

Denizli.docx

Yazar Pc- turnitin

Gönderim Tarihi: 19-Kas-2024 11:43PM (UTC+0200)

Gönderim Numarası: 2525464154


Dosya adı: Denizli.docx (109.94K)

Kelime sayısı: 293

Karakter sayısı: 2009



Novel energy generation from thermal gradients in Denizli city

Ethar Sulaiman Yaseen YASEEN^{1,*} 

¹ 0000-0002-5259-378X Institute of Graduate Studies, Engineering Faculty, Electrical and Electronic Department, Çankırı Karatekin University, Çankırı, Türkiye

Abstract

Denizli, Turkey, is renowned for its abundant geothermal resources, making it an ideal location for harnessing thermal gradients to generate clean energy. This study investigates the potential of utilizing thermal gradients in Denizli through advanced technologies such as Organic Rankine Cycle (ORC) power plants and thermoelectric systems based on the Seebeck effect. The Seebeck effect, which converts temperature differences directly into electrical energy, is highlighted as a key mechanism for efficient and sustainable energy generation. Thermoelectric generators (TEGs), leveraging materials like bismuth telluride and silicon-germanium, offer significant potential for converting geothermal heat into electricity without emissions or moving parts. The research evaluates the technical and economic feasibility of implementing these systems, considering Denizli's geothermal resources, such as the Karahayit and Pamukkale springs. It also explores the integration of Seebeck-based technologies to enhance the utilization of low-temperature geothermal gradients, enabling more efficient energy production. Key parameters like temperature levels, source depth, and thermal flow rates are analyzed to optimize energy output. Preliminary findings indicate that combining ORC and Seebeck-based systems can significantly boost energy production while reducing carbon emissions. This dual approach not only supports Turkey's renewable energy targets but also positions Denizli as a model for sustainable energy innovation. The study also addresses challenges such as material costs and efficiency limitations, proposing solutions through advanced material research and public-private partnerships. This research underscores the importance of geothermal resources and thermal gradient technologies in achieving energy sustainability, providing a scalable and eco-friendly blueprint for clean energy generation in Denizli and beyond.

Keywords: Thermal Gradients, Denizli, Organic Rankine Cycle (ORC), Carbon Emission Reduction, Eco-Tourism

* Corresponding author. e-mail address: e.eathar1990@gmail.com

Denizli.docx

ORJİNALLİK RAPORU

%3

BENZERLİK ENDEKSİ

%3

İNTERNET KAYNAKLARI

%0

YAYINLAR

%0

ÖĞRENCİ ÖDEVLERİ

BİRİNCİL KAYNAKLAR

1

eprints.usm.my

İnternet Kaynağı

%3

Alıntıları çıkart

üzerinde

Eşleşmeleri çıkar

Kapat

Bibliyografyayı Çıkart

üzerinde