 61%). There is scant distribution network in Eastern Poland, compared to the rest of the country.

Energy security is also very important for Poland, and thus transmission and distribution networks, power plants.

**Energy sector**

The use of natural gas and renewable sources of energy is limited. Investments are needed in:

* renewable sector, in particular photovoltaics in short and medium term and offshore wind in medium and long term, as well as innovative technologies which integrate RES into the power grid,
* nuclear power
* cogeneration (both industrial and municipal) in large part based on natural gas and/or biomass/waste,
* district heating coverage as a response to the anti-smog (clean air) program and need to substitute generation to low-emission sources, as well as improvement of energy efficiency in generation,
* micro-generation (including energy clusters),
* distribution and transmission networks (for electricity, gas and heat),
* development of the transmission/distribution infrastructure and intelligent network (smart grid).
* implementation of innovative energy technologies, especially in the gas sector (such as power-to-gas, recognized as crucial for the integration of the electricity and gas systems), as well as energy storage, alternative low-emission fuels, DSR[[1]](#footnote-2).

**Environment protection and resource efficiency**

Investments are required in technologies aimed at reducing pollution and CO2 emission, reducing the use of water, uncontrolled runoff and effective recycling of waste and energy combustion by-products.

The air pollution and so-called low emission (smog) remains a very serious problem in Poland. Replacing the current heat sources based on low-quality fuels with low-carbon natural gas and possibly a zero-carbon nuclear district heating plants (co-generating NPPs[[2]](#footnote-3)) is a significant complement to activities in the field of, for example, thermal modernization of buildings and electromobility.

In order to ensure environment protection and energy security for future generations, responsible management of natural resources is needed.

**Other investment gaps:** construction sector (energy-efficient buildings), smart city infrastructure, digitalization, infrastructure for the electromobility (e.g. the complex network of charging stations, development of the electricity grid in order to meet the increased demand for electricity), increase in R&D expenses, broadband internet networks.

Significant gaps in relation to the EU average exist in transport infrastructure (including green transport) and energy (including clean energy sources and energy efficiency of buildings), as well as in information technology and communication (ICT). Poland is characterized by: relatively low motorway density, unsatisfactory electricity generation potential and unsatisfactory coverage of broadband Internet.

**2.  What are the main bottlenecks to increase investments ?**

The prospective shift in the EU-policy, more returnable capital (loans), will require many investors/donors to reconsider their investment projects with the main stress on well-structured and cash-generating investments.

Bottlenecks:

1. Insufficient financial resources for financing the projects. External financing in Poland is heavily reliant on banks - the availability of long-term finance for infrastructure remains constrained and many SMEs still have limited access to bank financing. The role of debt and equity capital markets remains limited with no real market for long-term project bonds.
2. Unattractive forms of investment financing or lack of adequate financing instruments, which would take into account regional conditions and the opportunities of small private sector investors, so that the investment potential of all economic entities regardless of their size can be used.
3. Regulatory and non-regulatory barriers remain present across all the important infrastructure sectors, including energy (especially green energy), telecoms, transportation and the Single Market for services. The existence of both investor-friendly regulations as well as a proven regulatory practice plays a crucial role.
4. Complicated and long-lasting procedures related to the implementation of investments (including environmental impact assessment, obtaining consents and permits, public procurement, public aid).
5. Restrictive state aid rules.
6. Lack of proven energy efficiency financing schemes such as ESCO (Energy Service Company) type arrangements (due to unfavorable Eurostat interpretation).
7. Higher risk profile of a project (new technology and often no history) requires an in-depth technical due diligence to confirm the performance of installations.
8. Frequent changes in law including tax law e.g. recent changes in real estate tax related to wind farms.
9. Not sufficient involvement of the private capital in sustainable projects.
10. Unsatisfactory level of awareness of owners of flats/buildings and entrepreneurs regarding potential benefits related to energy efficiency measures and relatively high costs of replacement of old heating appliances.
11. Aspects related to the development of electric vehicles:
* lack of adequate infrastructure,
* high price of electric vehicles for final consumers (electric cars) and municipalities (cost is among the most commonly cited barriers to the transition to electric vehicles),
* relatively low range of electric vehicles (a barrier mainly for corporate users – transport, delivery, logistics companies) and longtime battery charging,
1. Multi-lateral cooperation between the industry, universities, R&D centers, public institutions and other stakeholders is not sufficiently developed.
2. Shortages of skilled labor. The largest vacancy rate was found in sectors related to the "high technology" area (in particular ICT) and in professional, scientific and technical services.

