ORMAT TECHNOLOGIES, INC.
Form 10-K
March 01, 2019

Table of Contents

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018
Or
TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Commission file number: 001-32347

ORMAT TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**88-0326081**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification Number)*
6140 Plumas Street, Reno, Nevada	**89519-6075**
(Address of principal executive offices)	*(Zip Code)*

(775) 356-9029

(Registrant's telephone number, including area code)

Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class	**Name of Each Exchange on Which Registered**
Common Stock $0.001 Par Value	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant’s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer | Accelerated filer | Non-accelerated filer | Smaller reporting company | Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

As of June 30, 2018, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was $2,108,534,590 based on the closing price as reported on the New York Stock Exchange. Indicate the number of shares outstanding of each of the registrant's classes of common stock as of the latest practicable date: As of February 26, 2019, the number of outstanding shares of common stock, par value $0.001 per share was 50,702,174.

Documents incorporated by reference: Part III (Items 10, 11, 12, 13 and 14) incorporates by reference portions of the Registrant's Proxy Statement for its Annual Meeting of Stockholders, which will be filed not later than 120 days after December 31, 2018.

Table of Contents

ORMAT TECHNOLOGIES, INC.

FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2018

TABLE OF CONTENTS

Table of Contents

Glossary of Terms

When the following terms and abbreviations appear in the text of this report, they have the meanings indicated below:

Term	Definition
ACUA	Atlantic County Utilities Authority
Amatitlan Loan	$42,000,000 in initial aggregate principal amount borrowed by our subsidiary Ortitlan Limitada from Banco Industrial S.A. and Westrust Bank (International) Limited.
AMM	Administrador del Mercado Mayorista (administrator of the wholesale market — Guatemala)
ARRA	American Recovery and Reinvestment Act of 2009
Auxiliary Power	The power needed to operate a geothermal power plant's auxiliary equipment such as pumps and cooling towers
Availability	The ratio of the time a power plant is ready to be in service, or is in service, to the total time interval under consideration, expressed as a percentage, independent of fuel supply (heat or geothermal) or transmission accessibility
Balance of Plant equipment	Power plant equipment other than the generating units including items such as transformers, valves, interconnection equipment, cooling towers for water cooled power plants, etc.
BEAT	Base Erosion Anti-Abuse Tax
BESS	Battery Energy Storage Systems
BLM	Bureau of Land Management of the U.S. Department of the Interior
BOT	Build, operate and transfer
BSAAS	Battary Storage as a Servise
Capacity	The maximum load that a power plant can carry under existing conditions, less auxiliary power
Capacity Factor	The ratio of the average load on a generating resource to its generating capacity during a specified period of time, expressed as a percentage
CCA	
CDC	Caisse des Dépôts et Consignations, a French state-owned financial organization
CEO	Chief Executive Officer
CFO	Chief Financial Officer
C&I	Refers to the Commercial and Industrial sectors, excluding residential
CNEE	National Electric Energy Commission of Guatemala
COD	Commercial Operation Date
Company	Ormat Technologies, Inc., a Delaware corporation, and its consolidated subsidiaries
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CPI	Consumer Price Index
CPUC	California Public Utilities Commission
DEG	Deutsche Investitions-und Entwicklungsgesellschaft mbH
DFIs	Development Finance Institutions
DOE	U.S. Department of Energy
DOGGR	California Division of Oil, Gas, and Geothermal Resources
DSCR	Debt Service Coverage Ratio
EBITDA	Earnings before interest, taxes, depreciation and amortization
EDF	Electricite de France S.A.

EGS	Enhanced Geothermal Systems
EIB	European Investment Bank
EMRA	Energy Market Regulatory Authority in Turkey
ENEE	Empresa Nacional de Energía Eléctrica
Enthalpy	The total energy content of a fluid; the heat plus the mechanical energy content of a fluid (such as a geothermal brine), which, for example, can be partially converted to mechanical energy in an Organic Rankine Cycle.

Table of Contents

EPA	U.S. Environmental Protection Agency
EPC	Engineering, procurement and construction
EPS	Earnings per share
ERC	Kenyan Energy Regulatory Commission
ERCOT	Electric Reliability Council of Texas, Inc.
Exchange Act	U.S. Securities Exchange Act of 1934, as amended
FASB	Financial Accounting Standards Board
FERC	U.S. Federal Energy Regulatory Commission
FIT	Feed-in Tariff
FPA	U.S. Federal Power Act, as amended
GAAP	Generally accepted accounting principles
GCCU	Geothermal Combined Cycle Unit
GDC	Geothermal Development Company
GEA	Geothermal Energy Association
Geothermal Power Plant	The power generation facility and the geothermal field
Geothermal Steam Act	U.S. Geothermal Steam Act of 1970, as amended
GHG	Greenhouse gas
GW	Giga watt
GWh	Giga watt hour
HELCO	Hawaii Electric Light Company
IDWR	Idaho Department of Water
IGA	International Geothermal Association
IID	Imperial Irrigation District
INDE	Instituto Nacional de Electrification
IOUs	Investor-Owned Utilities
IPPs	Independent Power Producers
IESO	The Independent Electricity System Operator (IESO) works at the heart of Ontario's power system.
IRS	Internal Revenue Service
ISO	International Organization for Standardization
ITC	Investment tax credit
ITC Cash Grant	Payment for Specified Renewable Energy property in lieu of Tax Credits under Section 1603 of the ARRA
JBIC	Japan Bank for International Cooperation
John Hancock	John Hancock Life Insurance Company (U.S.A.)
JOC	Joined operation contract
JPM	JPM Capital Corporation
KenGen	Kenya Electricity Generating Company Ltd.
Kenyan Energy Act	Kenyan Energy Act, 2006
KETRACO	Kenya Electricity Transmission Company Limited
KGRA	Known Geothermal Area
KLP	Kapoho Land Partnership
KPLC	Kenya Power and Lighting Co. Ltd.
kVa	Kilovolt-ampere
kW	Kilowatt - A unit of electrical power that is equal to 1,000 watts
kWh	Kilowatt hour(s), a measure of power produced
LADWP	Los Angeles Department of Water and Power

