Marcio Parente
Energy Sector

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Company Overview

Section I

Company Overview: Segments

Energy

Geothermal

Ormat is a leader in the space and most known for their patent protected technology of the Geothermal Combined Cycle Power Plant or GCCU. While solar and REG are only domestic, Ormat has geothermal plants around the world.

Solar

Solar includes traditional solar panel plants, geothermal and solar hybrid plants. The companies first plant was the Tungsten Mountain facility in 2019. Solar is used to offset parasitic load from binary cycle plants.

REG

REG stands for recovered energy generation. Captures wasted heat from an energy facility like an oil refinery or steel mill. Heat is then used to create steam and spin a turbine like a traditional geothermal plant.

Key Plants

Olkaria III Complex

150MW – Kenya - Geothermal

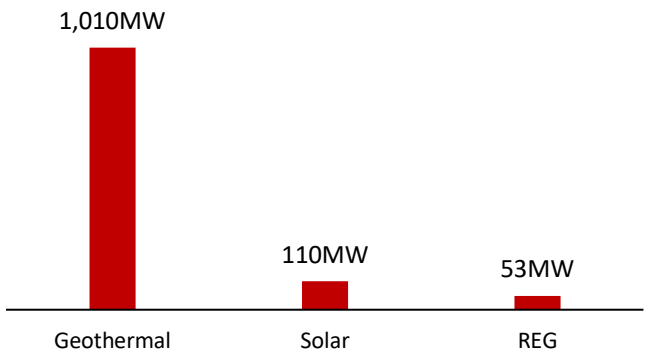
McGinness Hills

142Mw – US - Geothermal

Steamboat Complex

79MW – US - Hybrid

Energy Generation



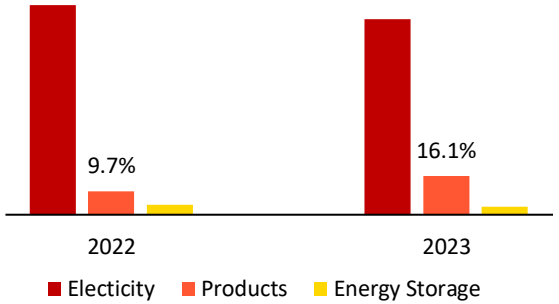
Products

Ormat sells equipment for geothermal and recovered energy-based electricity. Primary customers include contractors, power plant developers, cement plant owners, interstate natural gas pipeline owners, etc.

Main Products

- OECs
- Power Units for REG
- EPC of Power Plants

Revenue by Segment



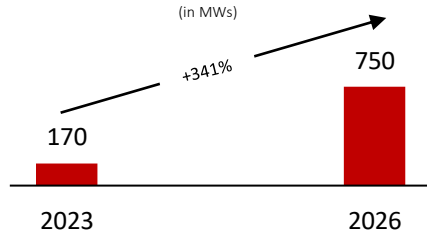
Energy Storage

Operate BESS facilities to provide energy and ancillary services with 5 being commissioned (total capacity of 82MW) in 2023. Ormat is currently constructing 7 additional facilities with a total capacity of 355.

