GeoAlaska LLC

GEOTHERMAL POWER –Alaska Railbelt

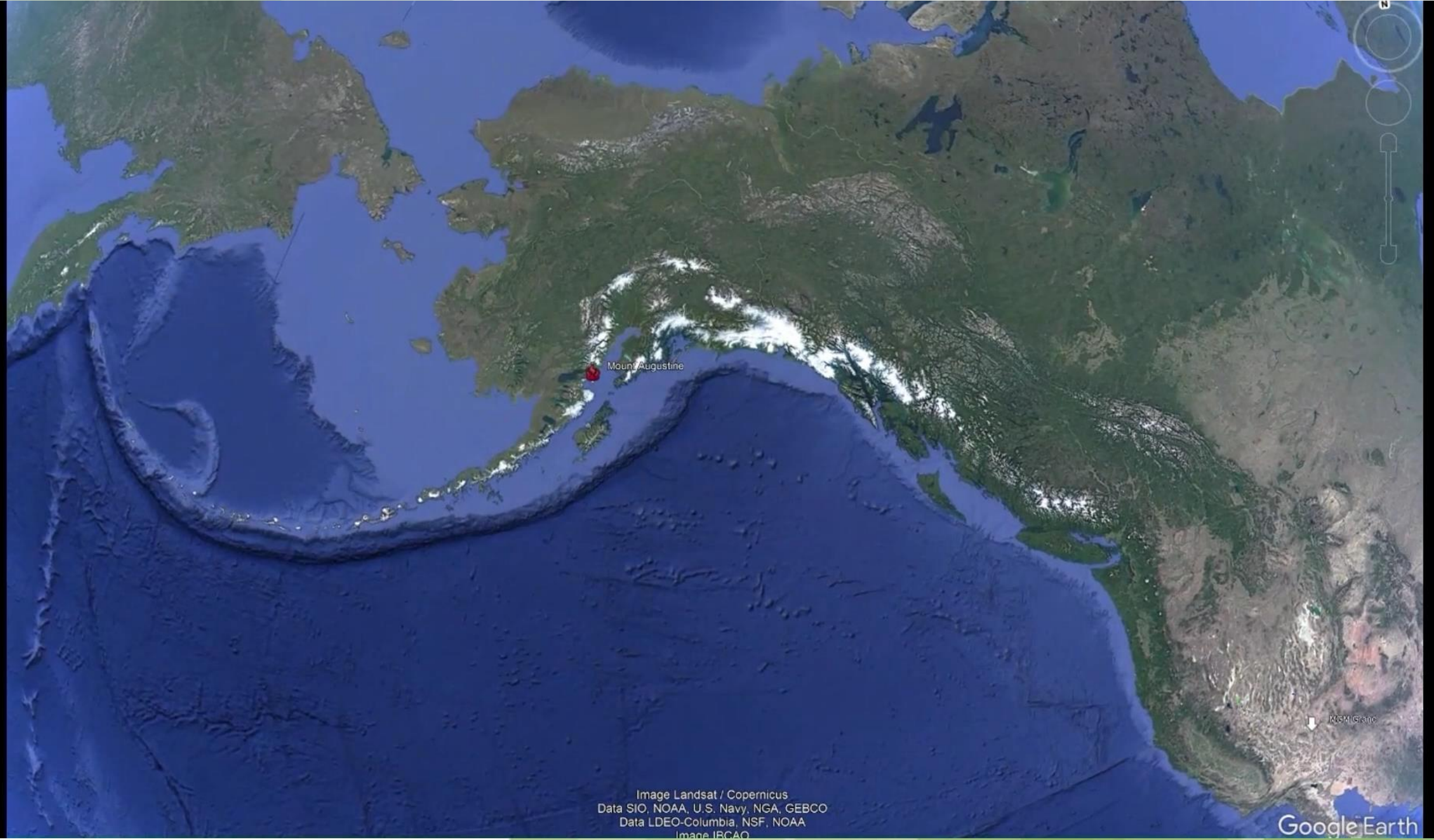
Augustine Island Geothermal Project

Slides marked confidential in 2025 are public documents

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GeoAlaska's Mission

GeoAlaska is an Anchorage-based company whose mission is to deliver sustainable, affordable, low carbon, baseload geothermal energy to the benefit of Alaska's residents and the State's economic future.