LCOE	Levelized Costs of Energy
	Load Serving Entities
Mammoth Pacific	Mammoth-Pacific, L.P.
MACRS	Modified Accelerated Cost Recovery System
MW	Megawatt - One MW is equal to 1,000 kW or one million watts
MWh	Megawatt hour(s), a measure of energy produced

Table of Contents

NBPL	Northern Border Pipe Line Company
NIS	New Israeli Shekel
NOC	Network Operations Center
NV Energy	NV Energy, Inc.
NYSE	New York Stock Exchange
NYISO	New York Independent System Operator, Inc.
OEC	Ormat Energy Converter
OFC	Ormat Funding Corp., a wholly owned subsidiary of the Company
OFC Senior Secured Notes	$190,000,000 8.25% Senior Secured Notes, due 2020 issued by OFC
OFC 2	OFC 2 LLC, a wholly owned subsidiary of the Company
OFC 2 Senior Secured Notes	Up to $350,000,000 Senior Secured Notes, due 2034 issued by OFC 2
Opal Geo	Opal Geo LLC
OPC	OPC LLC, a consolidated subsidiary of the Company
OPC Transaction	Financing transaction involving four of our Nevada power plants in which institutional equity investors purchased an interest in our special purpose subsidiary that owns such plants.
OPIC	Overseas Private Investment Corporation
OrCal	OrCal Geothermal Inc., a wholly owned subsidiary of the Company
OrCal Senior Secured Notes	$165,000,000 6.21% Senior Secured Notes, due 2020 issued by OrCal
ORC	Organic Rankine Cycle - A process in which an organic fluid such as a hydrocarbon or fluorocarbon (but not water) is boiled in an evaporator to generate high pressure vapor. The vapor powers a turbine to generate mechanical power. After the expansion in the turbine, the low-pressure vapor is cooled and condensed back to liquid in a condenser. A cycle pump is then used to pump the liquid back to the vaporizer to complete the cycle. The cycle is illustrated in the figure below:
Ormat International	Ormat International Inc., a wholly owned subsidiary of the Company
Ormat Nevada	Ormat Nevada Inc., a wholly owned subsidiary of the Company
Ormat Systems	Ormat Systems Ltd., a wholly owned subsidiary of the Company
ORIX	ORIC Corporation
ORPD	ORPD LLC, a holding company subsidiary of the Company in which Northleaf Geothermal Holdings, LLC holds a 36.75% equity interest
ORPD Transaction	Financing transaction involving the Puna complex and Don A. Campbell, OREG 1, OREG 2 and OREG 3 power plants in which Northleaf Geothermal Holdings, LLC purchased an equity interest in our special purpose subsidiary that owns such plants.
OrPower 4	OrPower 4 Inc., a wholly owned subsidiary of the Company
Ortitlan	Ortitlan Limitada, a wholly owned subsidiary of the Company
ORTP	ORTP, LLC, a consolidated subsidiary of the Company

Table of Contents

ORTP Transaction	Financing transaction involving power plants in Nevada and California in which an institutional equity investor purchased an interest in our special purpose subsidiary that owns such plants.
Orzunil	Orzunil I de Electricidad, Limitada, a wholly owned subsidiary of the Company
PEC	Portfolio Energy Credits
PG&E	Pacific Gas and Electric Company
PGV	Puna Geothermal Venture, a wholly owned subsidiary of the Company
PJM	PJM Interconnection, L.L.C.
PLN	PT Perusahaan Listrik Negara
Power plant equipment	Interconnection equipment, cooling towers for water cooled power plant, etc., including the generating units
PPA	Power purchase agreement
ppm	Part per million
PTC	Production tax credit
PUCH	Public Utilities Commission of Hawaii
PUCN	Public Utilities Commission of Nevada
PUHCA	U.S. Public Utility Holding Company Act of 1935
PUHCA 2005	U.S. Public Utility Holding Company Act of 2005
PURPA	U.S. Public Utility Regulatory Policies Act of 1978
Qualifying Facility(ies)	Certain small power production facilities are eligible to be “Qualifying Facilities” under PURPA, provided that they meet certain power and thermal energy production requirements and efficiency standards. Qualifying Facility status provides an exemption from PUHCA 2005 and grants certain other benefits to the Qualifying Facility
REC	Renewable Energy Credit
REG	Recovered Energy Generation
RER	Renewable Energy Resource certificate
RPS	Renewable Portfolio Standards
RTO	Regional Transmission Organization
SaaS	Software as a Service
SCADA	Supervisory Control and Data Acquisition
SCPPA	Southern California Public Power Authority
SEC	U.S. Securities and Exchange Commission
Securities Act	U.S. Securities Act of 1933, as amended
SO#4	Standard Offer Contract No. 4
SOL	Sarulla Operations Ltd.
Solar PV	Solar photovoltaic
SOX Act	Sarbanes-Oxley Act of 2002
Southern California Edison	Southern California Edison Company
SPE(s)	Special purpose entity(ies)
SRAC	Short Run Avoided Costs
TASE	Tel Aviv Stock Exchange
Tax Act	Tax Cuts and Jobs Act
UIC	Underground Injection Control
Union Bank	Union Bank, N.A.
U.S.	United States of America
U.S. Treasury	U.S. Department of the Treasury
USG	U.S. Geothermal Inc.

