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I. Introduction

One of the biggest obstacles facing Türkiye within the framework of its new century goals is; Foreign dependency in energy and thus the current account deficit due to energy. Plus also due to foreign dependency in energy, strategic moves cannot be made in order not to endanger energy security and international relations. Turkey, which has been trying to become a power in its region and reduce its foreign dependency since the first days of the Republic, has a long way to go, even though it has tried to break its foreign dependency with the steps it has taken in the field of defense industry within the national and local framework in the last 20 years, and the natural gas exploration and oil extraction activities carried out.

Here is the subject of the study; The aim is to examine hydrogen as an alternative energy source in reducing Turkey's foreign dependency and to offer a way to the central government. It is aimed to reveal the energy potential by breaking the energy gap with hydrogen and combine it with new century strategies. In the general scope of our study, the contributions of hydrogen as an alternative energy source in reducing Turkey's foreign dependency, getting one step closer to its domestic-national goals and becoming a regional power are explained. By applying the qualitative research method, local and international reports were used, a literature review was conducted and a vision plan was created. The data obtained were evaluated, the definition regarding the solution of Turkey's energy problem was changed with the findings obtained, and the way out of the energy policy created by the Ministry of Energy was changed and additional articles were added.

II. Teoretical Framework

The Black Sea has a great energy potential with a hydrogen capacity of 270 million tons. One of the most important resources that can be used in hydrogen production is hydrogen sulfide found at the bottom of the Black Sea (Gök and Sözen, 2022). Petrov et al. investigated the processes of H₂ and S production from H₂S found in the Black Sea bottom waters. The amount of energy used in the electrolysis of water is approximately 3.235 times more than the amount of energy used in the electrolysis of hydrogen sulfide (Yılmaz, 2012). Figure 1 shows the distribution of hydrogen sulfide in the Black Sea. For Turkey's energy supply security, it is necessary to diversify existing energy resources and especially focus on local energy resources.