3.6GW

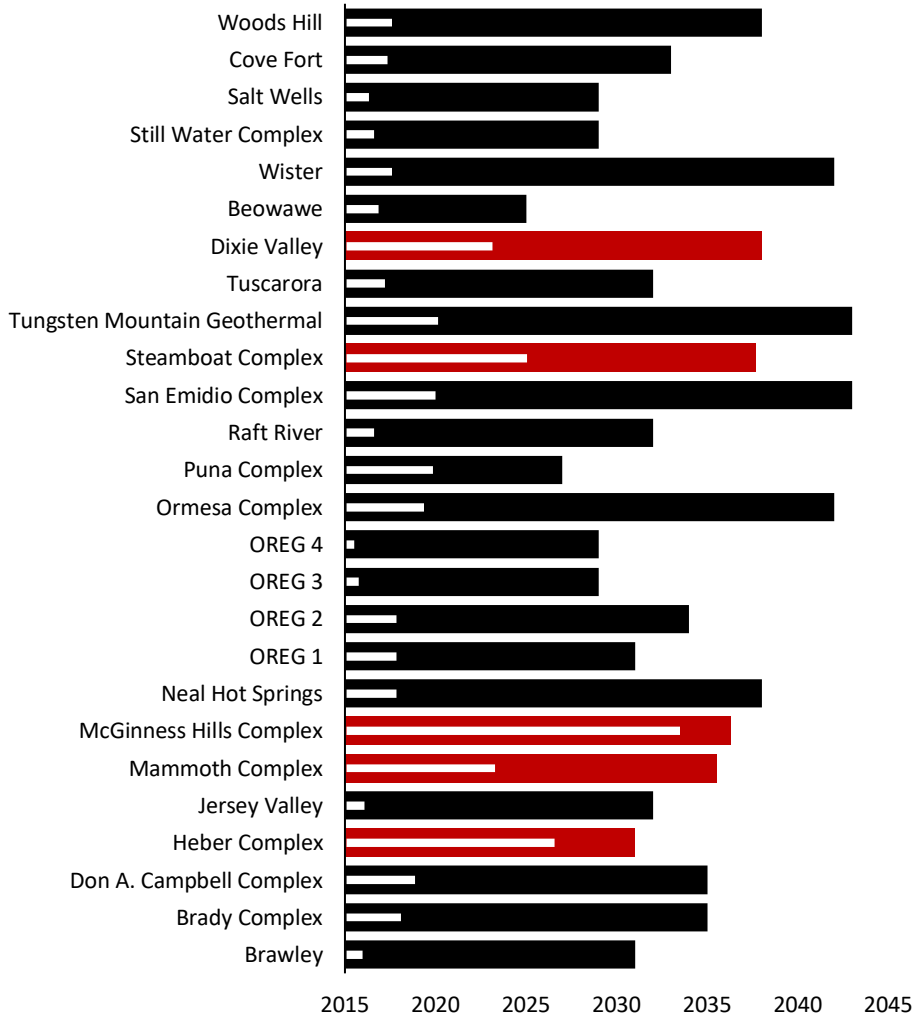
pipeline of potential projects

Projected Storage Growth



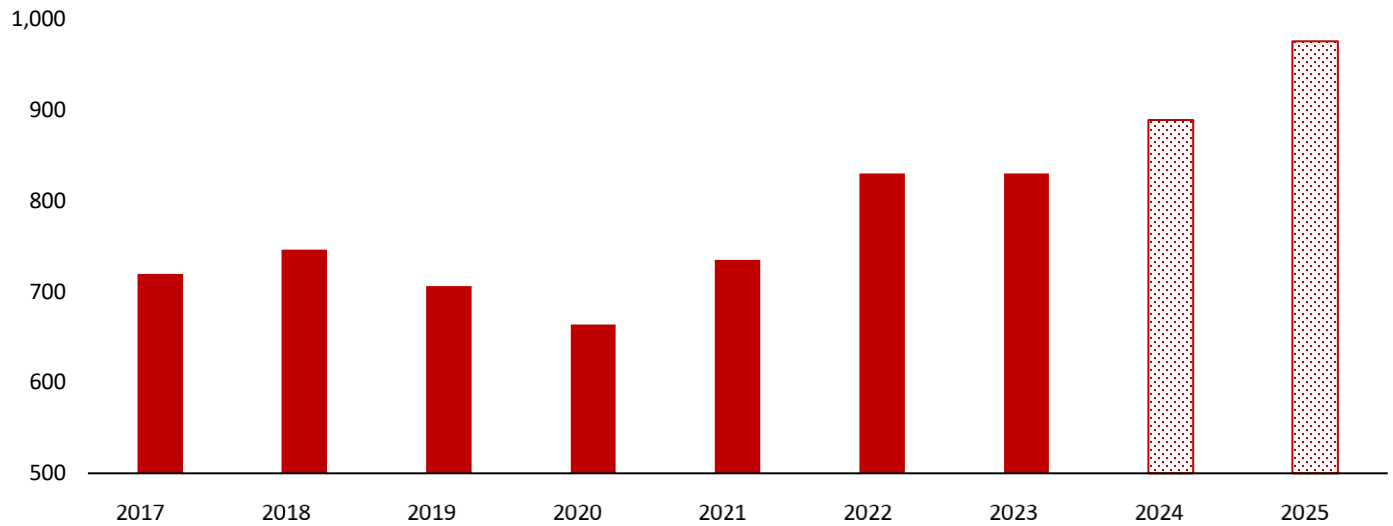
Company Overview: Power Output and Revenue

PPA Expiration in the U.S.

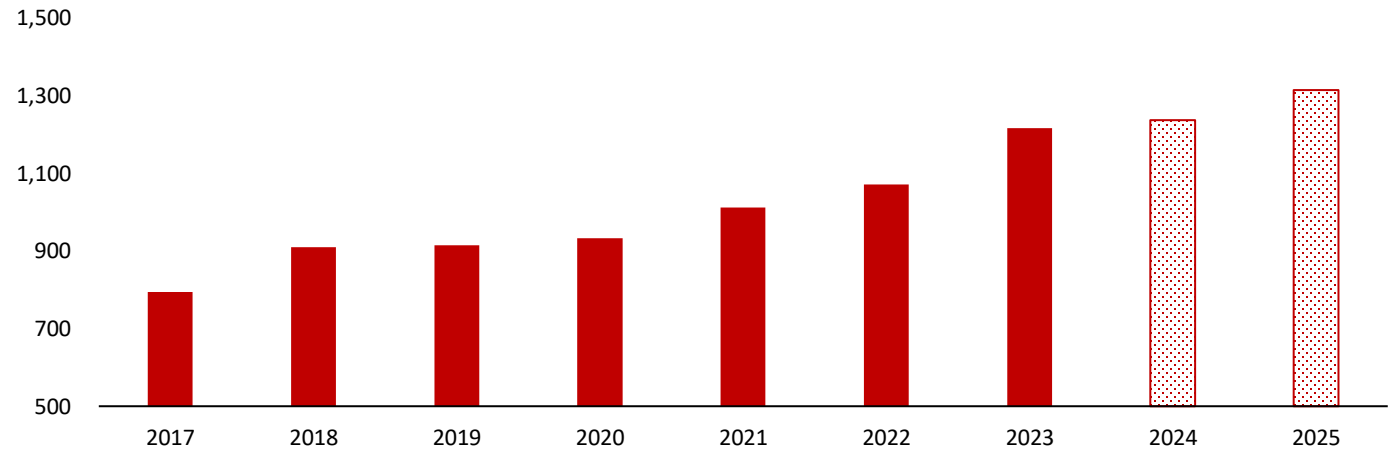


*White lines represent relative MWs (axis not shown)
*Multi-plant compounds show the average expiration across all plants

Revenue in Millions

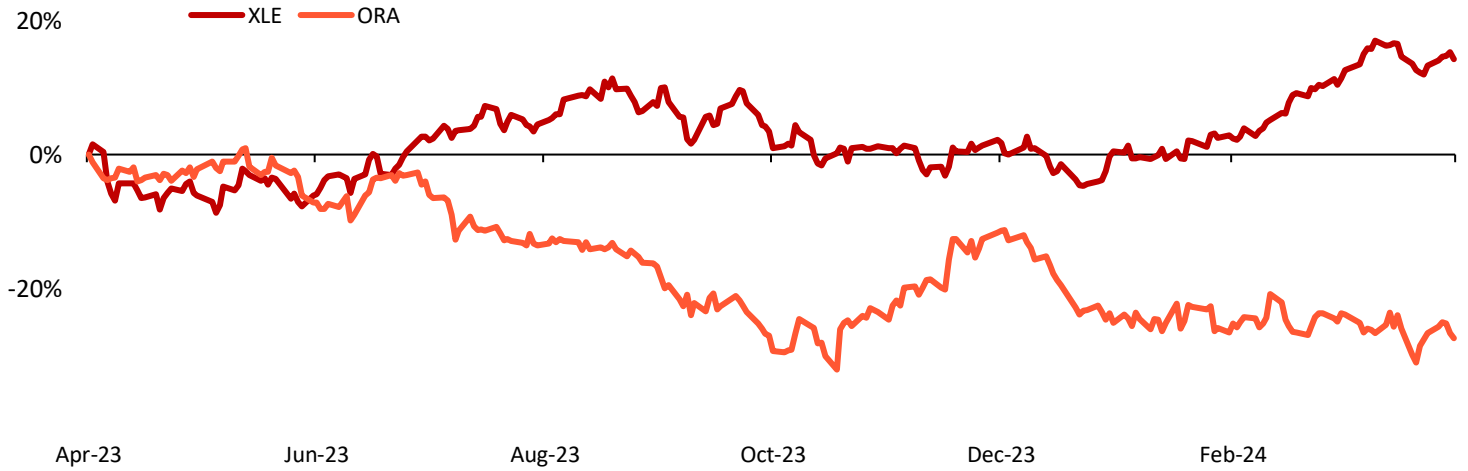


Total Energy Generation in MWs



Company Overview: Financial Highlights

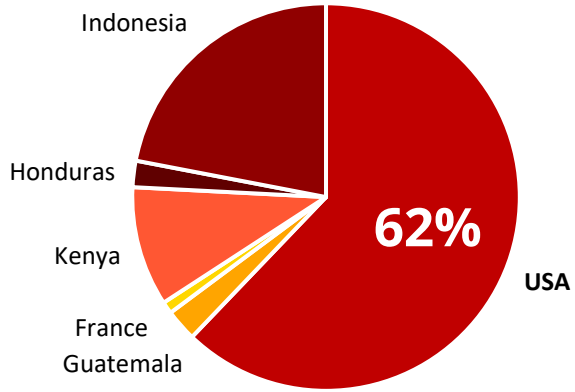
Ormat vs XLE (1yr Growth)