VAT	Value Added Tax
VEI	Viridity Energy, Inc.
Viridity	Viridity Energy Solutions Inc., our wholly owned subsidiary
WHOH	Waste Heat Oil Heaters

Table of Contents

Cautionary Note Regarding Forward-Looking Statements

This annual report includes “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical facts, included in this report that address activities, events or developments that we expect or anticipate will or may occur in the future, including such matters as our projections of annual revenues, expenses and debt service coverage with respect to our debt securities, future capital expenditures, business strategy, competitive strengths, goals, development or operation of generation assets, market and industry developments and the growth of our business and operations, are forward-looking statements. When used in this annual report, the words “may”, “will”, “could”, “should”, “expects”, “plans”, “anticipates”, “believes”, “estimates”, “pr “projects”, “potential”, or “contemplate” or the negative of these terms or other comparable terminology are intended to identify forward-looking statements, although not all forward-looking statements contain such words or expressions. The forward-looking statements in this annual report are primarily located in the material set forth under the headings Item 1 — “Business” contained in Part I of this annual report, Item 1A — “Risk Factors” contained in Part I of this annual report, Item 7 — “Management’s Discussion and Analysis of Financial Condition and Results of Operations” contained in Part II of this annual report, and “Notes to Financial Statements” contained in Item 8 — “Financial Statements and Supplementary Data” contained in Part II of this annual report, but are found in other locations as well. These forward-looking statements generally relate to our plans, objectives and expectations for future operations and are based upon management’s current estimates and projections of future results or trends. Although we believe that our plans and objectives reflected in or suggested by these forward-looking statements are reasonable, we may not achieve these plans or objectives. You should read this annual report completely and with the understanding that actual future results and developments may be materially different from what we expect attributable to a number of risks and uncertainties, many of which are beyond our control.

Specific factors that might cause actual results to differ from our expectations include, but are not limited to:

- significant considerations, risks and uncertainties discussed in this annual report;
- geothermal resource risk (such as the heat content, useful life and geological formation of the reservoir);
- operating risks, including equipment failures and the amounts and timing of revenues and expenses;
- financial market conditions and the results of financing efforts;
- weather and other natural phenomena including earthquakes, volcanic eruption, drought and other natural disasters;
- political, legal, regulatory, governmental, administrative and economic conditions and developments in the U.S., Turkey and other countries in which we operate and, in particular, possible import tariffs, possible late payments, the

impact of recent and future federal, state and local regulatory proceedings and changes, including legislative and regulatory initiatives regarding deregulation and restructuring of the electric utility industry, public policies and government incentives that support renewable energy and enhance the economic feasibility of our projects at the federal and state level in the U.S., Turkey and elsewhere, and carbon-related legislation;

risks and uncertainty with respect to our internal control over financial reporting, including the identification of a material weakness which, if not timely remediated, may adversely affect the accuracy and reliability of our financial statements;

the impact of fluctuations in oil and natural gas prices under certain of our PPAs;

the competition with other renewable sources or a combination of renewable sources on the energy price component under future PPAs;

risks and uncertainties with respect to our ability to implement strategic goals or initiatives in segments of the clean energy industry or new or additional geographic focus areas;

risk and uncertainties associated with our future development of storage projects which may operate as "merchant" facilities without long-term sales agreements, including the variability of revenues and profitability of such projects;

Table of Contents

environmental constraints on operations and environmental liabilities arising out of past or present operations, including the risk that we may not have, and in the future may be unable to procure, any necessary permits or other environmental authorizations;

construction or other project delays or cancellations;

the enforceability of long-term PPAs for our power plants;

contract counterparty risk, including late payments or no payments;

changes in environmental and other laws and regulations to which our company is subject, as well as changes in the application of existing laws and regulations;

current and future litigation;

our ability to successfully identify, integrate and complete acquisitions;

our ability to access the public markets for debt or equity capital quickly;

competition from other geothermal energy projects and new geothermal energy projects developed in the future, and from alternative electricity producing technologies;

market or business conditions and fluctuations in demand for energy or capacity in the markets in which we operate;

when, if and to what extent opportunities under our commercial cooperation agreement with ORIX Corporation may in fact materialize;

the direct or indirect impact on our Company’s business of various forms of hostilities including the threat or occurrence of war, terrorist incidents or cyber-attacks or responses to such threatened or actual incidents or attacks, including the effect on the availability of and premiums on insurance;

our new strategic plan to expand our geographic markets, customer base and product and service offerings may not be implemented as currently planned or may not achieve our goals as and when implemented;

development and construction of Solar PV and energy storage projects, if any, may not materialize as planned; and

the effect of and changes in current and future land use and zoning regulations, residential, commercial and industrial development and urbanization in the areas in which we operate.

Table of Contents

PART I

ITEM 1. BUSINESS

Certain Definitions

Unless the context otherwise requires, all references in this annual report to “Ormat”, “the Company”, “we”, “us”, “our company”, “Ormat Technologies”, or “our” refer to Ormat Technologies, Inc. and its consolidated subsidiaries. A glossary of certain terms and abbreviations used in this annual report appears at the beginning of this report.

Overview

We are a leading vertically integrated company that is primarily engaged in the geothermal and recovered energy power businesses. We are also expanding into the storage, demand response and energy management business.

We design, develop, build, sell, own, and operate clean, environmentally friendly geothermal and recovered energy-based power plants, usually using equipment that we design and manufacture. Our objective is to become a leading global provider of renewable energy and we have adopted a strategic plan to focus on several key initiatives to expand our business.

Our owned geothermal power plants include both power plants that we have built and power plants that we have acquired. Most of the power plants that we currently own or operate produce electricity from geothermal energy sources. Geothermal energy is a clean, renewable and generally sustainable form of energy derived from the natural heat of the earth. Unlike electricity produced by burning fossil fuels, electricity produced from geothermal energy sources is produced without emissions of certain pollutants such as nitrogen oxide, and with far lower emissions of other pollutants such as carbon dioxide. As a result, electricity produced from geothermal energy sources contributes significantly less to global warming and local and regional incidences of acid rain than energy produced by burning fossil fuels. In addition, compared to power plants that utilize other renewable energy sources, such as wind or solar, geothermal power plants are generally available all year-long and all day-long and can provide base-load electricity services. Geothermal power plants can also be custom built to provide a range of electricity services such as baseload, voltage regulation, reserves and flexible capacity. Geothermal energy is also an attractive alternative to other sources of energy to support a diversification strategy to avoid dependence on any one energy source or politically sensitive supply sources.