Mount Augustine
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data LDEO-Columbia, NSF, NOAA
Image IBCAO
Google Earth



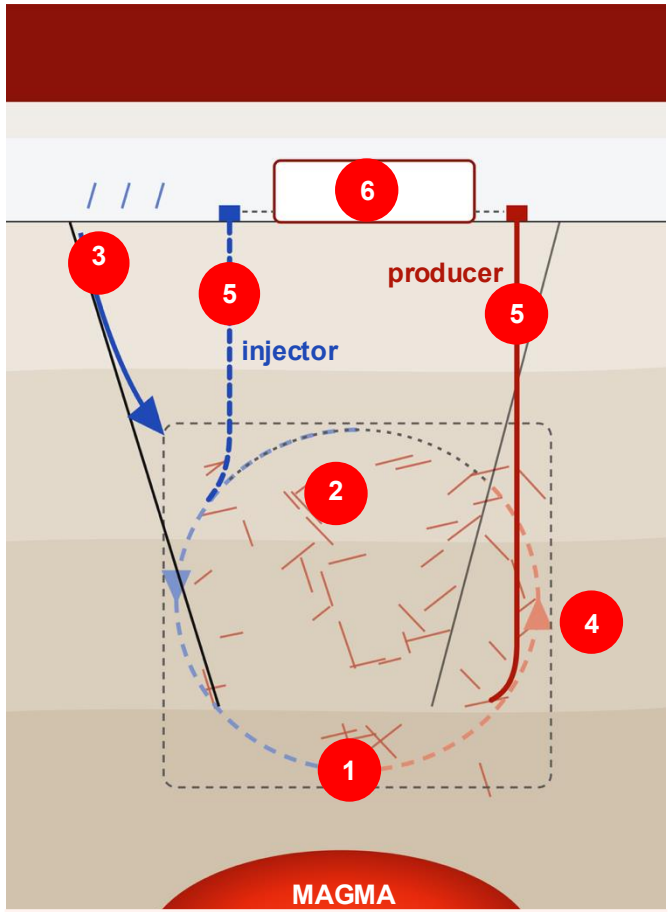
AIDEA – GeoAlaska, LLC Highlights

04/16/2026	Equity investment application submitted to AIDEA
05/13/2026	Grant application submitted to DOE – Kamishak #1 Well Subrecipient: **National Laboratory of the Rockies** (NLR: Previously NREL)
05/18/2026	**POSCO** International & State of Alaska signed MOU Augustine Island Geothermal Project – first among six projects.
09/21/2026	DOE selects GeoAlaska's peer-reviewed grant

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Conventional geothermal: two common settings

1a MAGMATIC · 200–350 °C



Examples — 1a: The Geysers, Indonesia, Iceland

1. **HEAT SOURCE**
   1a: magmatic heat. 1b: elevated regional heat flow. Faults and fractures provide flow paths in both.

2. **GEOTHERMAL RESERVOIR**
   Connected faults and fractures provide the main flow paths.

