

Renewable Energy in a Petroleum Dominated Society

Geothermal in the Middle East

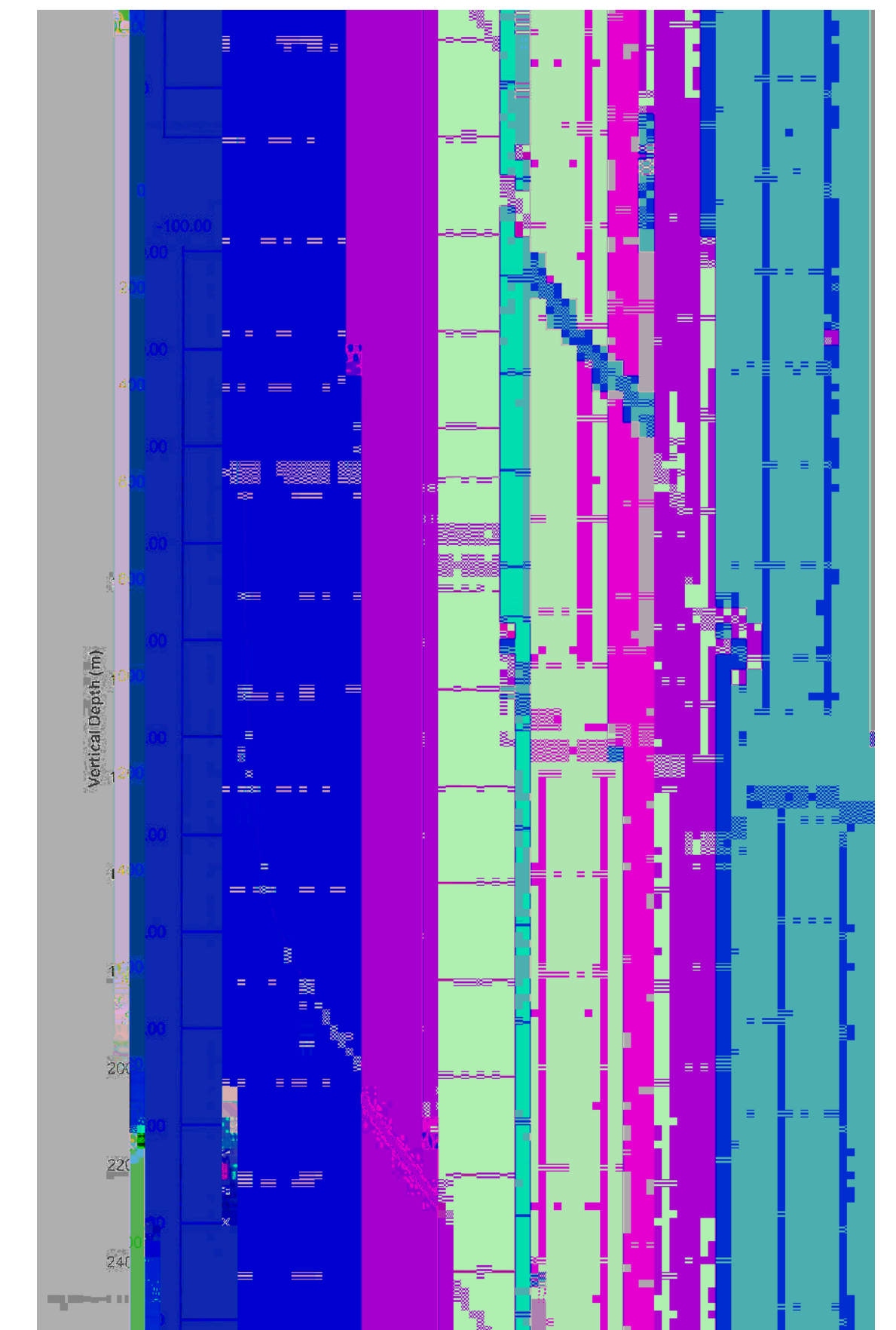
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A pair of geothermal wells (injection and production) were installed in the middle east. The geothermal reservoir consists of a high-salinity limestone formation aquifer about 375m thick and about 2150m deep.

The wellheads are drilled adjacent to each other, then diverged such that the bottoms are about 1700m apart. The first and second wells were drilled vertically to depths of 550m and 350m, respectively, then directionally kicked at 2° per 30m in opposite directions, to a final nominal inclination of 30°.

Drilling and completion for the first well lasted 76 days, largely delayed due to slower than expected drilling rates and rig breakdowns, with a total cost of US\$8,282,661. Drilling and completion for the second well lasted 50 days with a total cost of US\$6,818,441.

Preliminary estimates indicate a flowrate of 100 liters per second (about 55,000 barrels of water per day) with water temperature at the wellhead ranging from 90 to 95°C. Flow is from reservoir pressure. Figures presented on this poster are for the first geothermal well only.



Hole & Casing Details	Surface Casing	Intermediate Casing	Anchor Casing	Production Casing	Slotted Production Liner
Hole Size (inches)	36"	26	17 1/2"	12 1/4"	8 1/2"
Hole Depth (metres MD RT)	50	500	1200	2000	2640
	Seamless	Seamless	Details	FRW	FRW
Weight	47 lb/ft	28 lb/ft		234.00 lb/ft	133.00 lb/ft
Approximate No. of Joints	4	40	96	124	98
Setting Depth (in MD RT)	1973 to 2640	Perforation	47	498	1198
Cemented back	Not cemented	Casing Cementing	Cemented back	Cemented back	Cemented back

The data presented on this poster is for demonstration purposes only. The wells described herein are currently in the production testing phase. Once the resource has been successfully confirmed, data will be published for public use.