In addition to our geothermal energy business, we manufacture and sell products that produce electricity from recovered energy or so-called “waste heat”. We also construct, own, and operate recovered energy-based power plants. We have built all of the recovered energy-based plants that we operate. Recovered energy comes from residual heat that is generated as a by-product of gas turbine-driven compressor stations, solar thermal units and a variety of industrial processes, such as cement manufacturing. Such residual heat, which would otherwise be wasted, may be captured in the recovery process and used by recovered energy power plants to generate electricity without burning additional fuel and without additional emissions.

In March 2017, we entered the energy storage, demand response and energy management markets following the acquisition of substantially all of the business and assets of Viridity Energy, Inc., a Philadelphia-based company. The acquired business and assets comprise our Other segment. We are using our Viridity business to accelerate long-term growth, expand our market presence in a growing market and further develop our energy storage, demand response and energy management services, including the VPower™ software platform. We plan to continue providing services and products to existing Viridity customers, while expanding our service offerings to include development and EPC into new regions and targeting a broader potential customer base.

We currently conduct our business activities in three business segments:

Electricity Segment. In the Electricity segment we develop, build, own and operate geothermal and recovered energy-based power plants in the U.S. and geothermal power plants in other countries around the world and sell the electricity they generate.

Product Segment. In the Product segment we design, manufacture and sell equipment for geothermal and recovered energy-based electricity generation and remote power units and provide services relating to the engineering, procurement, construction, operation and maintenance of geothermal, Solar PV and recovered energy-based power plants.

Table of Contents

Other Segment. In the Other segment, we provide energy storage, demand response and energy management related services as well as services relating to the engineering, procurement, construction, operation and maintenance of energy storage units mainly through our Viridity business.

Business Strategy

Our strategy is focused on further developing a geographically balanced portfolio of geothermal and recovered energy assets and continuing our leading position in the geothermal energy market with the objective of becoming a leading global provider of renewable energy. We intend to implement this strategy through:

- *Development and Construction of New Geothermal Power Plants* — continuously seeking out commercially exploitable geothermal resources, developing and constructing new geothermal power plants and entering into long-term PPAs providing stable cash flows in jurisdictions where the regulatory, tax and business environments encourage or provide incentives for such development;

- *Expanding our Geographical Reach* — increasing our business development activities in an effort to grow our business in the global markets in all business segments. While we continue to evaluate global opportunities, we currently see Turkey, New Zealand, Chile, Kenya, Honduras, China, Indonesia and Ethiopia as attractive markets for us. We are actively looking at ways to expand our presence in those countries.

- *Acquisition of New Assets* — expanding and accelerating growth through acquisition activities globally, aiming to acquire additional geothermal assets as well as technologies and projects that can support our storage business.

- *Manufacturing and Providing Products and EPC Services Related to Renewable Energy* — designing, manufacturing and contracting power plants for our own use and selling to third parties power units and other generation equipment for geothermal and recovered energy-based electricity generation;

- *Expanding into New Technologies* – leveraging our technological capabilities over a variety of renewable energy platforms, including solar power generation and energy storage. Initially, however, we expect that our focus will be on expanding our core geothermal competencies to provide high efficiency solutions for high enthalpy applications by utilizing our binary enhanced cycle and technology, as well as, expanding into steam geothermal generation equipment and facilities. We may acquire companies with integration and technological capabilities we do not currently have, or develop new technology ourselves, where we can effectively leverage our expertise to implement this part of our strategic plan.

- *Expand our Customer Base* - evaluating a number of strategies for expanding our customer base to the C&I and CCA markets. In the near term, however, we expect that the majority of our revenues will continue to be generated, with our traditional electrical utility customer base for the Electricity segment.

- *Increasing Output from Our Existing Power Plants* — increasing output from our existing geothermal power plants by adding additional generating capacity, upgrading plant technology, and improving geothermal reservoir operations, including improving methods of heat source supply and delivery.

- *Cost Saving by Increasing Efficiencies* — increasing efficiencies in our operating power plants and manufacturing facility including procurement by adding new technologies, restructuring of management control, automating part of our manufacturing work and centralizing our operating power plants.

- *Technological Expertise* — investing in research and development of renewable energy technologies and leveraging our technological expertise to continuously improve power plant components, reduce operations and maintenance costs, develop competitive and environmentally friendly products for electricity generation and target new service opportunities.

Table of Contents

The map below shows our worldwide portfolio of operating geothermal and recovered energy power plants as of February 26, 2019.

* In the Sarulla project, we include our 12.75% share only.

The charts below show the relative contributions of each of our segments to our consolidated revenues and the geographical breakdown of our segment revenues for the fiscal year ended December 31, 2018. Additional information concerning our segment operations, including year-over-year comparisons of revenues, the geographical breakdown of revenues, cost of revenues, results of operations, and trends and uncertainties is provided below in Item 7 — “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and Item 8 — “Financia Statements and Supplementary Data”.

Table of Contents

The following chart sets forth a breakdown of our revenues for each of the years ended December 31, 2017 and 2018 (*):

(*) The contribution of the Other segment to revenues in 2017 was lower than 0.5% and therefore rounded down to 0% in the graph above.

The following chart sets forth the geographical breakdown of revenues attributable to our Electricity, Product and Other segments for each of the years ended December 31, 2017 and 2018:

Table of Contents

Company Contact and Sources of Information

We file annual, quarterly and periodic reports, proxy statements and other information with the SEC. You may obtain and copy any document we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Room 1580, Washington D.C. 20549. You may obtain information on the operation of the SEC's Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an internet website at http://www.sec.gov that contains reports, proxy and other information statements, and other information regarding issuers that file electronically with the SEC. Our SEC filings are accessible via the internet at that website.