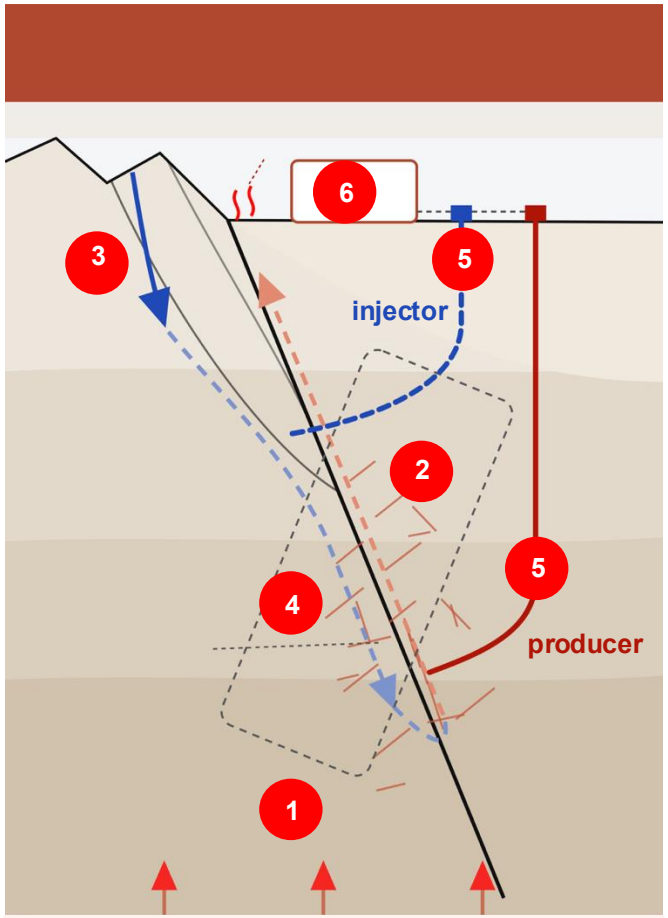
3. **GEOTHERMAL FLUID (water, brine or steam)**
   Meteoric recharge from rainfall and snowmelt

4. **HEAT TRANSFER AND CIRCULATION**
   Natural convection through faults and fractures

5. **WELLS AND COMPLETIONS**
   Production and injection wells. Artificial lift may be required (e.g., Ormat line-shaft pumps).

6. **GEOTHERMAL POWER PLANT**
   Binary ORC: 130–250 °C
   Flash: 250–350 °C
   Illustrative bands; actual ranges overlap.
   Choice depends on produced fluid.

