Technology Cost and Performance Data for PNM IRP

Geothermal Discussion Office Hour

Romey James
Project Set Manager
178A: Energy System Technology Cost, Performance, and Technoeconomic Analysis

March 4, 2026

ABOUT US

Nonprofit

Chartered to serve the public benefit, with guidance from an independent advisory council.

Thought Leadership

Systematically and imaginatively looking ahead to identify issues, technology gaps, and broader needs that can be addressed by the electricity sector.

Independent

Objective, scientific research leading to progress in reliability, efficiency, affordability, health, safety, and the environment.

Scientific and Industry Expertise

Provide expertise in technical disciplines that bring answers and solutions to electricity generation, transmission, distribution, and end use.

Collaborative Value

Bring together our members and diverse scientific and technical sectors to shape and drive research and development in the electricity sector.

How we develop technology cost and performance data for our members' IRP and modeling efforts

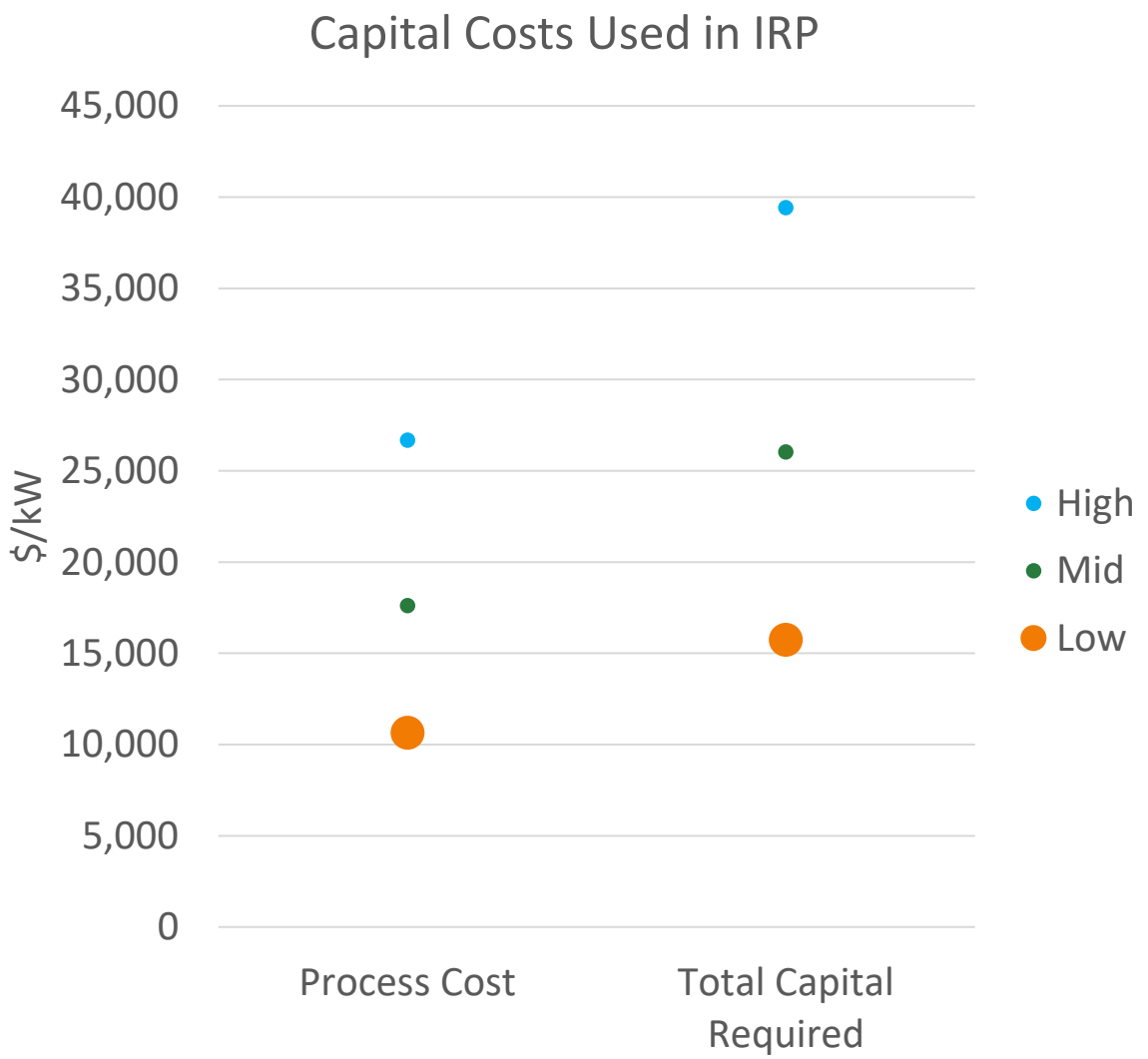
- Mature technologies: Independent engineering studies
  - EPRI contracts an EPC firm with experience developing projects of that type to build cost estimates based on current market conditions.
- Emerging technologies: Independent engineering studies
  - EPRI seeks an EPC firm with relevant experience with similar technologies to build cost estimates based on available information.
- Emerging technologies: Other independent sources
  - If an EPC cannot be found to perform a study, EPRI uses other independent sources.
  - Last time EPRI sought an EPC for EGS, firms felt there is insufficient publicly available project-level data to make a defensible estimate, so we used NREL ATB data.

