

Techno-Economic Analysis of Solar Energy for Cathodic Protection of Oil and Gas Buried Pipelines in Southwestern of Iran

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Abstract : Solar energy is a renewable energy which has attracted special attention in many countries. Solar cathodic protection systems harness the sun's energy to protect underground pipelines and tanks from galvanic corrosion. The object of this study is to design and the economic analysis a cathodic protection system by impressed current supplied with solar energy panels applied to underground pipelines. In the present study, the technical and economic analysis of using solar energy for cathodic protection system in southwestern of Iran (Khuzestan province) is investigated. For this purpose, the ecological conditions such as the weather data, air clearness and sunshine hours are analyzed. The economic analyses were done using computer code to investigate the feasibility analysis from the using of various energy sources in order to cathodic protection system. The overall research methodology is divided into four components: Data collection, design of elements, techno economical evaluation, and output analysis. According to the results, solar renewable energy systems can supply adequate power for cathodic protection system purposes.

Keywords : renewable energy, solar energy, solar cathodic protection station, lifecycle cost method

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