



GEOHERMAL IMPLEMENTING AGREEMENT, ANNEX VII: ADVANCED GEOHERMAL DRILLING AND LOGGING TECHNOLOGY

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Annex VII, Advanced Geothermal Drilling and Logging Technology, as part of the Geothermal Implementing Agreement, promotes ways and means to reduce the cost of geothermal drilling. This is being accomplished through an integrated effort which involves developing an understanding of geothermal drilling needs, elucidating best practices, and fostering an environment and mechanisms to share methods and means to advance the state of the art. Drilling is an essential and expensive part of geothermal exploration, development, and utilization. Drilling, logging, and completing geothermal wells are expensive because of high temperatures and hard, fractured formations. The consequences of reducing cost are often impressive, because drilling and well completion can account for more than half of the capital cost for a geothermal power project.

Geothermal drilling cost reduction can take many forms, for example faster drilling rates, increased bit or tool life, less trouble (twist-offs, stuck pipe, etc.), higher per-well production through multi-laterals, and others. Activities in the Advanced Geothermal Drilling and Logging Annex address aspects of geothermal well construction including development a detailed understanding of worldwide geothermal drilling costs, a compilation of a directory of geothermal drilling practices and how they vary across the globe, and communications of developments of improved drilling technologies.

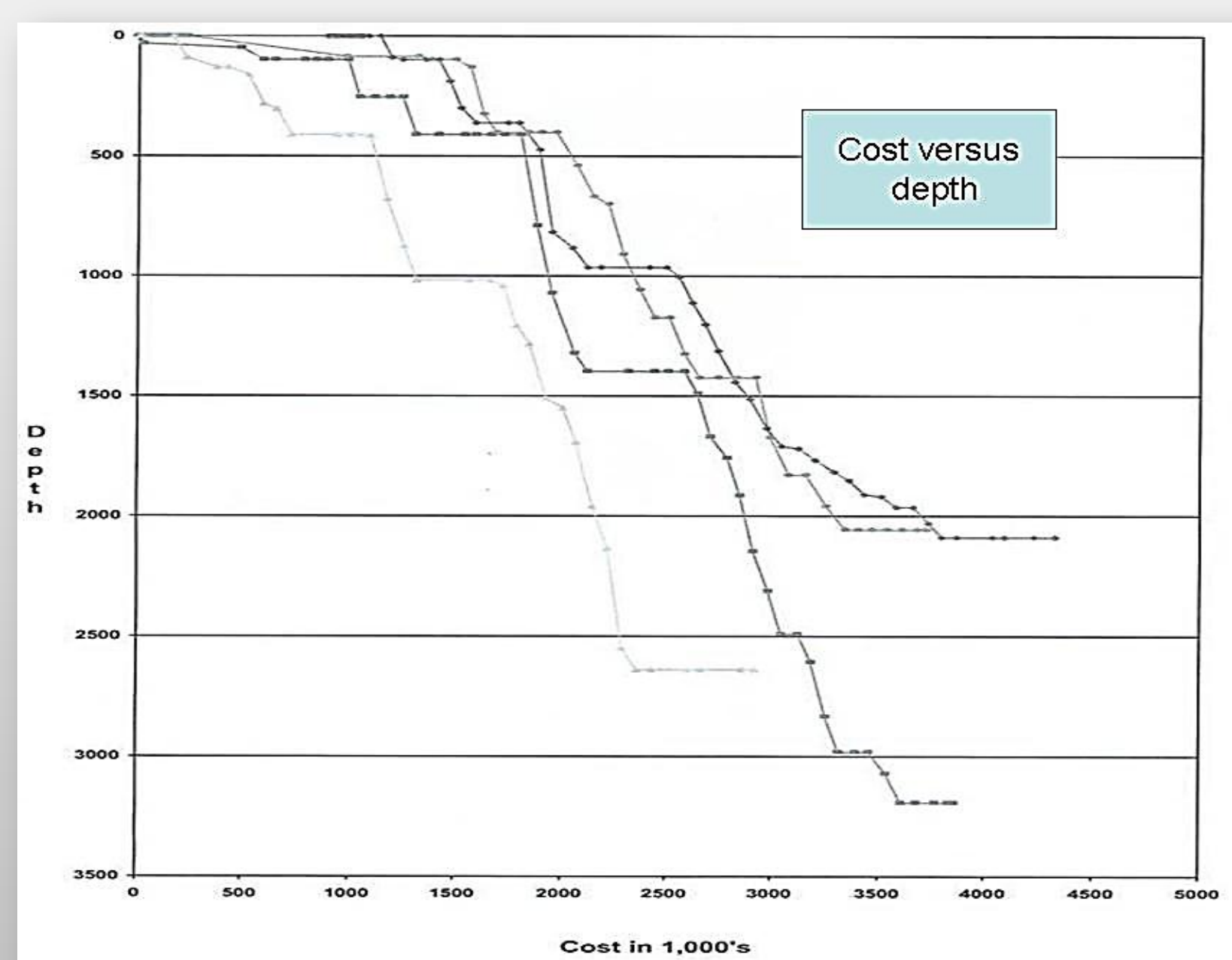
The activities Annex VII of the Geothermal Implementing Agreement were developed to foster advanced geothermal drilling research that addresses all aspects of geothermal well construction. These activities include development of ways to quantitatively understand geothermal drilling costs from around the world and identify ways to reduce those costs, while maintaining or enhancing productivity, identification and development of new and improved technologies for significantly reducing the cost of geothermal well construction to lower the cost of electricity and/or heat produced with geothermal resources, act as a means to inform the international geothermal community about these drilling technologies and provide a vehicle for international cooperation, field tests, etc. toward the development and demonstration of improved geothermal drilling technology.