Our reports on Forms 10-K, 10-Q and 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act are available through our website at www.ormat.com for downloading, free of charge, as soon as reasonably practicable after these reports are filed with the SEC. Our Code of Business Conduct and Ethics, Code of Ethics Applicable to Senior Executives, Audit Committee Charter, Corporate Governance Guidelines, Nominating and Corporate Governance Committee Charter, Compensation Committee Charter, and biennial Sustainability Report, are also available at our website address mentioned above. If we make any amendments to our Code of Business Conduct and Ethics or Code of Ethics Applicable to Senior Executives or grant any waiver, including any implicit waiver, from a provision of either code applicable to our Chief Executive Officer, Chief Financial Officer or principal accounting officer requiring disclosure under applicable SEC rules, we intend to disclose the nature of such amendment or waiver on our website. The content of our website, however, is not part of this annual report.

You may request a copy of our SEC filings, as well as the foregoing corporate documents, at no cost to you, by writing to the Company address appearing in this annual report or by calling us at (775) 356-9029.

Table of Contents

Our Power Generation Business (Electricity Segment)

Power Plants in Operation

The table below summarizes certain key non-financial information relating to our power plants and complexes as of February 26, 2019. The generating capacity of certain of our power plants and complexes listed below has been updated from our 2017 disclosure to reflect changes in the resource temperature and other factors that impact resource capabilities:

Type	Region	Plant	Ownership[1]	Generating capacity (MW) [2]	Region 2018 Capacity Factor
Geothermal	California	Ormesa Complex	100%	39	
		Heber Complex	100%	81	
		Mammoth Complex	100%	29	
		Brawley	100%	13	
					75%
	West Nevada	Steamboat Complex	100%	65	
		Brady Complex	100%	26	
					85%
	East Nevada	Tuscarora	100%	18	
		Jersey Valley	100%	10	
		McGinness Hills	100%	140[4]	
		Don A. Campbell	63.3%	39	
		Tungsten Mountain	100%	27	
					92%
	North West Region	Neal Hot Springs[7]	60%	22[8]	
		Raft River[7]	100%	11	
		San Emidio[7]	100%	11	
					88%
	Hawaii	Puna	63.3%	38	
					33%[10]
	International	Amatitlan (Guatemala)	100%	20	
		Zunil (Guatemala)	97%	23	
		Olkaria III Complex (Kenya)	100%	150[6]	
		Bouillante (Guadeloupe Island)	60%[4]	15	
		Platanares (Honduras)	100%	38	
					95%
Total Consolidated				815	88%[10]

Geothermal					
Unconsolidated					
	Indonesia	Sarulla (SIL & NIL 1)	12.75%	42	
Geothermal					
REG		OREG 1	63.3%	22	
		OREG 2	63.3%	22	
		OREG 3	63.3%	5.5	
		OREG 4	100%	3.5[7]	
Total REG				53	78%
Total				**910**	

Table of Contents

1. We indirectly own and operate all of our power plants, although financial institutions hold equity interests in one of our Opal Geo subsidiaries, which owns the McGinness Hills Phases 1 and 2 geothermal power plants, the Tuscarora and Jersey Valley power plants and the second phase of the Don A. Campbell power plant, all located in Nevada. In the table above, we list these power plants as being 100% owned because all of the generating capacity is owned by Opal and we control the operation of the power plants. The nature of the equity interests held by the financial institution is described below in Item 7 — "Management's Discussion and Analysis of Financial Condition and Results of Operations" under the headings "Opal Transaction".

Notwithstanding our approximate 60% equity interest in the Bouillante power plant and 63.25% direct equity interest in the Puna, the first phase of Don A. Campbell, OREG 1, OREG 2 and OREG 3 power plants as well as the indirect interest in the second phase of the Don A. Campbell power plant owned by our subsidiary, ORPD, we list 100% of the generating capacity of the Bouillante power plant and the power plants in the ORPD portfolio in the table above because we control their operation. We list our 12.75% share of the generating capacity of the Sarulla power plant as we own a 12.75% minority interest. The revenues from the Sarulla project are not consolidated and are presented under "Equity in earnings (losses) of investees, net" in our financial statements.

2. References to generating capacity generally refer to the gross generating capacity less auxiliary power in the case of all of our existing power plants, except the Zunil power plant. We determine the generating capacity figures in these power plants by taking into account resource and power plant capabilities. In the case of the Zunil power plant, revenues are calculated based on a 24 MW capacity unrelated to the actual performance of the reservoir. This column represents our net ownership of such generating capacity.

3. In any given year, the actual power generation of a particular power plant may differ from that power plant's generating capacity due to variations in ambient temperature, the availability of the resource, and operational issues affecting performance during that year.

4. The McGinness Hills complex includes 48MW of phase 3 that reached commercial operation in December 2018.

5. We own 63.75%, CDC owns 21.25% and Sageos own 15%, of the Bouillante power plant.

6. The Olkaria complex includes a 11MW repowering addition that reached commercial operation on June 2, 2018.

7. The OREG 4 power plant is not operating at full capacity because of low run time of the compressor station that serves as the power plant's heat source. This results in lower power generation.

8. The Neal Hot Springs, Raft River and San Emidio are power plants that we acquired in April 2018 while acquiring US Geothermal Inc.

9. We own 60% and Enbridge own 40% of the Neal Hot Springs power plant.

10. The Puna geothermal power plant was shut down since May 3, 2018, when the Kilauea volcano located in close proximity to it erupted following a significant increase in seismic activity in the area. We are working to bring the power plant back to operation.

11. The total availability of the geothermal power plants excludes the Zunil power plant as its generating capacity is determined unrelated to its performance and the Puna power plant that is not in operation, both as discussed above.

All of the revenues that we derive from the sale of electricity are pursuant to long-term PPAs. Approximately 34.9% of our total revenues in the year ended December 31, 2018 were derived from the sale of electricity by our power plants to power purchasers that currently have investment grade credit ratings. The purchasers of electricity from our foreign power plants are mainly state-owned entities.

New Power Plants

We are currently in various stages of construction of new power plants and expansion of existing power plants. Our construction and expansion plan include 37 MW in generating capacity from geothermal and Solar PV power plants in the United States that we fully released for construction. In addition, we have several geothermal and Solar PV projects in the U.S. and Guadeloupe that are either under initial stages of construction or under different stages of development with an aggregate capacity of between 130 MW and 150 MW.

