

Drilling Innovation and Commercialization for Next-Gen Geothermal

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G-PULSE
DRILLING INTO THE FUTURE

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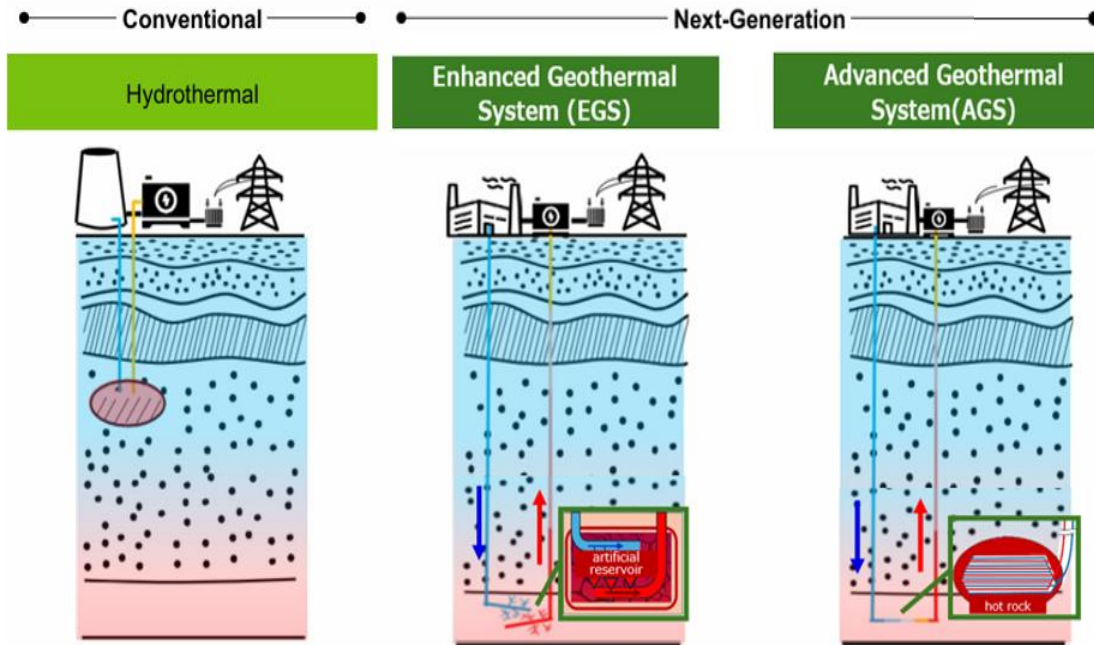
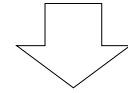
President & CEO G-Pulse
Chairman & CEO Geo Dreams
Executive Vice Chairman I-Pulse

Next-generation geothermal to become a major energy source

- ▶ Not dependent on natural underground hot fluid.
- ✓ Vast resources available,
- ✓ Operationally robust
- ✓ Bankable

- ▶ Can supply up to 600TW at costs under USD300/MWh. (*1)

▶ Already proven.



Source: US DOE: "Pathways to Commercial Liftoff: Next-Generation Geothermal Power, March, 2024".
(The annotation was added by G-Pulse.)

- ◆ Current world installed electric power: 8.1TW (*2)
- ◆ Current world installed geothermal power: 16GW

▶ CAPEX must drop, especially drilling.

▶ For EGS & AGS, drilling accounts for 60–90% of CAPEX.

Sources:
1. IEA The Future of Geothermal Energy (2024)
2. ©Statista 2021

G-Pulse is developing hybrid HPP-PDC drilling tool which dramatically cuts drilling cost

► What is High-Pulse Power (HPP) ?

$$\text{Power} = \frac{\text{Energy}}{\text{Time}}$$



$$1 \text{ GW} = \frac{\text{One Button Cell}}{(1/1,000,000 \text{ s})}$$

* 1GW is equivalent to one nuclear power plant.

► Hybrid Drilling Tool:

① Apply HPP to weaken the rock.



② Use PDC bits to crush the weakened rock efficiently.



③ Higher rate of penetration and less bit wear.



④ Drilling-cost reduction



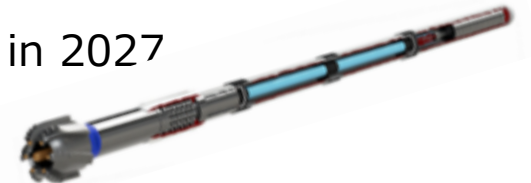
► Hybrid HPP Drilling Tool:

- can further reduce drilling cost on top of PDC cost reduction by learning-curve.
- is compatible with existing rigs and work force → fast deployment in big scale.
- can economically drill large-diameter wells in hard rock → higher power generation efficiency

► Achieved 70% cost reduction at real scale at laboratory.

► Planning for deep drilling of closed loop well in 2026.

► Commercialization in 2027



- 1 . Legal reform :
Update laws and streamline permitting.
- 2 . Financial support :
Such as grants, tax credits, until they are fully bankable.
- 3 . Build national geology database :
To cut exploration costs and attract private investment.
- 4 . Phase out fossil-fuel power plant
Policy design to phase out fossil-fuel power plants even before the completion of depreciation.