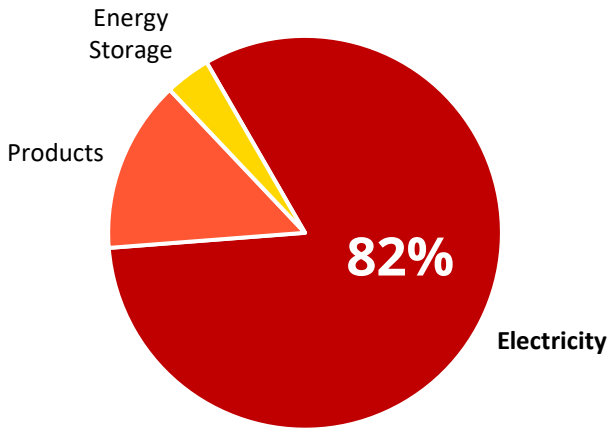
Financial Performance

Revenue	$	692,812	$ 719,267	$ 746,044	$ 705,342	$ 663,084	$ 734,159	$ 829,424
% Growth			*3.82%*	*3.72%*	*-5.46%*	*-5.99%*	*10.72%*	*12.98%*
EBIT	$	205,018	$ 185,110	$ 193,796	$ 214,013	$ 169,357	$ 152,803	$ 166,585
% Revenue		*29.59%*	*25.74%*	*25.98%*	*30.34%*	*25.54%*	*20.81%*	*20.08%*
NOPAT	$	170,730	$ 137,181	$ 137,303	$ 168,717	$ 103,551	$ 95,609	$ 139,085
% EBIT		*83.28%*	*74.11%*	*70.85%*	*78.83%*	*61.14%*	*62.57%*	*83.49%*
Capex	$	259,234	$ 258,521	$ 279,986	$ 320,738	$ 419,272	$ 563,476	$ 618,383
% Revenue		*37.42%*	*35.94%*	*37.53%*	*45.47%*	*63.23%*	*76.75%*	*74.56%*
D&A	$	115,146	$ 132,233	$ 148,761	$ 156,612	$ 182,972	$ 198,792	$ 224,797
% Revenue		*16.62%*	*18.38%*	*19.94%*	*22.20%*	*27.59%*	*27.08%*	*27.10%*

Revenue by Geography



Revenue by Segment



Industry Analysis

Section III

Industry Analysis: How Does It Work?

Location

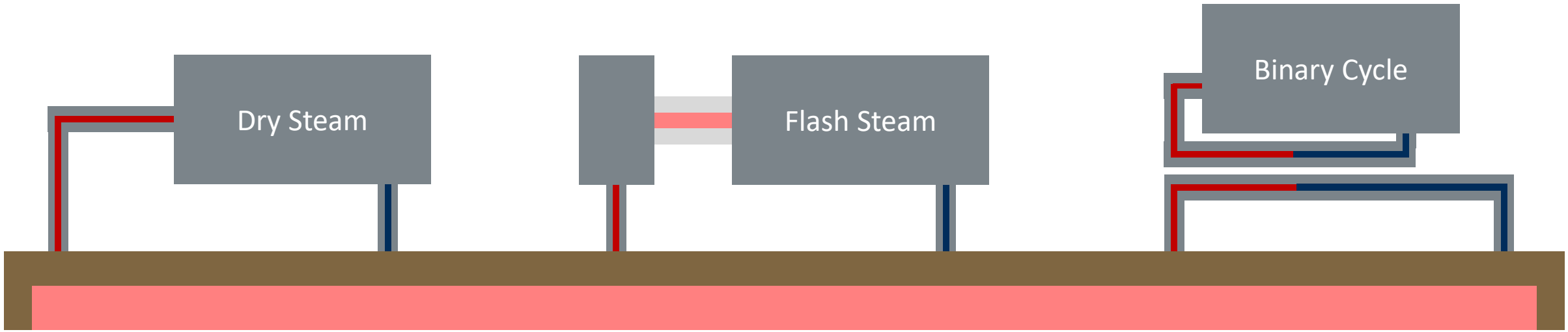
Geothermal plants are typically built near fault lines where the heat rises closest to the surface

Drilling

Drilling gets exponentially more expensive with depth and EGS, like fracking but with hot water, has been used to make drilling easier

Pressure

All fluid or gas must be pumped back into the ground after it is used in order to maintain the pressure

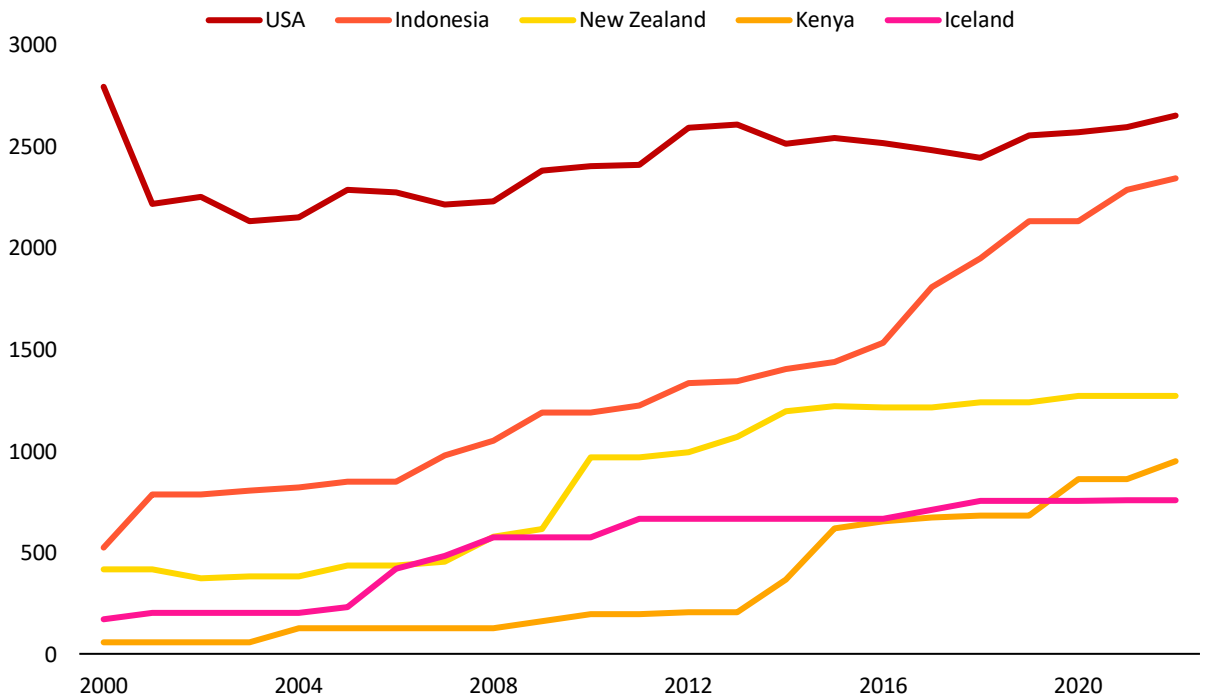


Industry Analysis: Geothermal Energy Production

PAST

- Over 70% of the geothermal capacity in the **US** was built before 2000, but nearly 90% of plants built since then are binary cycle

