Solar energy research and development azerbaijan

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Feature papers represent the most advanced research with significant potential for high impact in the field. A Feature Paper should be a substantial original Article that involves several techniques or approaches, provides an outlook for future research directions and describes possible research applications.

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Gulaliyev, M.G.; Mustafayev, E.R.; Mehdiyeva, G.Y. Assessment of Solar Energy Potential and Its Ecological-Economic Efficiency: Azerbaijan Case. Sustainability 2020, 12, 1116. https://doi /10.3390/su12031116

Gulaliyev MG, Mustafayev ER, Mehdiyeva GY. Assessment of Solar Energy Potential and Its Ecological-Economic Efficiency: Azerbaijan Case. Sustainability. 2020; 12(3):1116. https://doi /10.3390/su12031116

Gulaliyev, Mayis G., Elchin R. Mustafayev, and Gulsura Y. Mehdiyeva. 2020. "Assessment of Solar Energy Potential and Its Ecological-Economic Efficiency: Azerbaijan Case" Sustainability 12, no. 3: 1116. https://doi /10.3390/su12031116

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Proven reserves represent the quantity of resources that are expected to be extracted based on a geological analysis, involving the existing equipment and under the existing operating conditions. RES reserves can be determined by the so-called technical potential (e.g. the amount of energy that can be extracted from the sun--this amount increases with the development of technology, but it is important that this energy is economically profitable--the so-called economic potential).

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Azerbaijan"s energy reserves mainly consist of oil and natural gas, as proven oil reserves are estimated to be 7 billion barrels, whereas the yearly average production is about 44 million tons. In the case of natural gas, it is 2.1 trillion m3 of proven reserves, whereas average production is about 16.75 billion m3 (Energy: About energy balance of Azerbaijan in 2018). As expected, annual oil production in Azerbaijan, which is the main income of the country, has entered into a phase of decline (Table 2), and this has created a potential challenge for developing RES in the years ahead.

While approximately 65Mtoe of energy is produced annually from oil and natural gas in Azerbaijan, these being the main energy sources of the country, annual consumption is only 14.3 Mtoe of energy products, including both crude oil (32%) and natural gas (65%) which are also the most important export products. In Poland, about 103.4 Mtoe of primary energy products was used, primarily solid and liquid fossil fuels (78.7%), natural gas (14.2%) and RES (5.5%) (Tables 1 and 2) (Azerbaijan"s country-wide electricity blackout 2018).

Correlation of energy consumption with GDP (toe/1000 US$). Source: BP Statistical Review of World Energy, 68th edition, 2019 and The world data bank (Database: https://data.worldbank /country/)