We have substantial land positions across 38 prospects, 28 prospects in the U.S., and 10 prospects in Ethiopia, Guadeloupe, Guatemala, Honduras, Indonesia and New Zealand that we expect will support future geothermal development and on which we have started or plan to start exploration activity. These land positions are comprised of various leases, exploration concessions for geothermal resources and an option to enter into leases.

In addition, we are currently developing a storage system in Georgetown, Texas.

Table of Contents

Our Product Business (Product Segment)

We design, manufacture and sell products for electricity generation and provide the related services described below. We primarily manufacture products to fill customer orders, but in some situations, we may manufacture products as inventory for future projects that we will own and for future third party projects.

Power Units for Geothermal Power Plants

We design, manufacture and sell power units for geothermal electricity generation, which we refer to as OECs. In geothermal power plants using OECs, geothermal fluid (either hot water, also called brine, or steam or both) is extracted from the underground reservoir and flows from the wellhead to a vaporizer that heats a secondary working fluid, which is vaporized and used to drive the turbine. The secondary fluid is then condensed in a condenser, which may be cooled directly by air or by water from a cooling tower and sent back to the vaporizer. The cooled geothermal fluid is then reinjected back into the reservoir. Our customers include contractors, geothermal power plant developers, owners and operators.

Power Units for Recovered Energy-Based Power Generation

We design, manufacture and sell power units used to generate electricity from recovered energy, or so-called “waste heat”. This heat is generated as a residual by-product of gas turbine-driven compressor stations, solar thermal units and a variety of industrial processes, such as cement manufacturing, and is not otherwise used for any purpose. Our existing and target customers include interstate natural gas pipeline owners and operators, gas processing plant owners and operators, cement plant owners and operators, and other companies engaged in other energy-intensive industrial processes.

EPC of Power Plants

We serve as an EPC contractor for geothermal and recovered energy power plants on a turnkey basis, using power units we design and manufacture. Our customers are geothermal power plant owners as well as our target customers for the sale of our recovered energy-based power units as described above. Unlike many other companies that provide EPC services, we believe that our competitive advantage is in using equipment that we manufacture and thus have better quality and better control over the timing and delivery of required equipment and their related costs.

Remote Power Units and Other Generators

We design, manufacture and sell fossil fuel powered turbo-generators with capacities ranging from 200 watts to 5,000 watts, which operate unattended in extreme hot or cold climate conditions. Our customers include contractors who install gas pipelines in remote areas and offshore platforms operators and contractors. In addition, we design, manufacture, and sell generators, including heavy duty direct-current generators, for various other uses. We are in the process of winding down these activities.

Our New Activity (Our Other Segment)

Our storage business currently manages, through the Viridity platform, curtailable customer loads of over 875 MW across 3,000 sites under contracts with leading U.S. retail energy providers and directly with large C&I customers, including management of a portfolio of non-utility storage assets located in the northeastern U.S. with over 80,000 operational market hours. We serve our distributed customers through a NOC, which is operated 24/7 using our VPower™ software platform and a SCADA platform. VPower™ services are provided to customers using a SaaS model under which we receive license fees and/or a portion of the revenue and savings that are achieved for our Viridity customers.

We expect that the ecosystem we created, combining our Viridity capabilities and our legacy Ormat capabilities, including among others, our global presence, experience in technology and system integration, development and EPC of power generation projects, flexible business models, and our reputation and experience in the geothermal and recovered energy sectors, will enable us to expand in the growing energy storage sector.

Our Viridity business obtained and maintains authorization from FERC to make wholesale purchase and sales of energy, capacity, and ancillary services at market-based rates, and we have confirmed membership status with eligibility to serve designated contractual functions within each of the following ISOs and RTOs: PJM, NYISO, and the ERCOT. Additionally, during the fourth quarter of 2017, we received formal notice of membership in MISO and ISO New England Inc. and have filed for membership in IESO – Ontario Canada. In the future, we may need to obtain and maintain similar membership and eligibility status with other ISO and RTO markets in which our Viridity business will operate.

Table of Contents

In 2018, we successfully brought on line our first two Ormat/Viridity-owned BESS projects: 1 MW / 1 MWh in Atlantic City, NJ and 20 MW / 20 MWh in Plumsted, NJ. We also started construction of another 20 MW/ 20 MWh project in Alpha, NJ and continued developing a 10 MW / 12.5 MWh project in Georgetown, Texas. We plan to continue and leverage our worldwide experience in project development and finance, as well as relationships with utilities and other market participants, to develop additional such BESS projects in the U.S. and internationally.

History

Ormat Technologies, Inc. was formed as a Delaware corporation in 1994 by our former parent company Ormat Industries. Ormat Industries was one of the first companies to focus on the development of equipment for the production of clean, renewable and generally sustainable forms of energy. On February 12, 2015, we successfully completed the acquisition of Ormat Industries in an all-stock merger, eliminating its majority ownership and control of Ormat Technologies.

Industry Background

Geothermal Energy

There are several different sources or methods of obtaining geothermal energy, which are described below.

Hydrothermal geothermal-electricity generation — Hydrothermal geothermal energy is derived from naturally occurring hydrothermal reservoirs that are formed when water comes sufficiently close to hot rock to heat the water to temperatures of 300 degrees Fahrenheit or more. The heated water then ascends toward the surface of the earth where, if geological conditions are suitable for its commercial extraction, it can be extracted by drilling geothermal wells. Geothermal production wells are normally located within several miles of the power plant, as it is not economically viable to transport geothermal fluids over longer distances due to heat and pressure loss. The geothermal reservoir is a renewable source of energy if: (i) natural ground water sources and reinjection of extracted geothermal fluids are adequate over the long-term to replenish the geothermal reservoir following the withdrawal of geothermal fluids and (ii) the well field is properly operated. Geothermal energy power plants typically have higher capital costs (primarily because of the costs attributable to well field development) but tend to have significantly lower variable operating costs (principally consisting of maintenance expenditures) than fossil fuel-fired power plants that require ongoing fuel expenses.