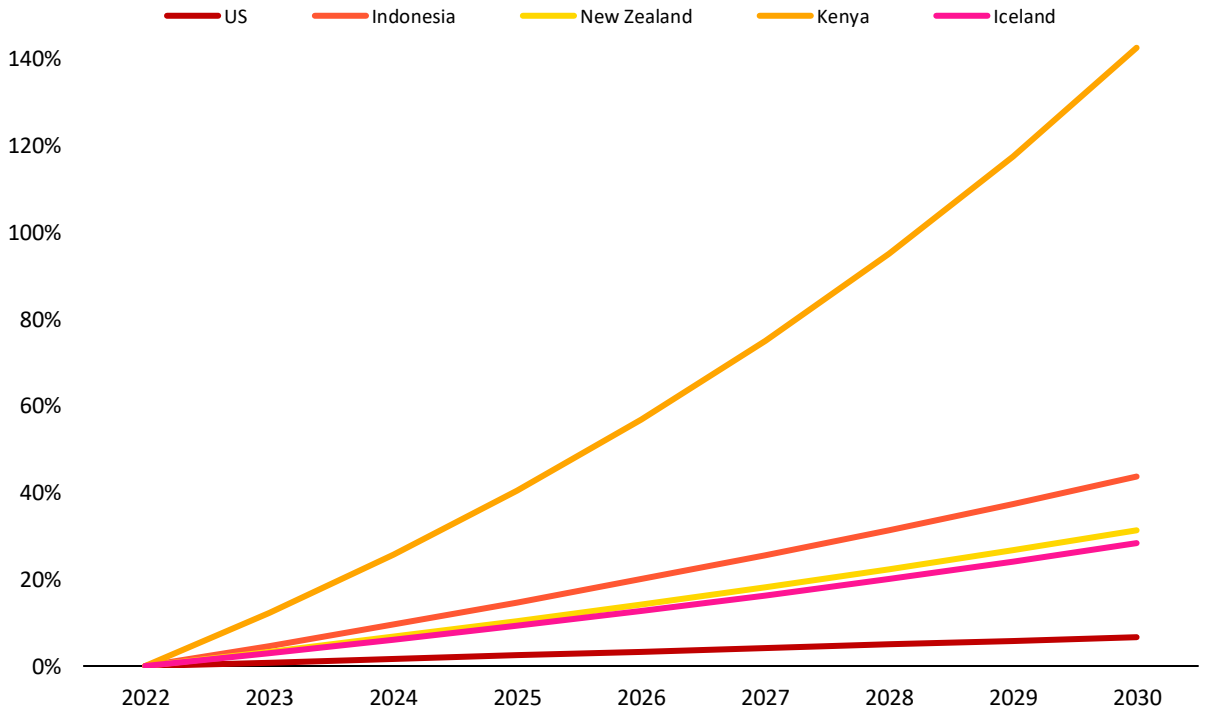
Historical Geothermal Energy Production



FUTURE

- ESG and Solar-Geothermal Hybrid plants will be leading trends in the industry moving forward