All cost estimates are harmonized according to our Technical Assessment Guide methodology and TAGWeb software to ensure like-for-like comparisons.

EPC = Engineering, procurement, and construction. EGS = Enhanced geothermal systems

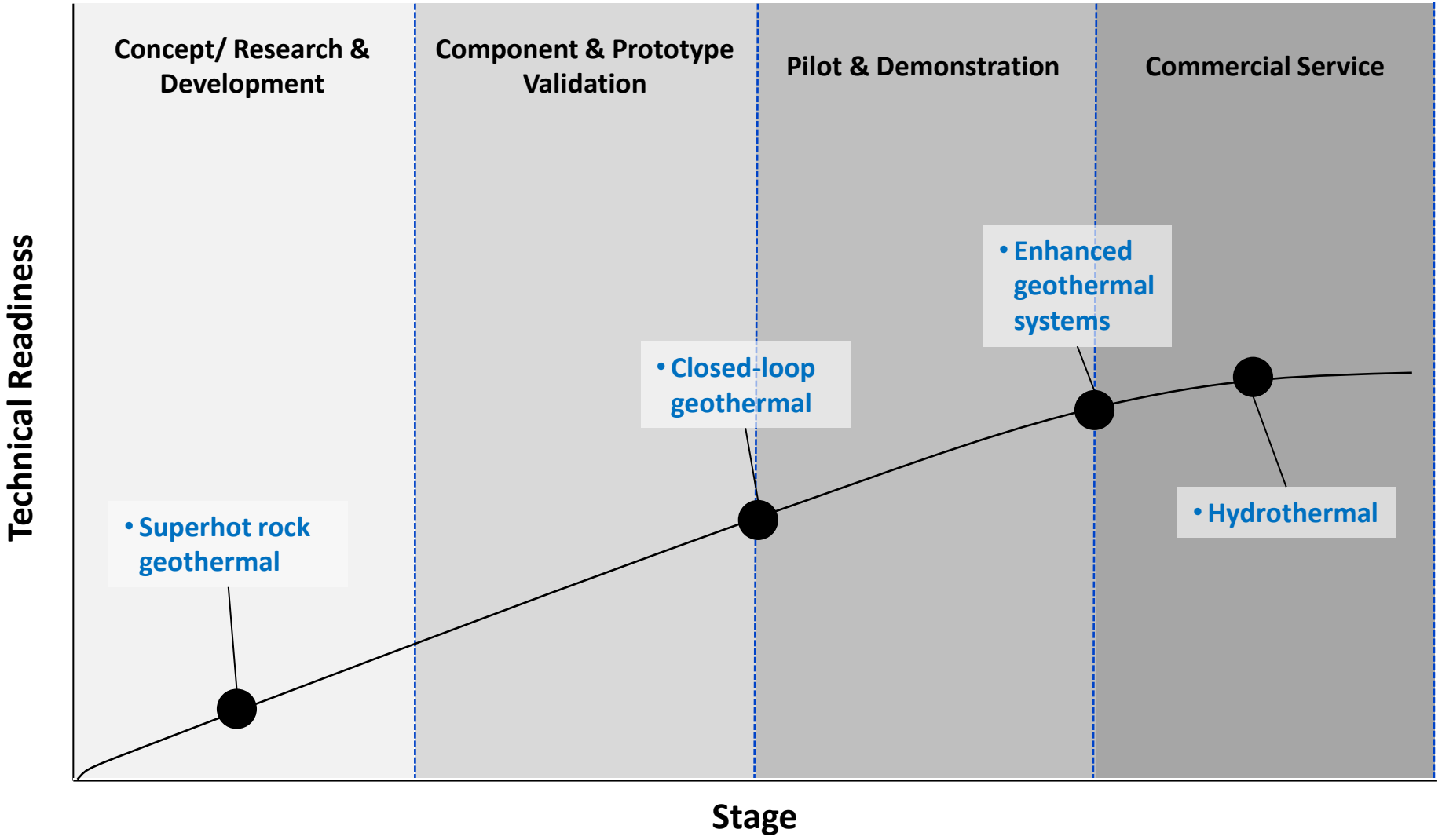
Range of Costs for Next-Generation Geothermal

- Data sourced from NREL's 2024 ATB.
- Deep EGS (3-7 km) Binary (150-200°C).
- Min, Average, and Max cases.
- Deep EGS Binary is used to represent a broadly deployable technology.
  - Lower cost assumptions such as near-field EGS and/or flash plants would be applicable at sites with favorable geothermal resources.
- Full range includes regions with poor resources (high case), so the low case is used for the IRP.



