

## **Description for the general public**

Compliance with the EU climate policy will require a switch towards lower carbon energy generation in Poland. There are several potential scenarios of decarbonisation that involve increased shares of renewable energy as well as increased openness to imports of factors of energy production (e.g. gas) as well as imports of energy itself. Moreover, nuclear energy seems very efficient and should be considered as a viable option.

Decisions on the choice of the actual policy mix are difficult due to several reasons. These decisions require substantial investment outlays. They require long-term planning over periods of decades (due to both the aforementioned investments as well as a long implementation times). Moreover, changes in the use of resources have a direct impact on the structure of industry and they lead to changes in employment and living conditions of the population directly involved with the mining sector and the energy sector. Last but not least, the energy sector reform will in the long run affect the relative prices in the economy and this will in turn affect the economic conditions and economic welfare both in the short and the long term.

Energy policy requires long term planning and affects all economic agents. As a part of the project we propose a significant extension to the existing tools used to assess reform-related costs and benefits. Our economic model allows for simulations of behavior of economic agents: enterprises, government as well as households in the short and long run. Our model will take into account the investment decisions of the enterprises as well as the consumption and savings decisions of the households based on the changing prices of goods, services and energy. The energy sector will be modelled in a particularly detailed way, with a special focus on the nuclear technology.

Our model will allow us to analyze the effects of changes in several scenarios of changes in the energy policy. It will allow us to obtain the optimal energy mix that complies with the required reform goals at the minimum economic cost. Our model will allow us to trace the reaction of the households by looking at the changes in their consumption and savings. Moreover, it will enable us to evaluate short and long run changes in the structure of production of industry and service sectors including the changes in international trade.