Projected Geothermal Wattage Growth



Industry Analysis: Geothermal Energy Production

Global
16,335

America
2652

Indonesia
2343

Philippines
1932

Turkey
1691

Oceania
1323

New Zealand
1273

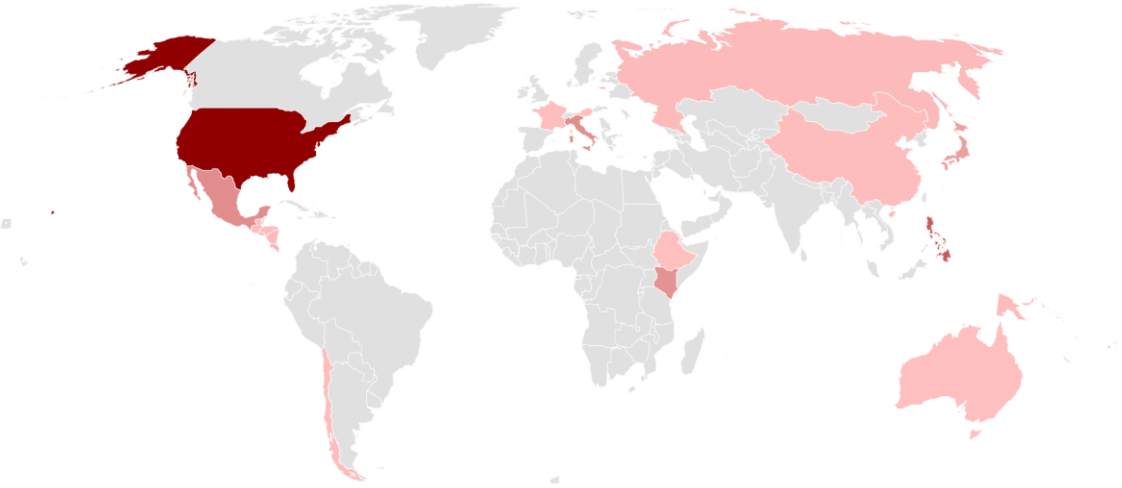
Mexico
1059

Kenya
950

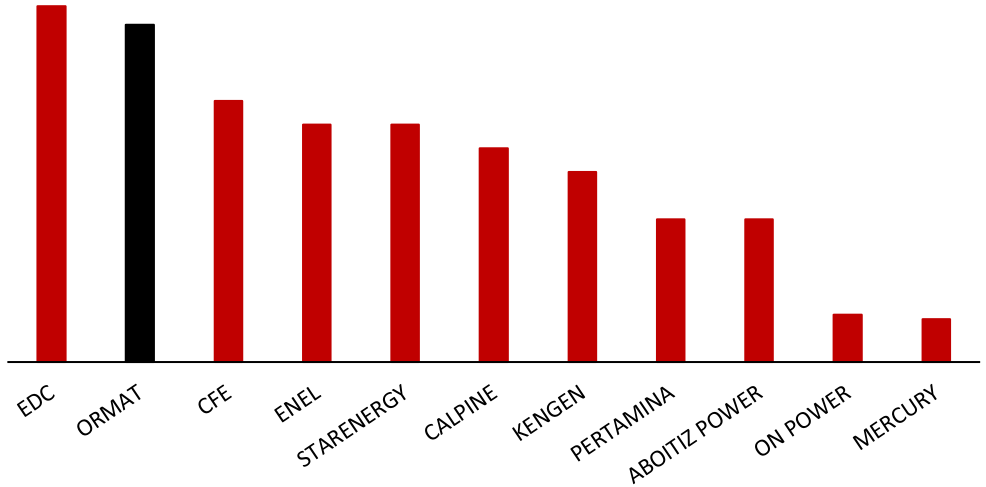
Italy
772

Iceland
757

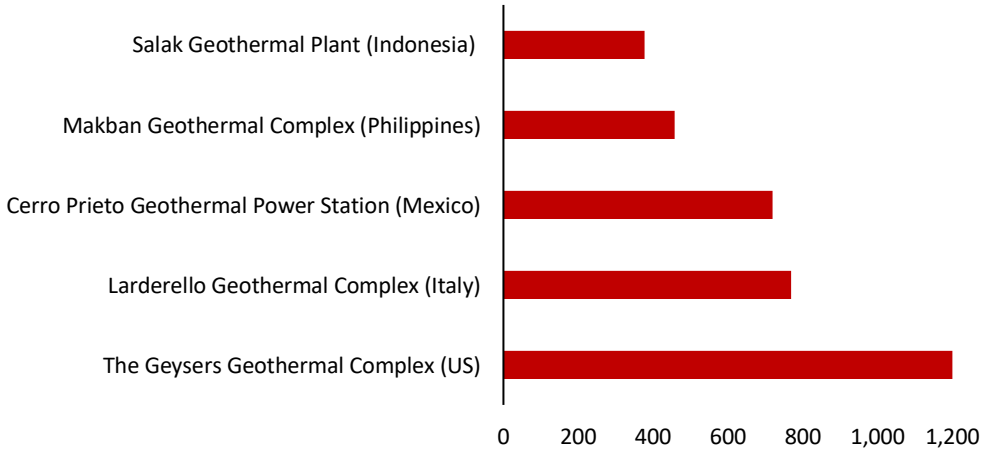
Geothermal Production (2020)



Geothermal Energy Production



Top 5 Geothermal Power Plants (in MWs)



- The **US** Geothermal Energy Opportunity Act (GEO) has been introduced to "put geothermal on equal footing with oil"
- The **Indonesian** government has invested $35B to reach a 23% renewable and 7% (7000MW) geothermal energy mix by 2025
  - Currently geothermal makes up less than 3%
- **Kenya** has signed 3 deals with Toyota to bolster their geothermal energy production and bring manufacturing to Kenya
  - Investing $75B on Menengai Power Plant

Investment Thesis

Section IV

Patent Barrier will Maintain Market Share

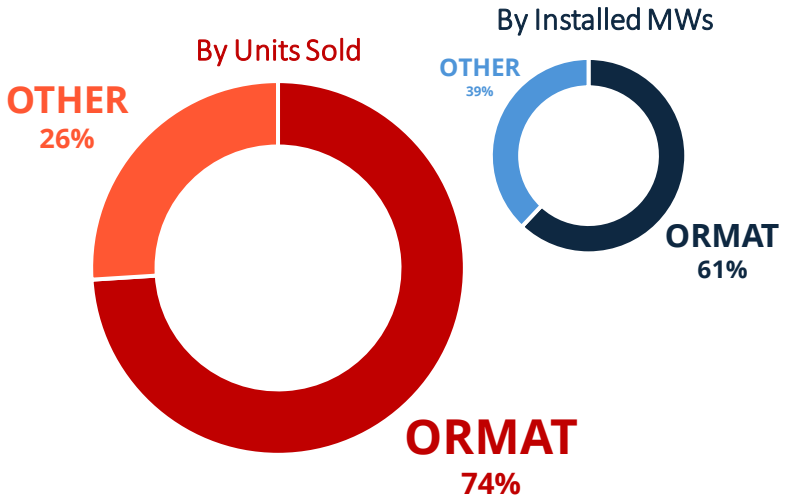
Ormat's focus on high R&D will allow them to continue and maintain their patent barrier, especially within the Binary-Cycle and ORC space. This focus will allow them to capitalize off advancements like ESG to optimize their energy output

Vertical Integration and Global Positioning

Their shifting portfolio and product backlogs has been increasingly more international, and their vertically integrated business model will allow them to capitalize of the growth on this government-dominant market and have greater

Thesis 1.1: Patent and Technology Barrier

Geothermal Binary Plant Provider Market



192 patents and patent applications

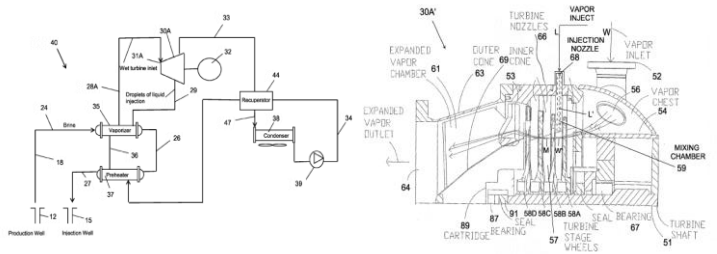
58 U.S. patents

"No single patent will have any material effect on our business or results of operations."

2024 Patents and Applications

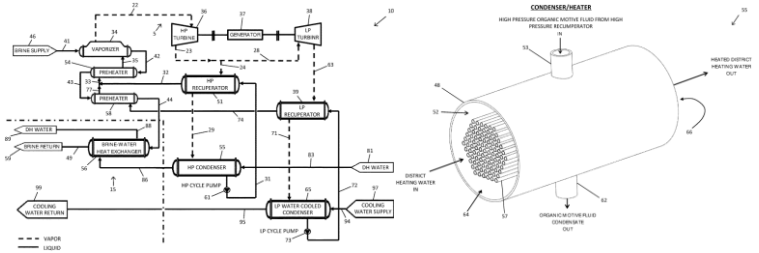
System for increasing power output from turbine

(January 3, 2024)



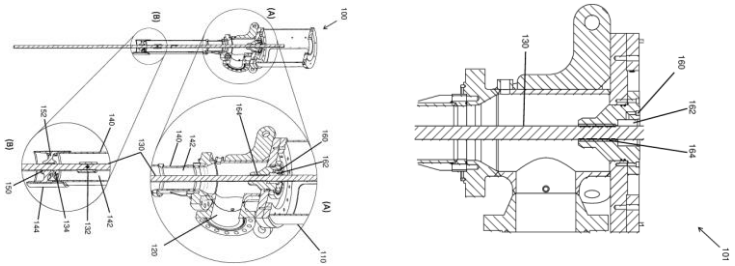
Geothermal district heating power system

(February 20, 2024)



Well pumping apparatus and methods

(March 21, 2024) - Application



ORMAT Energy Converter

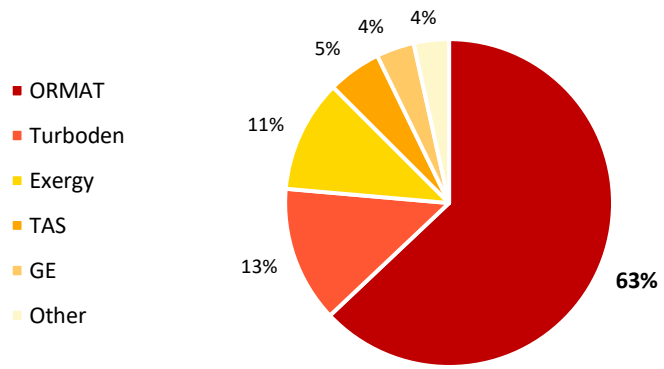
ORC (Organic Rankine Cycle)

Process for which a liquid is heated into a vapor to spin a turbine and pumped back into the original contain once cooled. The ORC is used in binary-cycle plants and uses the secondary fluid with a lower boiling point.