**3.  What are the key obstacles to raising finance for sustainable investments ?**

1. Poor cash-generating profile of projects – sustainable projects often operate on minimum margin or even on non-profit basis, generating non-monetary profits for the society, whereas private investors’ investment strategy is based on maximizing risk-adjusted returns and rarely such low returns can attract private investors. Therefore incentives or enhancements for private investors to induce their involvement in sustainable projects would be beneficial.
2. Project risks – market risks, regulatory uncertainty, attribution of too many risks on public private partnership (PPP).
3. Unsatisfactory banks loan offer resulting from, inter alia, the lack of knowledge about risks occurring in projects in this area and too little support of public capital, which would help to reduce an identified level of risk and significantly expand lending.
4. Other implications of sustainable investments on bankability:
5. circular economy investments often use innovative and specialized technologies. Their market value can be difficult to estimate due to limited market and thus to calculate a loan collateral based on this market value;
6. a considerable number of projects connected with, e.g. energy savings, are characterized by low CAPEX[[3]](#footnote-4). Thorough analyses required by a bank and associated costs of project preparation confronted with a small investment budget may undermine profitability of project implementation;
7. the complexity of project assessments for financial institutions – e.g. the market for electric vehicles is difficult to define, a real future demand may be lower than projected, there is a low number of “best practice” examples in terms of electromobility implementation (electric vehicles are not commonly used worldwide);
8. high CAPEX and high risk profile in case of nuclear power projects. Energy production costs in NPPs are dominated by fixed costs, especially financial costs, and thus securing an access to significant volume of low-cost capital is crucial in order to gain a positive cash flows for this type of investments;
9. weakly developed instruments and financial products dedicated to supporting sustainable investments, in particular guarantee instruments (better developed instruments would stimulate private sector investments and cause a multiplier effect of investment for the country's development and solving socio-economic and environmental problems).
10. the segments of the financial market characterized by higher risk than the market of credit-based assets first require development. This applies especially to so-called alternative debt, hybrid solutions and capital market mechanisms. A proper development of the capital market and private equity could contribute to the development of investments, especially innovative ones. According to the Statistics Poland research in 2014-2016, the main barriers to the implementation of innovation among industrial enterprises were the factors standing on the financial side of innovative activity, i.e. too high costs, lack of funding opportunities and difficulty in obtaining public grants or subsidies.
11. unsatisfactory level of domestic savings – a saving rate is around 20%, higher than in previous years, but still lower than the investment rate specified in the Poland’s strategy of development (25% in 2030). The majority of domestic savings are the savings of the enterprise sector.
12. Under the new financial perspective, potential applicants will have to provide significantly more funds for the implementation of projects (own contribution).

Regarding district heating as part of anti-smog activity the crucial obstacle is the EU state aid regulation. On one hand Polish heat and power plants use main coal, on the other hand only effective heating systems and cooling installations within the meaning of art. 2 point 41 and 42 Directive 2012/27 / EU which meet the criteria for effective heating and cooling system can be supported from public funds. According to the data of the Chamber of Commerce of Polish Heating, for 287 heating systems operated by the Chamber's members (for a total of 428 licensed heating companies - as at 31 December 2016), which cover about 85% of the total volume of heat supplied from district heating systems in Poland, only 17% meet the criterion of an energy-efficient district heating or cooling system.

**4.  Could more or better targeted EU support make a difference ?**

Increasing financial support as well as to channel it to real needs of a member state will definitely translate into increasing the amount of investments.

More funds are needed for investments in transformation of energy sector. Member States should have some degree of  flexibility on how to use available funds in order to achieve the best effects in cost effective manner. Particular MS have their own specific conditions that should be taken into account and the rule "one size fits all" will not work in this case.

Up to 2022, investments realized in Poland are part of the implementation of the first dimension of the Energy Union, i.e. projects strengthening the security and diversification of natural gas supply.

Due to the conditions prevailing on Polish and Central European energy market, the aim of these investments is also to create an appropriate basis for implementing long-term goals of the EU climate and energy policy using natural gas as a low-carbon energy source in the economy.
After 2022, the implementation of further investment projects is considered. It will have a positive impact on the protection of the natural environment and counteracting climate change in Poland and the region. Thus it is important to classify projects in gas infrastructure to the so-called group of sustainable projects covered by investment support.

**5.  Which national support mechanisms are working well and could they be applied in other Member States?**

**Thermal Modernization and Refurbishment Fund** was created by BGK - the State Development Bank. The main goal of the Fund is to improve the technical status of housing with special emphasis on thermo-modernization. It is an effective mechanism supporting investors in improving energy efficiency through subsidies to investments financed by banking loans. The Fund offers subsidies for individuals, home owners associations, municipalities and housing co-operatives, which are distributed in a simple, clear and friendly way under cooperation with 12 lending banks. The Fund receives few thousand requests every year. The program was funded with PLN 2.3 bn up to date

**Programme for Supporting Investments of Major Importance to the Polish Economy for the Years 2011–2020.** On the basis of this programme, support is provided in the form of grants for strategic and innovative investments, centers of advanced business services, centers of business processes excellence and research and development centers. The programme focuses on supporting innovative investments (inter alia, guaranteeing the transfer of knowledge) and R&D, investments carried out in regions threatened with exclusion, stable jobs, contributing to the creation of a local network of cooperators.

The program gives an active support for selected investments, meeting the objectives of the Strategy for Responsible Development. The programme is currently the subject of a comprehensive amendment – i.e. investment in medium-sized cities losing socio-economic functions will be more rewarded, smaller investments will be supported, which should allow to stimulate innovation of SMEs.

1. DSR - Demand Side Response - optimization of the energy consumption curve [↑](#footnote-ref-2)
2. Nuclear Power Plants [↑](#footnote-ref-3)
3. Capital expenditure or capital expense (CAPEX) is the money a company spends to buy, maintain, or improve its fixed assets, such as buildings, vehicles, equipment, or land. [↑](#footnote-ref-4)