

Geothermal Energy: Unveiling the Socioeconomic Benefits

February 2024

About the Report

- Designed to complement the handbook “A Sure Path to Sustainable Renewable Energy: Maximizing Socioeconomic Benefits Triggered by Renewables.”
- Focuses on socioeconomic benefits that can be influenced during geothermal project planning, development and operation.
- These benefits extend beyond the risk mitigation requirements of environmental and social safeguard frameworks. The report does not explore wider sectoral advantages, such as the societal and economic benefits of greater energy security and reduced greenhouse gas emissions.

50+

Stakeholders consulted

27

Case studies showcasing best practices



Types of Socioeconomic Benefits

- The report examines benefits across four categories, derived from the World Bank's Sustainable Renewables Risk Mitigation Initiative.



Domestic Participation in the Geothermal Value Chain

- Understanding the geothermal value chain is crucial for identifying areas to maximize benefits.
- Localization efforts, particularly in construction and operation and maintenance segments, offer substantial room for growth.
- Governments are using project procurement to encourage localization along the geothermal value chain, however careful consideration is needed.
- Many strategies exist to create a more enabling environment for the growth of domestic businesses, from the development of specialized financing programs to the creation of industry associations.



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Spotlight: Turkey

- Geothermal heated greenhouses have expanded by 400 percent since 2002.
- The Turkish Ministry of Agriculture and Forestry encourages investment in geothermal greenhouses and offers incentives, while financial institutions provide low-interest loans with flexible terms.
- Government support has led to significant socioeconomic benefits, with projects like a 71.7-hectare greenhouse in Aydin producing 20,000 tons of tomatoes annually and employing 750 people.



Geothermal Skills and Jobs

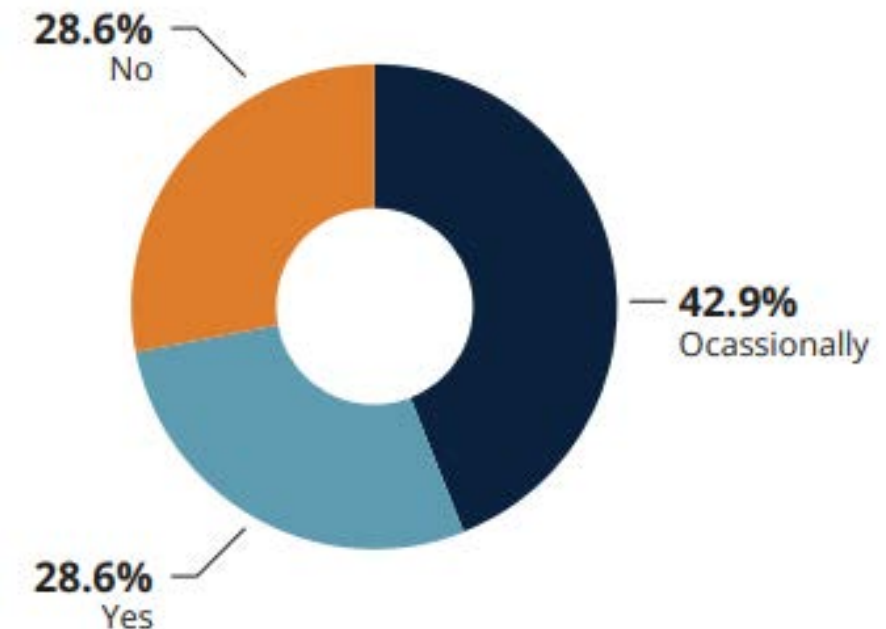
- Construction and O&M offer significant job creation potential, with construction roles being short term and O&M generating employment over the project cycle.
- Direct use projects provide quality employment opportunities, particularly for women, youth, and marginalized groups.
- Skill shortages are prevalent, especially in high-skilled positions. Governments and developers are developing innovative solutions to reskill individuals.

196,000

Geothermal jobs in 2021

296,000

Geothermal jobs in 2030



Share of surveyed developers that find it difficult to recruit highly skilled talent in project countries (%).

Spotlight: Indonesia

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- Supreme Energy employs 187 staff, with 117 working at their two geothermal plants (170 MW total).
- The company devised a strategy to grow talent in-house rather than sourcing talent from abroad by:
 - Hiring new graduates and providing professional development opportunities
 - Recruiting experienced staff from the oil and gas sector and providing specialized geothermal knowledge through training and job shadowing.
 - Hiring from local communities and offering a combination of in-class and on-the-job learning, leading to roles such as power plant operator, technician, field chemist, and well testing officer.



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Local Development & Benefit Sharing

- Equitable benefit distribution is vital for successful community collaboration and obtaining a 'social license to operate.'
- Benefit sharing can broadly be grouped into three categories:
 - Infrastructure and service enhancement;
 - Community skill and capability enhancement; and
 - Revenue and/or ownership sharing arrangements.
- Legal frameworks in some jurisdictions mandate localized benefit distribution through mechanisms like royalties and production bonuses.
- Including benefit sharing considerations in procurement documents can align developers' actions with community expectations and government plans.