ORC Patent Info
Patents – 77
Applications - 9

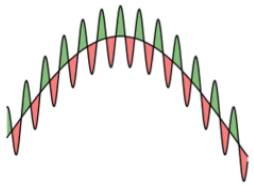
ORC Market Share

(By installed MWs 2016)



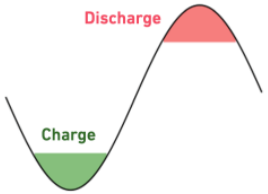
Thesis 1.2: R&D Focus and ESG First Mover Advantage

BESS Battery Energy Storage Systems



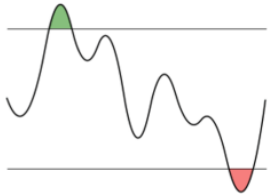
Generation Smoothing

Used to smooth out the variability in power generation from renewable sources, ensuring a steady output despite fluctuations in resources like wind or solar.



Energy Arbitrage

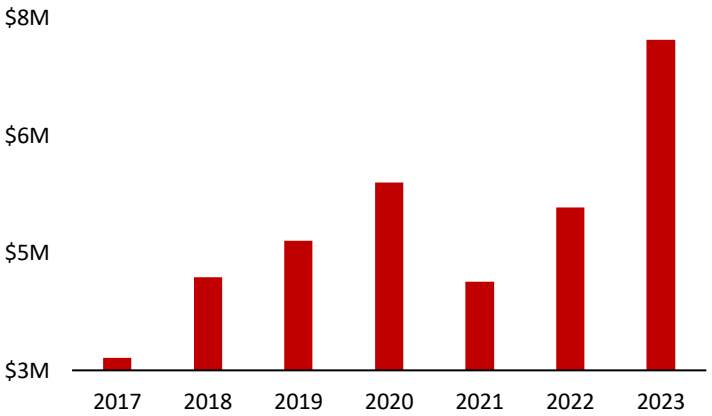
BESS capitalizes on energy arbitrage by storing electricity when prices are low and selling it back to the grid when prices are high, maximizing profit.



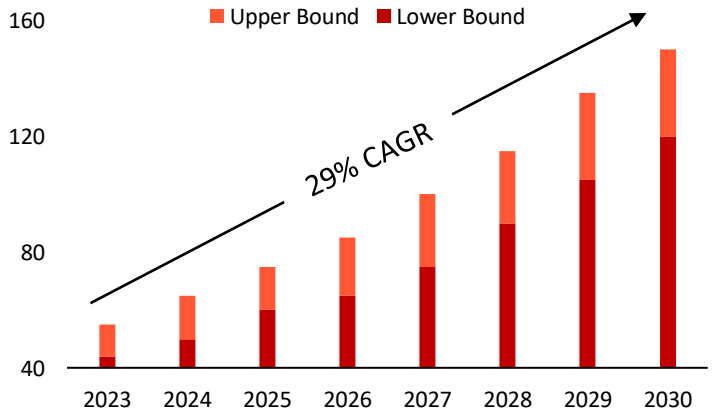
Frequency Regulation

BESS helps maintain the stability of the electrical grid by adjusting its output to help balance the grid's frequency, responding rapidly to changes in load demand.

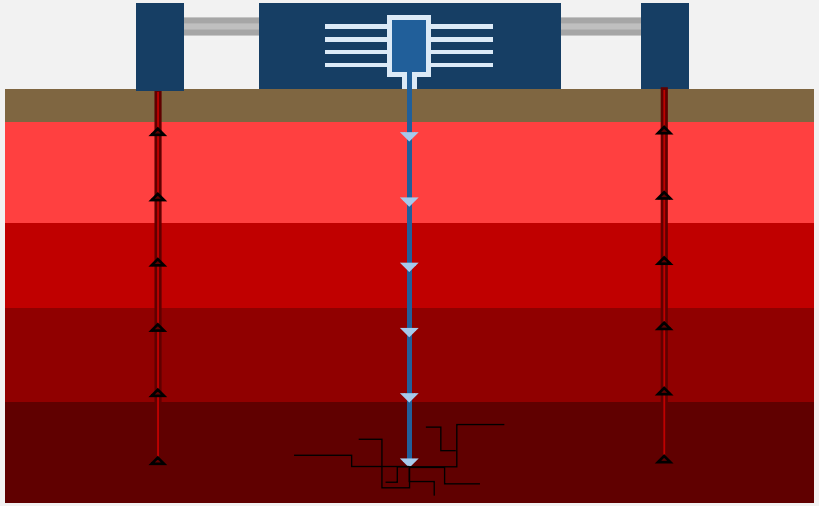
Research and Development



BESS Market Size Projection



Enhanced Geothermal Systems (EGS)



Involves injecting water at extremely high pressures to create fractures in the soil. This not only makes it easier to drill deeper, but also allows for more heat to escape.

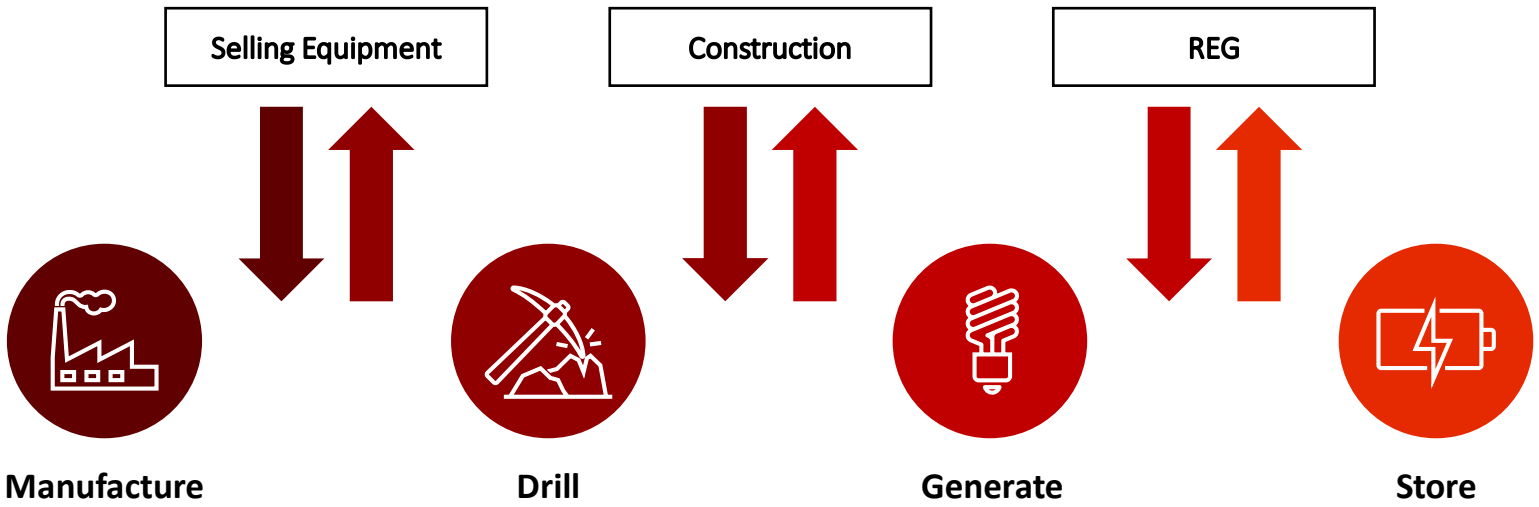
- "Human made geothermal energy"
- Potential to power 65 million American homes