Source: NREL. 2025. *Annual Technology Baseline*. https://atb.nrel.gov/electricity/2024/geothermal

Next-Generation Geothermal Technology Status

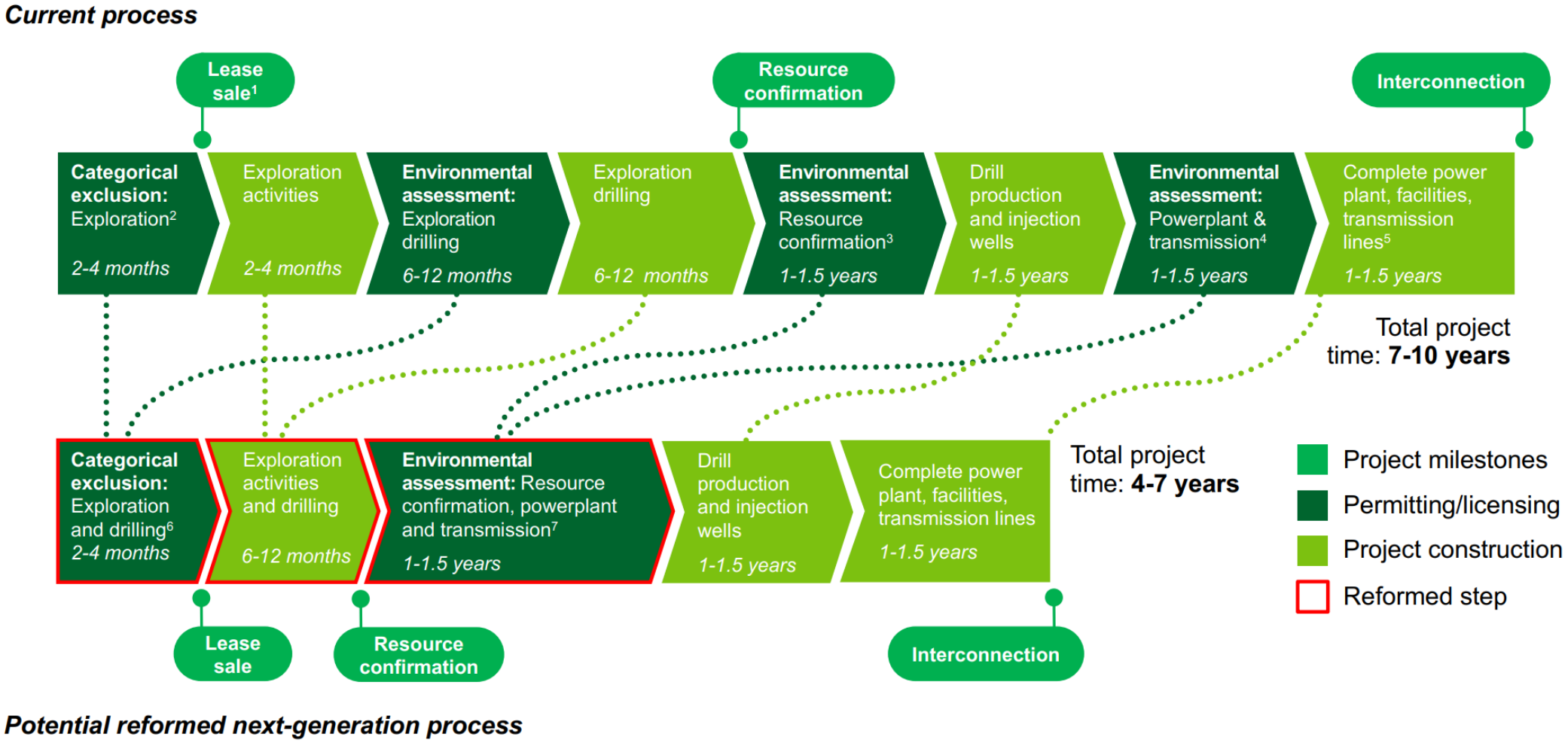


- Enhanced Geothermal technology has been demonstrated technically and has shown evidence of rapid drilling cost reduction.
  It is expected to see commercial deployments in the near future.

- Closed-loop geothermal offers potential technical advantages, but is less mature.

Source: NYSERDA. 2025. *Zero by 40 Technoeconomic Assessment*. Prepared by EPRI
https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/Energy-Analysis/Zero-x-40-Technoeconomic-Assessment.pdf

Next-Generation Geothermal Deployment Timelines:
Project permitting and construction timeline on public land



Source: DOE. 2024. *Pathways to Commercial Liftoff: Next-Generation Geothermal Power*.
https://web.archive.org/web/20250425081459/https://liftoff.energy.gov/wp-content/uploads/2024/03/LIFTOFF_Next-Generation-Geothermal-Power_Updated-2.5.25.pdf

TOGETHER…SHAPING THE FUTURE OF ENERGY®

www.epri.com