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Spotlight: New Zealand

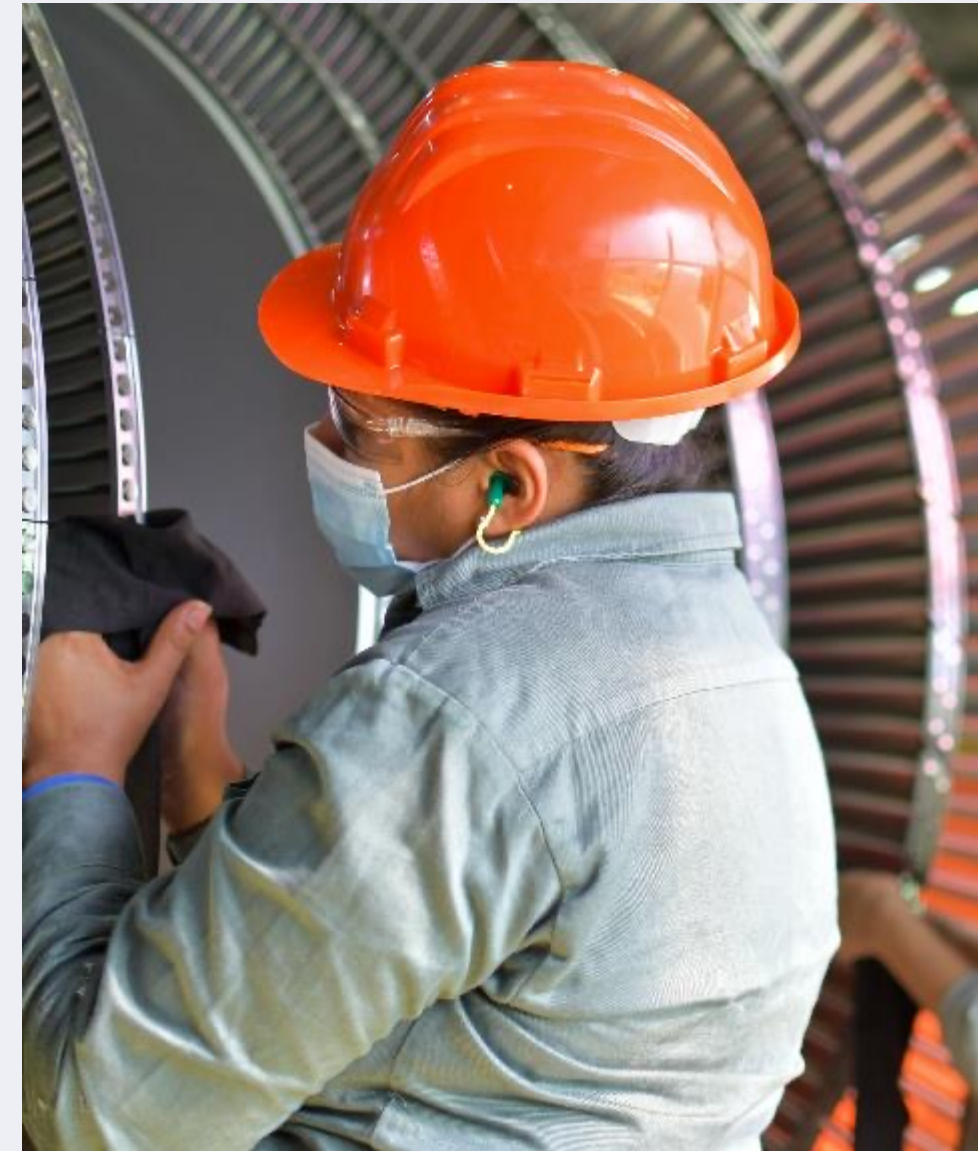
- The Māori business entity Tauhara North No. 2 Trust has a 35 percent equity stake in the Nga Awa Purua Power Station (140 MW) and a 50 percent equity stake in the Ngatamariki (84 MW) and Rotokawa (34.5 MW) developments in New Zealand.
- Revenue from these commercial operations, estimated at \$NZ 6 million per year, is directed to grants, scholarships, and programs to support Māori people.



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Gender Equality & Social Inclusion

- Women and marginalized groups face unique challenges to realize the socioeconomic benefits along the geothermal value chain:
 - Greater barriers to the development of businesses
 - Underrepresented in the geothermal workforce
 - At the community level, cultural barriers and social norms often stand in the way of meaningful consultation and equitable delivery of benefits.
- These issues require attention and tailored responses. Progressive policies, support programs, and targets for increased participation have proven effective.



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Spotlight: Kenya

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- Kenya's Constitution aspires to improve gender equality and social inclusion, mandating that:
 - Women must hold 30 percent of roles in public committees and decision-making bodies
 - 30 percent of the government's procurement budget is dedicated to SMEs run by women, youth, and people with disabilities
- This regulation applies to the geothermal entities owned by the Government of Kenya, including the Geothermal Development Company, as well as the majority state-owned power utility KenGen.



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THANK YOU

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