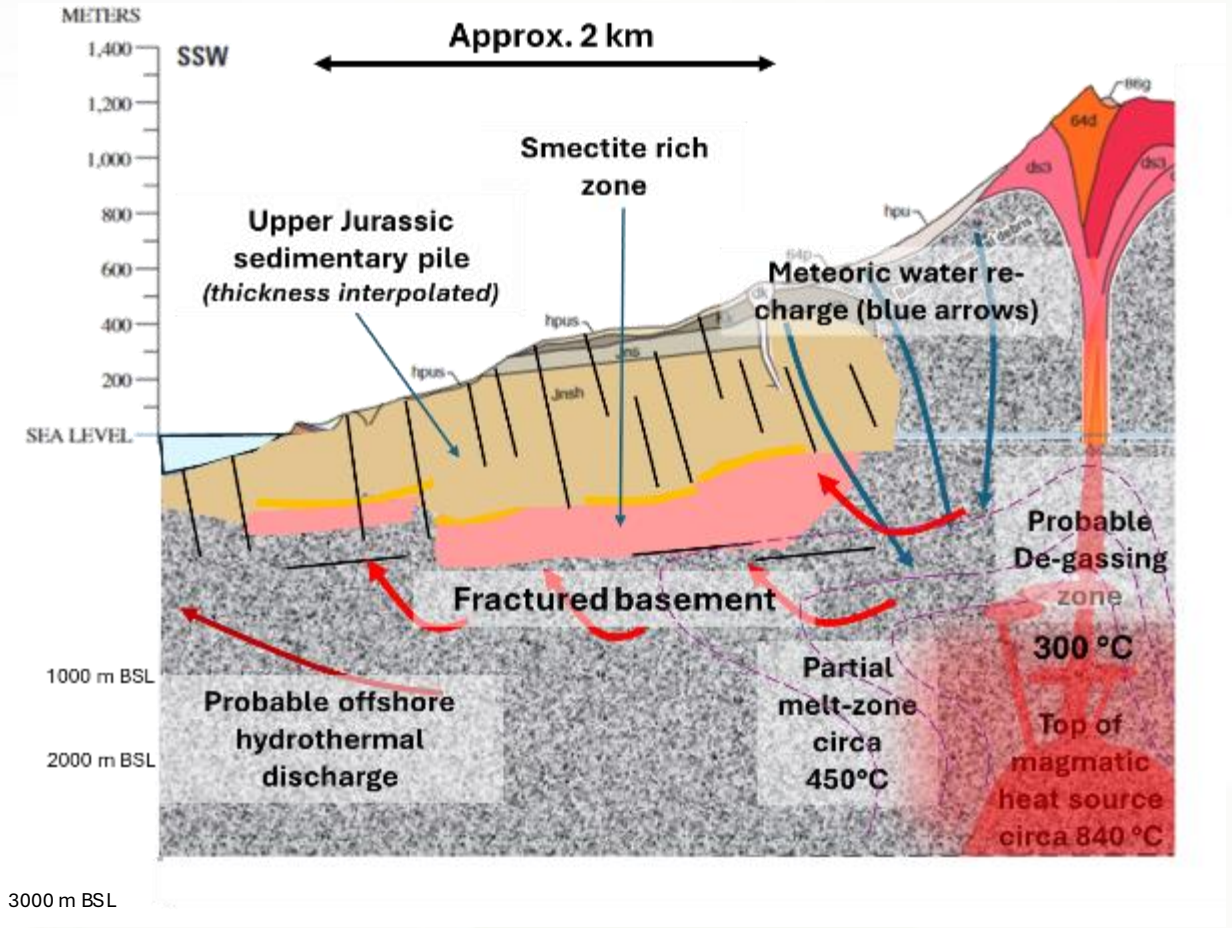
1b FAULT-HOSTED · 150–250 °C



1b: Nevada Basin-and-Range, Türkiye

Augustine Geothermal Setting

- Jurassic (Oxfordian) Naknek Fm. sub-crop up to 500m thick (up to 29% measured smectite).
- Fractured shale/silt basement Chinitna Fm.
- Shallow magma storage zone, starting 2 km below sea-level (BSL), extending 6 km BSL.
- Magmatic heat source temperature modeled at 840-870°C
- De-gassing zone of circa 300-450°C at around 1-2 km below sea level central to cone
- Expected partial-melt zone at around 450°C (supercritical)

