Civilization development contributes directly to environmental pollution caused by the overexploitation of fossil fuels. One possible solution to this problem is the production of hydrogen through the reforming process of a liquefied natural gas (LNG). The use of hydrogen as the fuel of the future is directly related to the generation of electricity using fuel cell technology, whose relevance is currently increasing. The use of hydrogen and fuel cell technology instead of traditional fossil fuels leads directly to reducing greenhouse gas emissions to the atmosphere, which can help to eliminate smog formation in highly urbanized cities. In addition, fuel cells due to their high efficiency, durability and reliability can potentially contribute to the rapid development of the various industries that will be based on the use of fuel cell technology. It is also well known that fuel cells due to their high efficiency, durability and reliability may be potentially applied for rapid development of industries branch which are based on the use of fuel cells technology. One of the main technologies used to produce hydrogen is based on steam reforming of methane. The main component of natural gas is methane, but it can also be ethane, propane and heavier hydrocarbons, and nitrogen, oxygen, carbon dioxide, sulphur. Technology receiving hydrogen from natural gas in the first stage involves the conversion of organic sulphur compounds and olefins to hydrogen sulphide and hydrocarbons and removal of hydrogen sulphide. The second stage involves proper steam reforming of methane and higher hydrocarbons and conversion of carbon monoxide with water vapour. These conditions make the production of hydrogen by reforming natural gas difficult because this process requires the prior purification of natural gas from the sulphur and nitrogen compounds. An alternative technology is based on liquefied natural gas (LNG -,,Liquefied Natural Gas'') as a source of hydrogen. During the process of liquefying natural gas, natural gas is cleaned, mainly from water and carbon dioxide to prevent the formation of solid particles when the gas is cooled to a temperature of about -160 ° C. As a result, rising LNG is a very clean gas which is 95% composed of methane, and only 5% are other components. After the condensation very pure, colourless and odourless fuel is obtained without toxic and corrosive properties. Purified LNG has a volume of about 600 times smaller than in the gaseous state, which makes it more economical to transport and storage. Based on these facts the main goal of this project is to obtain modern, highly active, selective and stable nickel catalysts promoted by Ag (Ag-Ni). The catalysts will be supported on mono- (ZrO_2, La_2O_3, CeO_2) and binary oxides (ZrO_2-La_2O_3, La_2O_3-CeO_2, ZrO_2-CeO_2) for oxygen - steam reforming of liquefied natural gas (LNG) which lead to clean hydrogen production. The authors expect that promotion of nickel catalysts by silver improve selectivity, activity and resistant to the carbon deposition of investigated systems in oxygen-steam reforming of LNG reaction. The selection of appreciate support material improve dispersion of nickel oxide on the catalyst surface. The obtained catalyst become more reducible and exhibits higher methane activation ability and higher activity and stability in oxygen-steam reforming of LNG. Achieving the goals of the project will be possible due to preparation of both mono-Ni, Ag and bimetallic Ag-Ni catalysts supported on mono- (ZrO_2, La_2O_3, CeO_2) and binary oxides (ZrO_2-La_2O_3, ZrO_2-CeO_2, CeO_2-La_2O_3). The next stage of research involves investigation of the physicochemical and catalytic properties of prepared catalytic systems. Another advantage of the use of LNG as a source of hydrogen is the fact that it is possible to receive liquefied natural gas from marginal or waste sources of methane from sources with relatively low methane content (e.g. mines, landfill, with cattle farms), which will benefit the environment due to the limitation of emissions into the atmosphere. In addition, material developed under the project tasks may become a new material used as electrodes for fuel cells technology. Obtained knowledge during realization of the project will contribute to the development of various types of materials based on binary oxide, which can be used in a variety of industrial applications. The planned research related to the project may become the basis for the development of the industrial catalyst, used in this reaction, and may also contribute to the development of new technologies based on the use of LNG as a source of hydrogen. Creation of new energy production technologies based on LNG is likely to become an alternative to natural gas transmitted by pipeline from Russia. New technologies based on the processing of LNG may affect the stabilization of the Polish energy policy. All of these facts confirm the validity of hydrogen production via reforming of LNG.