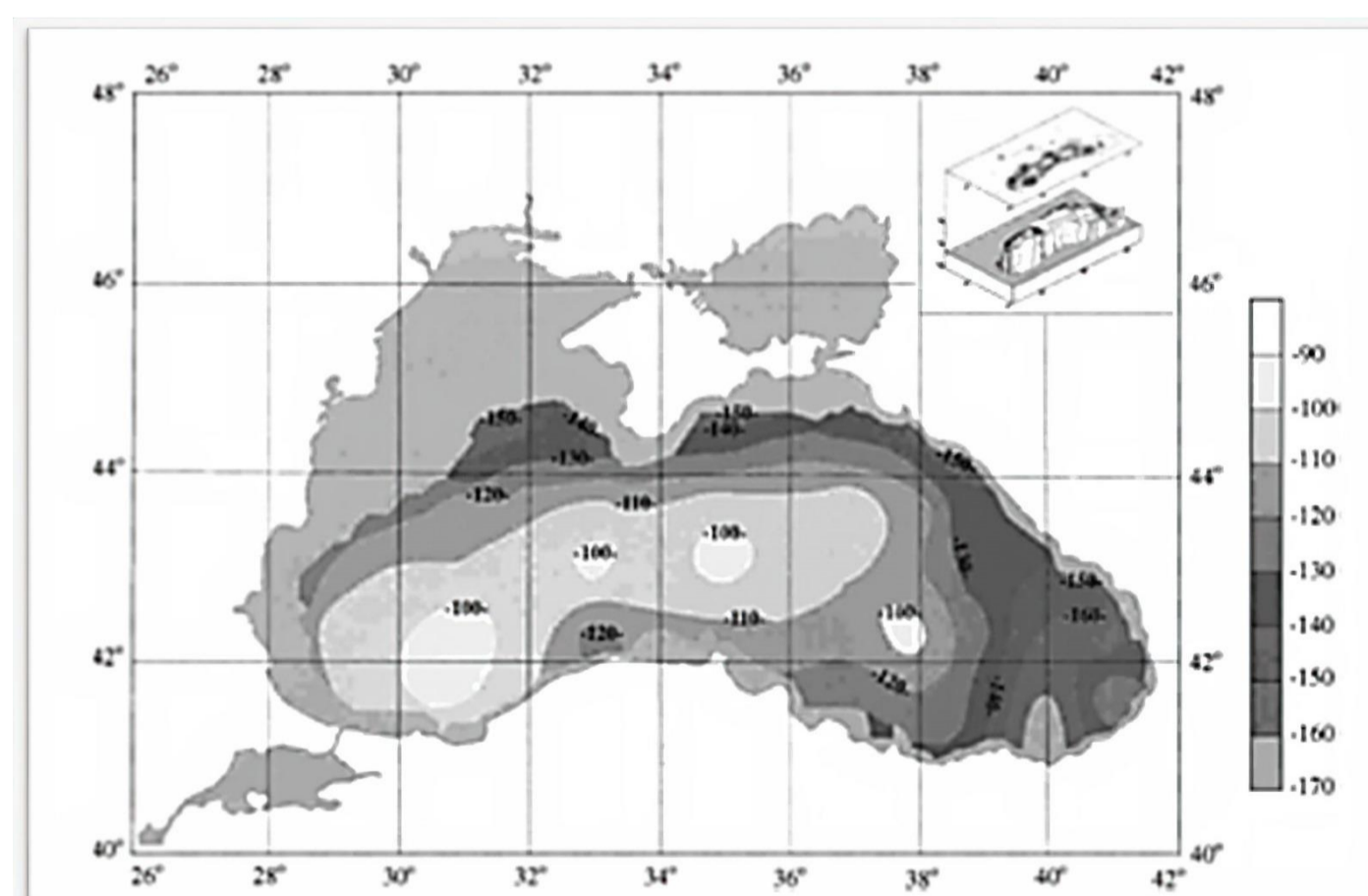


Figure 1. Distribution Of Hydrogen Sulfide In The Black Sea by Seker (2019)

III. Evaluation and New Hydrogen Policy

Starting the hydrogen policy from seeing hydrogen as just a side source of green energy and seeing it as the main issue will ensure supply security and entering a sustainable energy cycle in Turkey. Turkish Republic Ministry of Energy and Natural Resources, Turkey's Hydrogen Technologies Strategy and Road Map and Turkey's National Energy Plan and Twelfth Development Plan, as reviewed, are missing hydrogen definition regarding the solution of Turkey's energy issue and the way out of the energy policy created by the Ministry of Energy should be changed.

It is wrong for Turkey to implement the same policy as other countries that do not have a hydrogen source and to follow a similar hydrogen policy as the EU, and it will prevent Turkey from revealing its energy potential. As stated in the Hydrogen Technologies Strategy and road map, the main issue of use of hydrogen energy for Turkey should be energy security and reducing foreign dependency, not zero emission targets. Although the Road Map deals with hydrogen entirely from a clean energy perspective, the real importance of hydrogen for Turkey comes from the fact that Turkey has large hydrogen deposits that can meet almost all of its energy

Table 1. New Hydrogen Policy Additional Clauses

New Hydrogen Policy Additional Clauses
To change the way hydrogen is handled in the current Hydrogen Policy from the perspective of green hydrogen and zero-emission by-energy product and to treat it as a high-efficiency main energy source
Integrating the hydrogen issue into the country's future vision in the short term
Putting hydrogen policy at the center of general energy policy
To carry out an urgent project on the extraction of Hydrogen sulphide resources in the Black Sea
Moving on to R&D and P&D studies on the separation of hydrogen sulfide
Immediately commissioning local and national fuel cell production
Creating a University – Bureaucracy – Business partnership
To ensure that master's and doctoral students and academicians from the last 10 years are involved in the subject
To accelerate the work of hydrogen storage and distribution lines

In this study, attention is drawn to the potential of hydrogen energy, which is one of the energy models of the future, in Turkey. In the 2023 hydrogen vision plan, it was concluded that hydrogen was under-evaluated and new hydrogen policies were proposed in order to draw the main issue correctly and determine the subsequent road map more effectively. In the new century strategy created within the framework of Turkey's domestic and national goals, the importance of hydrogen sulfide deposits in the Black Sea was mentioned and this study was carried out to draw attention to the fact that hydrogen which is evaluated within the framework of 2053 zero emissions, has a much greater impact. In this context, Turkey's perspective on the Hydrogen issue was changed in the study and the new hydrogen policy was prepared to guide the central government.

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