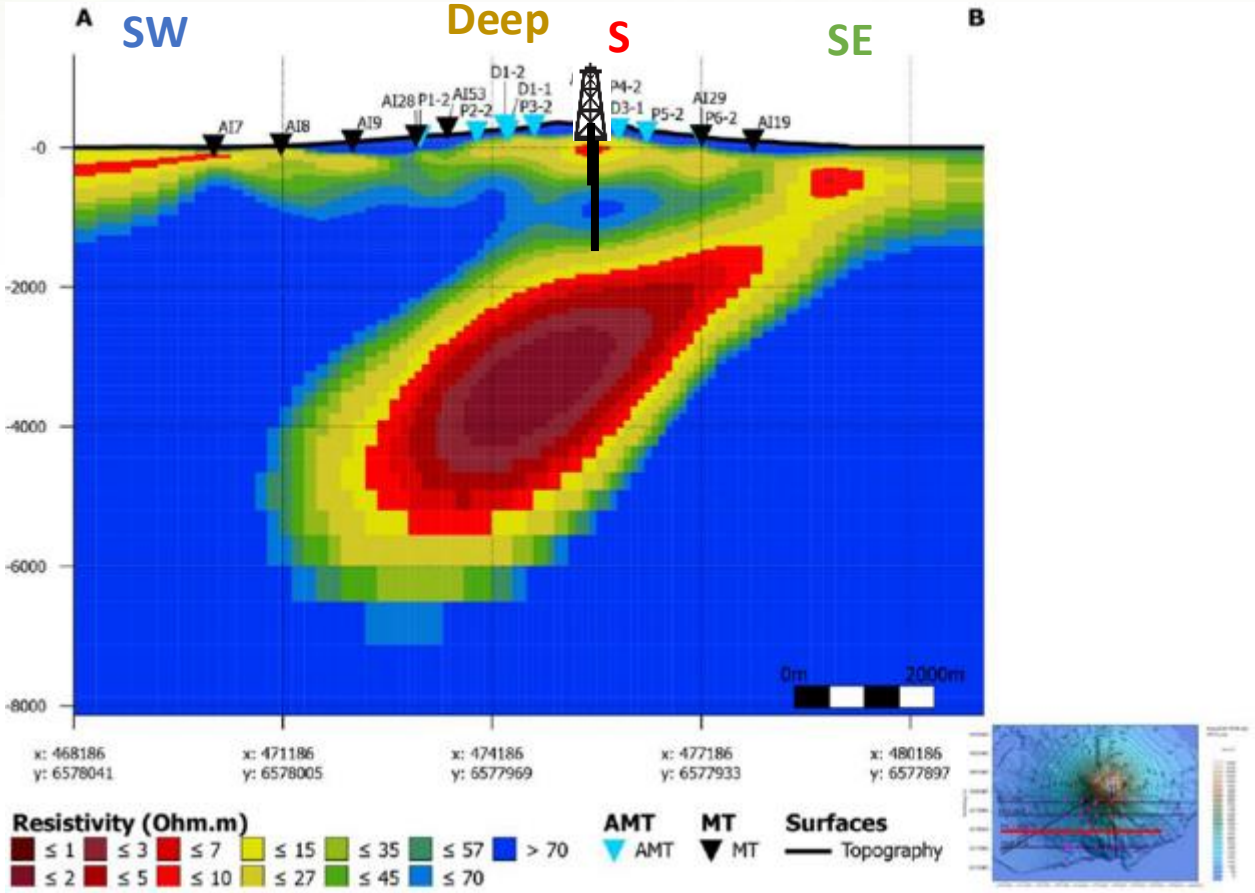


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Modified from Waitt & Begét, 2009 with additional contributions from Benage et al., 2021

Results of Monte Carlo Estimates



P50 case *

224 MW gross
200 MW net – production facilities ~20 MW

CAPEX <$1B
IRR (25 years): 42.8%

- Excludes Carbon Credits

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Augustine Island Power Potential

CONSERVATIVE POWER ESTIMATE (19% of acreage) – arms-length engineering report

JRG Energy (2024): **224 MW** hydrothermal power produced from existing formation

ACREAGE BASED ESTIMATE (100% of leased acreage; 300 C; Hot Dry Rocks - EGS)

Anderson et al (2025): **830 MW** sustained 30 years average power production

EICHELBERGER et al (2027). Stanford Geothermal Conference – the future of "superhot"

"Material, rock-mechanical, and hydrodynamic challenges…define the frontier of superhot geothermal development. **Extensive experimentation near magma will be necessary**"

"Augustine Volcano is the **best national test site** for near-magma research & development – perhaps the best in the world"

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Augustine Power in Perspective

Disclaimer: Railbelt Power usage and production data vary from report to report & year to year

Average Railbelt load: **~543 MW** (DOE – 2024); 204 MW = **37%** of 534 MW

~28-35% of Cook Inlet gas is burned to generate electricity (21-25 BCF of 70 BCF/year; ISER 2026)

Historically, 61% to 73% of Railbelt power generated using gas (ACEP – 2024)

204 MW will conserve several billion cubic feet of gas per year.

Transmission from Augustine Island via **HVDC** submarine cable (longest: Viking Link – **475 miles**);
Anchor Point – **70 miles**; Nikiski – **120 miles**: Beluga – **150 miles** (off-the-shelf technology).

After **Cook Inlet Power Link** (HVDC - Nikiski to Beluga) and **Beluga-Healy Transmission Project** are constructed, geothermal power may contribute to power supply from Fairbanks to Homer.

Scalable: **50+ volcanoes** in Alaska; Basin & Range geology elsewhere in Alaska (Seward Peninsula)

On-Island Use: Value-added products (e.g., data, SAF, hydrogen, ammonia)

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Risk & Mitigation

200 years – 7 eruptions

Average repose – ~30 years

Repose range – ~7 to ~70 years

Last eruption 2006 – Limited AVO equipment destroyed. AVO collected & transmitted data continuously