EGS — An EGS is a subsurface system that may be artificially created to extract heat from hot rock where the permeability and aquifers required for a hydrothermal system are insufficient or non-existent. A geothermal power plant that uses EGS techniques recovers the thermal energy from the subsurface rocks by creating or accessing a system of open fractures in the rock through which water can be injected, heated through contact with the hot rock, returned to the surface in production wells and transferred to a power unit.

Co-produced geothermal from oil and gas fields, geo-pressurized resources — Another source of geothermal energy is hot water produced as a by-product of oil and gas extraction. When oil and gas wells are deep, the extracted fluids are often at high temperatures and if the water volume associated with the extracted fluids is significant, the hot water can be used for power generation in equipment similar to a geothermal power plant.

Geothermal Power Plant Technologies

Geothermal power plants generally employ either binary systems or conventional flash design systems, as briefly described below. In our geothermal power plants, we also employ our proprietary technology of combined geothermal cycle systems.

Table of Contents

Binary System

In a geothermal power plant using a binary system, geothermal fluid (either hot water (also called brine) or steam or both) is extracted from the underground reservoir and flows from the wellhead through a gathering system of insulated steel pipelines to a vaporizer that heats a secondary working fluid. This is typically an organic fluid, such as pentane or butane, which is vaporized and is used to drive the turbine. The organic fluid is then condensed in a condenser, which may be cooled directly by air or by water from a cooling tower and sent back to the vaporizer through a pump. The cooled geothermal fluid is then reinjected back into the reservoir. The operation of our air-cooled binary geothermal power plant is depicted in the diagram below.

Flash Design System

In a geothermal power plant using flash design, geothermal fluid is extracted from the underground reservoir and flows from the wellhead through a gathering system of insulated steel pipelines to flash tanks and/or separators. There, the steam is separated from the brine and is sent to a demister, where any remaining water droplets are removed. This produces a stream of dry saturated steam, which drives a steam turbine generator to produce electricity. In some cases, the brine at the outlet of the separator is flashed a second time (dual flash), providing additional steam at lower pressure used in the low-pressure section of the steam turbine to produce additional electricity. Steam exhausted from the steam turbine is condensed in a surface or direct contact condenser cooled by cold water from a cooling tower. The non-condensable gases (such as carbon dioxide) are removed by means of a vacuum system in order to maintain the performance of the steam condenser. The resulting condensate is used to provide make-up water for the cooling tower. The hot brine remaining after separation of steam is injected (either directly or after passing through a binary plant to produce additional power from the residual heat remaining in the brine) back into the geothermal resource through a series of injection wells. The flash technology is depicted in the diagram below.

In some instances, the wells directly produce dry steam and the steam is fed directly to the steam turbine with the rest of the system similar to the flash technology described above.

Table of Contents

Our Proprietary Technology

Our proprietary technology may be used either in power plants operating according to the ORC alone or in combination with various other commonly used thermodynamic technologies that convert heat to mechanical power, such as gas and steam turbines. It can be used with a variety of thermal energy sources, such as geothermal, recovered energy, biomass, solar energy and fossil fuels. Specifically, our technology involves original designs of turbines, pumps, and heat exchangers, as well as formulation of organic motive fluids (all of which are non-ozone-depleting substances). By using advanced computational fluid dynamics techniques and other computer aided design software as well as our test facilities, we continuously seek to improve power plant components, reduce operations and maintenance costs, and increase the range of our equipment and applications. We are always examining ways to increase the output of our plants by utilizing evaporative cooling, cold reinjection, configuration optimization, and topping turbines. In the geothermal as well as the recovered energy (waste heat) areas, we are examining two-level and three-level energy systems and other thermodynamic cycle alternations along with new motive fluids.

We also developed, patented and constructed GCCU power plants in which the steam first produces power in a backpressure steam turbine and is subsequently condensed in a vaporizer of a binary plant, which produces additional power. Our Geothermal Combined Cycle technology is depicted in the diagram below.

In the conversion of geothermal energy into electricity, our technology has a number of advantages over conventional geothermal steam turbine plants. A conventional geothermal steam turbine plant consumes significant quantities of water, causing depletion of the aquifer and requiring cooling water treatment with chemicals and consequently a need for the disposal of such chemicals. A conventional geothermal steam turbine plant also creates a significant visual impact in the form of an emitted plume from the cooling towers, especially during cold weather. By contrast, our binary and combined cycle geothermal power plants have a low profile with minimal visual impact and do not emit a plume when they use air-cooled condensers. Our binary and combined cycle geothermal power plants reinject all of the geothermal fluids utilized in the respective processes into the geothermal reservoir. Consequently, such processes generally have no emissions.

Other advantages of our technology include simplicity of operation and maintenance and higher yearly availability. For instance, the OEC employs a low speed and high efficiency organic vapor turbine directly coupled to the generator, eliminating the need for reduction gear. In addition, with our binary design, there is no contact between the turbine blade and geothermal fluids, which can often be very erosive and corrosive. Instead, the geothermal fluids pass through a heat exchanger, which is less susceptible to erosion and can adapt much better to corrosive fluids. In addition, with the organic vapor condensed above atmospheric pressure, no vacuum system is required.

We use the same elements of our technology in our recovered energy products. The heat source may be exhaust gases from a Brayton cycle gas turbine, low-pressure steam, or medium temperature liquid found in the process industries such as oil refining and cement manufacturing. In most cases, we attach an additional heat exchanger in which we circulate thermal oil or water to transfer the heat into the OEC's own vaporizer in order to provide greater operational flexibility and control. Once this stage of each recovery is completed, the rest of the operation is identical to that of the OECs used in our geothermal power plants and enjoys the same advantages of using the ORC. In addition, our technology allows for better load following than conventional steam turbines, requires no water treatment (since it is air cooled and organic fluid motivated), and does not require the continuous presence of a licensed steam boiler operator on site.