Annex Task Descriptions

Task 1: Compile Geothermal Well Drilling Cost and Performance Information, Development of a Wellcost model

Task 2: Complete: Publication of "Best Practices" for Geothermal Drilling

Task 3: Advanced Drilling and Logging Collaborations



Example cost versus depth plot for geothermal wells.

Task 1

Task 2

Task 3

- Drilling is expensive – as much as 50% of total project cost
- Drilling research < 10% of published geothermal papers
- Lower drilling costs are critical to improve economics and access deeper resources

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Handbook of Best Practices for Geothermal Drilling

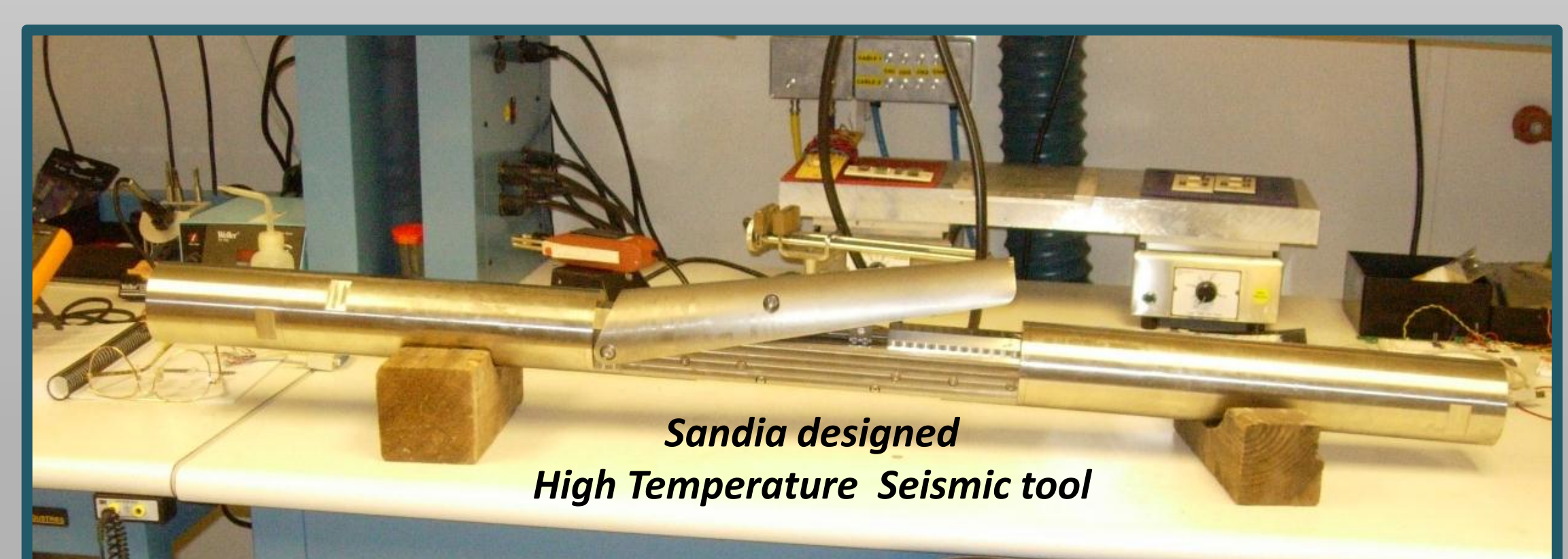
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IEA/GIA Annex VII
*Advanced Geothermal
Drilling Technologies*

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Norway
New Zealand
United States



*Exceptional
service
in the
national
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