No lava flows. Ash plume to 45,000 ft

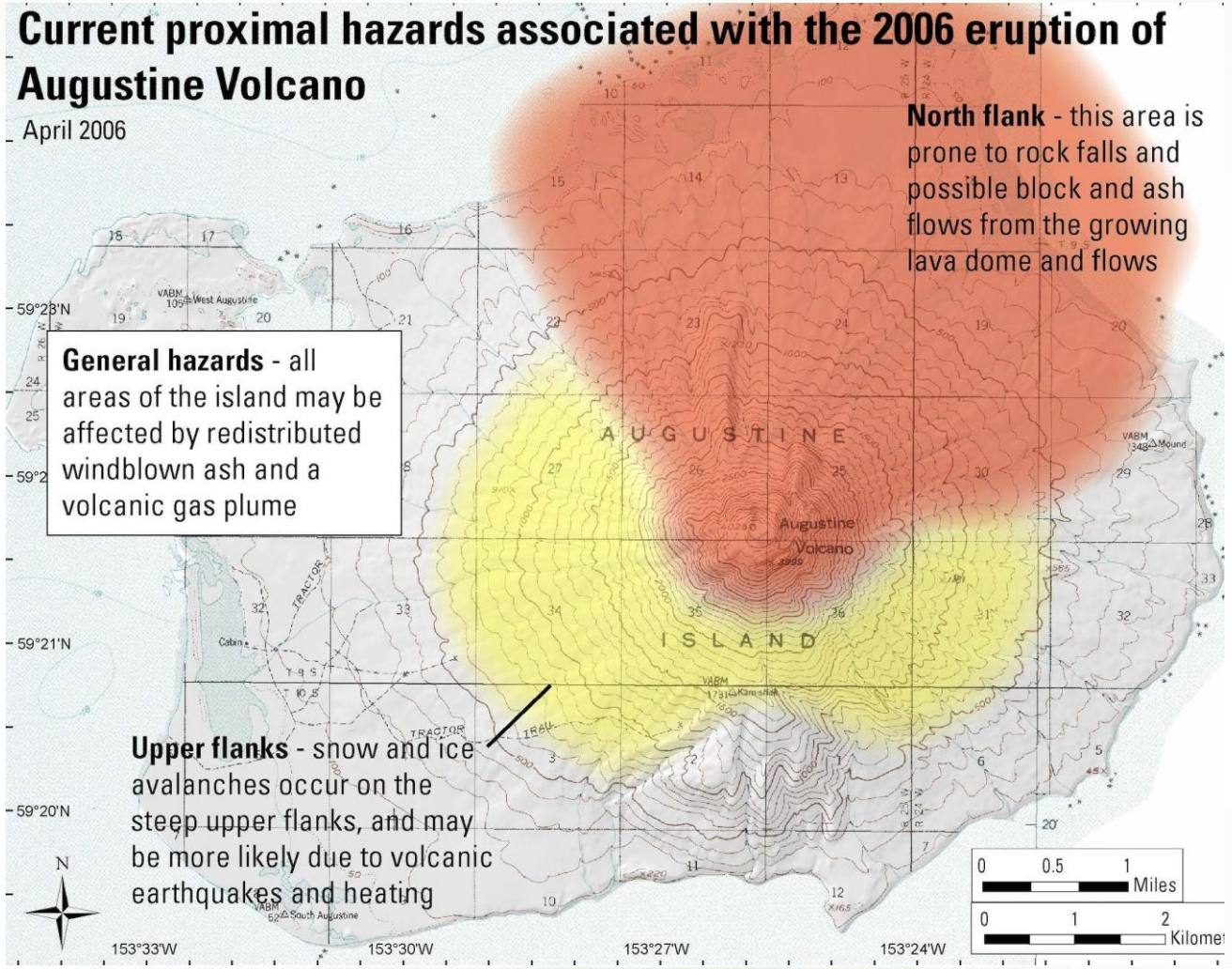
Risks: Ash, gases, ballistics, pyroclastics, caldera rim collapse, snow & ice avalanche

Kamishak Dome is protective to the south

Facility risk mitigated by placement and design

Risk can be foreseen, mitigated, and underwritten

Facilities placed above tsunami zone.



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GEOALASKA + NLR + DOE + AIDEA =
A Brighter Future for Alaska