DOE has funded 2 successful ESG projects:

- The Geysers in Northern California - Calpine
- **Desert Peak, Nevada - Ormat**

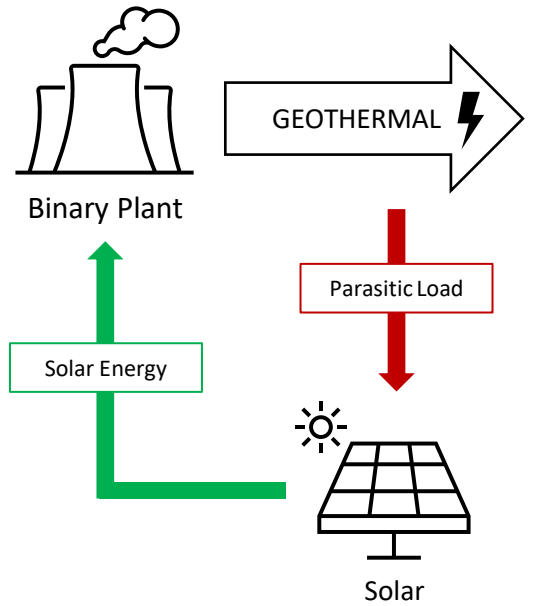
Thesis 2.1: Vertical Integration and Business Model

ORMAT Business Model



- Vertical integration gives them a first mover advantage for new power plant technologies
- They have control over their own supply and can effectively manage new equipment inventory
- Horizontal integration allows them to interconnect technologies
  - Hybrid Solar-Geothermal Plants and BESS solar

Hybrid Solar-Geothermal Plants

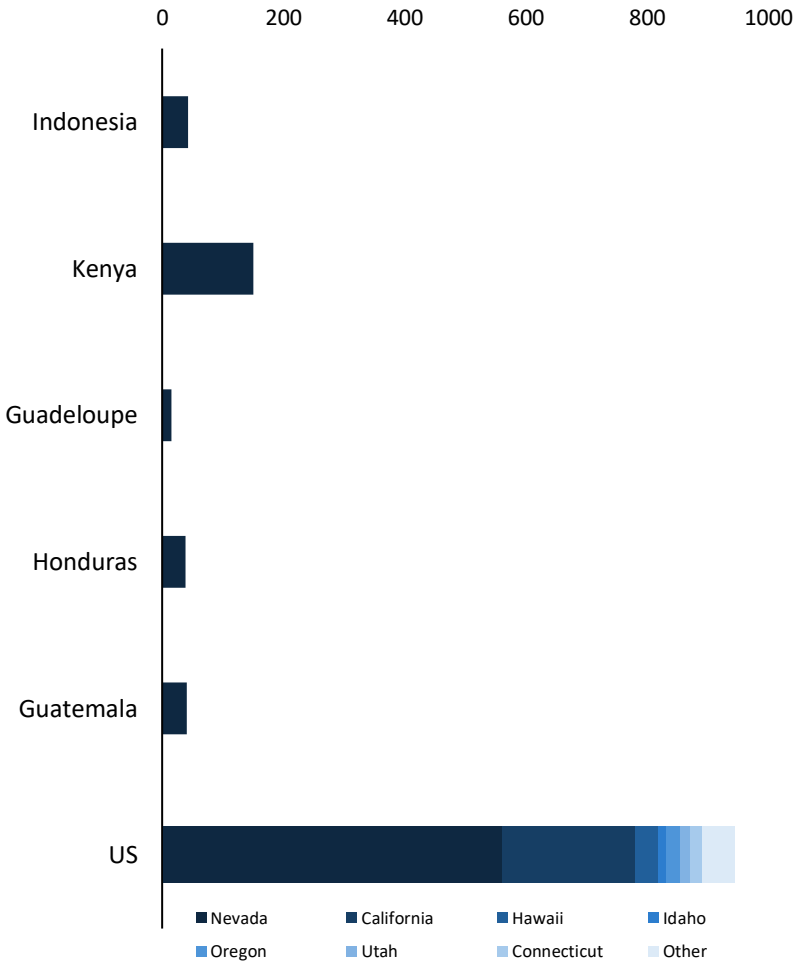


SOLAR	GEO
LCOE: $32-$44/MWh	**LCOE:** $69-$112/MWh

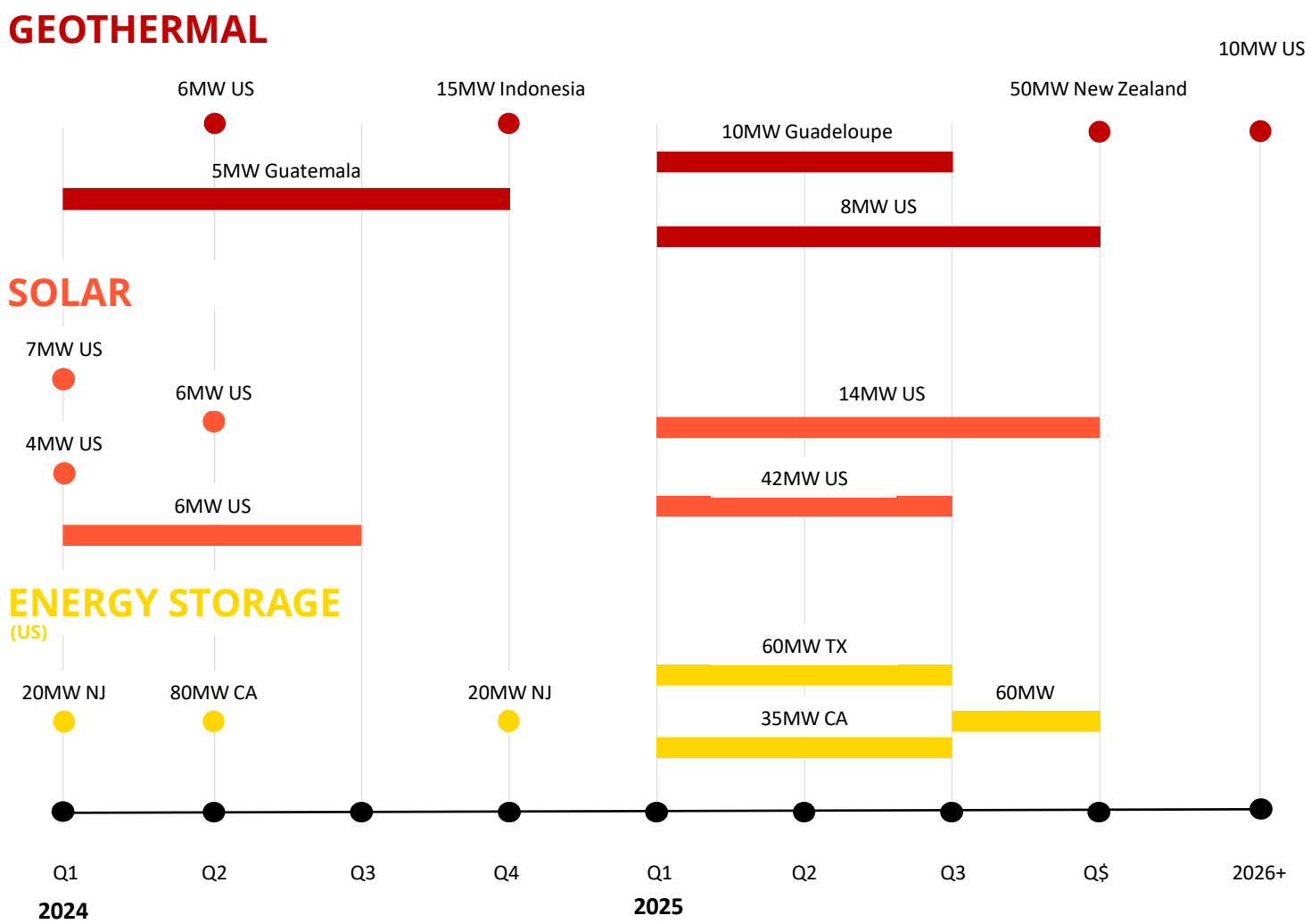
Thesis 2.2: Power Plant Pipeline

Current

ELECTRICTY GEOGRAPHY

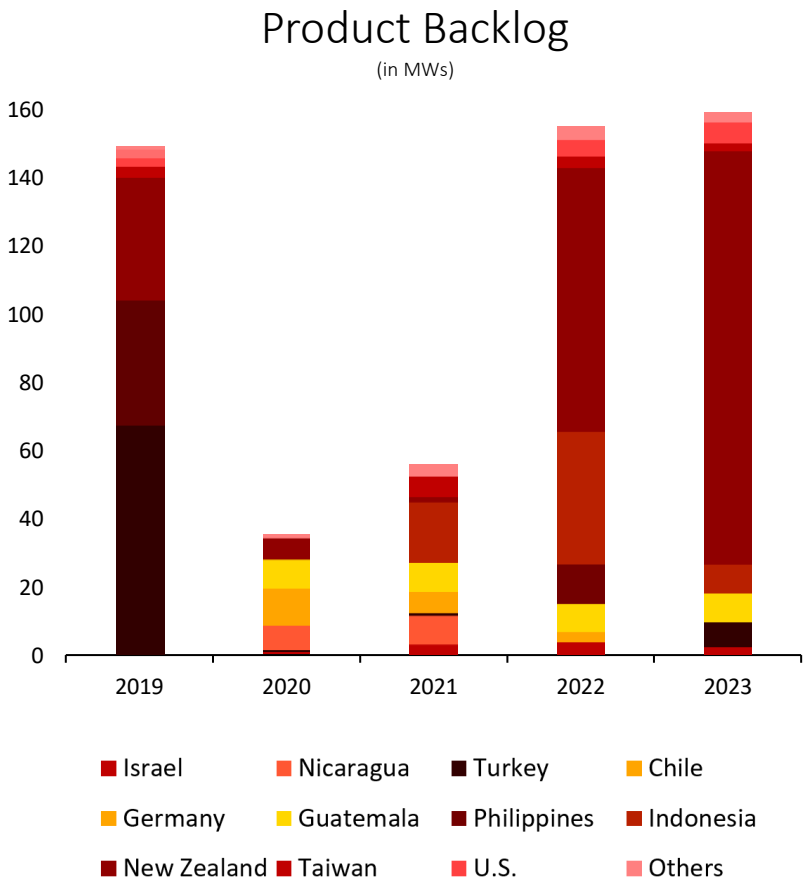


Pipeline



Thesis 2.3: Power Plant Portfolio Fragmentation and Future Pipeline

The majority of geothermal energy worldwide is state owned, and their product segment allows them to capture growth in government dominant geothermal regions.



Sumitomo Corporation

inalum

PLN

Persero (PLN) controls **70%** of energy generation market and is completely state owned

Indonesia

KenGen

KenGen is majority government owned and control 70% of the Kenyen energy market

KPLC

Owns and operates most of the electricity transmission and distribution system

Kenya

contact

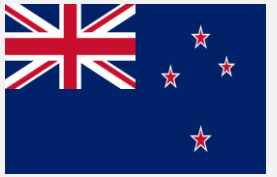
genesisenergy

Mercury

Meridian.

4 Companies control **90%** of energy generation market

All are majority government owned except for Contact



New Zealand

S.W.O.T

Section IV

S.W.O.T

Strengths

- Vertically Integrated
- Technology

Weaknesses

- Margins
- Publicly Owned

S.W.O.T

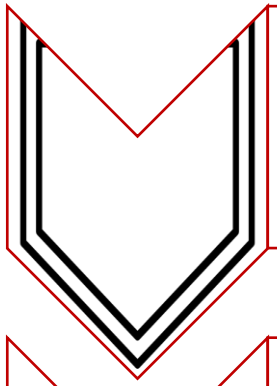
Opportunities

- ESG
- Governmental Regulation

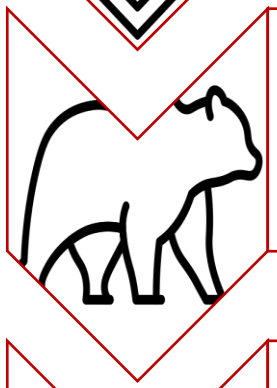
Threats

- State-Owned Companies
- Environmental Risks

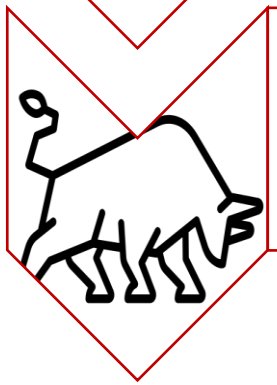
Base, Bear, & Bull Case



- $12.37 12.37% Upside



- $41.48 -34.27% Upside



- $92.67 46.84% Upside