Table of Contents

Our REG technology is depicted in the diagram below.

Patents

We have 77 U.S. patents that are in force (and have nine U.S. patents pending). These patents and patent applications cover our products (mainly power units based on the ORC) and systems (mainly geothermal power plants and industrial waste heat recovery plants for electricity production). The products-related patents cover components that include turbines, heat exchangers, seals and controls as well as control of operation of geothermal production well pumps. The system-related patents cover not only particular components but also the overall energy conversion system from the “fuel supply” (e.g., geothermal fluid, waste heat, biomass or solar) to electricity production.

The system-related patents also cover subjects such as waste heat recovery related to gas pipeline compressors and industrial waste heat, solar power systems, disposal of non-condensable gases present in geothermal fluids, reinjection of other geothermal fluids ensuring geothermal resource sustainability, power plants for very high-pressure geothermal resources, two-phase fluids, low temperature geothermal brine as well as processes related to EGS. A number of our patents cover combined cycle geothermal power plants, in which the steam first produces power in a backpressure steam turbine and is subsequently condensed in a vaporizer of a binary plant, which produces additional power. The remaining terms of our patents range from one year to 16 years. The loss of any single patent would not have a material effect on our business or results of operations.

Research and Development

We conduct research and development activities intended to improve plant performance, reduce costs, and increase the breadth of our product offerings. The primary focus of our research and development efforts is targeting power plant conceptual thermodynamic cycle and major equipment including continued performance, cost and land usage improvements to our condensing equipment, and development of new higher efficiency and higher power output turbines.

Our Viridity business continues to develop new optimization algorithms to optimize the life of a battery energy storage system (BESS), to optimize our and our customers’ economic return and to forecast the trends surrounding our customers’ electricity consumption and the electric grid including times of peak demands and the usage of ancillary services.

We have also focused our development efforts on the engineering and design of improved energy storage systems. These development efforts include, among others, building of an energy storage lab for testing of various batteries, inverters and the integration of both. Further development of the control hardware and software for energy storage systems to follow electric grid and market signals and to optimize their delivery of energy into the markets using our VPowerTM software and SCADA platform to accelerate system optimization through cloud base algorithms.

Table of Contents

We have developed, and continue to develop, system integration capabilities that match the appropriate system and system sizing with the appropriate battery chemistry, electrical and physical components to accommodate our needs or needs of the customers that will own such energy storage systems in light of the markets in which they will operate. We are searching for alternative chemistries, products and combinations of hybrid solutions to best address our energy storage product customers' needs.

Additionally, we are continuing to evaluate investment opportunities in new companies with technology and/or product offerings for renewable energy and energy storage solutions.

Market Opportunities

Geothermal Market Opportunities

Renewable energy in general provides a sustainable alternative to the existing solutions to two major global issues: global warming and diminishing fossil fuel reserves. Renewable energy is sustainable and clean, as it emits no or negligible amounts of CO2. These environmental benefits have led major countries to focus their efforts on the development of renewable energy sources in general and geothermal specifically.

Today, based on an announcement by the IGA on February 2019, geothermal power is generated in 27 countries with a total installed power generation capacity of 14,600 MW at the end of 2018. The leading countries are the U.S., Indonesia, Philippines, Turkey and New Zealand. The IGA expects that 4,100 MW will be added by 2023.

Having realized the importance of renewable energy including geothermal alternatives, various governments have been preparing regulatory frameworks and policies, and providing incentives to develop the sector.

United States

RPSs or quota obligations, and FITs are the two most prominent support mechanisms that have been aiding the development of the renewable energy market in the U.S. With the identification of these mechanisms, most of the countries have framed their policies incorporating these measures.

Interest in geothermal energy in the U.S. remains strong for numerous reasons, including the legislative support, RPS goals (as described below), coal and nuclear base-load retirements, and an increasing awareness of the positive value of geothermal characteristics as compared to intermittent renewable technologies.

Today, electricity generation from geothermal resources is concentrated mainly in California, Nevada, Hawaii, Idaho, Oregon, and Utah, and we believe there are opportunities for development in other states such as New Mexico due to the potential of their geothermal resources.

Geothermal energy provides numerous benefits to the U.S. grid and economy, according to a GEA report issued in January 2017. Geothermal development and operation bring economic benefits in the form of taxes and long term high-paying jobs, and it currently has one of the lowest LCOE of all power sources in the U.S. Additionally, improvements in geothermal production make it possible to provide ancillary and on-demand services. This helps load serving entities avoid additional costs from purchasing and then balancing intermittent resources with storage or new transmission.

Federal tax initiatives

The U.S. federal government encourages production of electricity from geothermal resources or solar energy through certain tax subsidies:

- PTC - the PTC provides per kWh credit on tax paid by power producers for power produced from geothermal resources and certain other renewable energy sources and sold to an unrelated person during a taxable year. The PTC was first introduced in 1992 and has since been revised a number of times. The ARRA, which came into effect in February 2009, contains a number of important measures related to the US renewable energy industry aimed at encouraging continued growth. The PTC, which in 2018 was 2.4 cents per kWh, is adjusted annually for inflation and may be claimed for 10 years on the net electricity output sold to third parties after the project is first placed in service. Any project that started construction by December 31, 2018 must ordinarily be put in service within four years after the end of the year in which construction started or show continued construction to qualify for tax credits at these rates. The PTC is not available for power produced from geothermal resources for projects that started construction on or after January 1, 2018.

Table of Contents

- ITC - the ITC has been amended a number of times. For a new geothermal power plant in the United States that started construction after 2017, we are permitted to claim an ITC of 10 percent of the project cost. New solar projects that are under construction by December 2019 will qualify for a 30 percent ITC. The credit will fall to 26 percent for Solar PV projects starting construction in 2020 and 22 percent for Solar PV projects starting construction in 2021. Projects that are under construction before these deadlines must be placed in service by December 31, 2023 to qualify for an investment tax credit at these rates. Solar projects placed in service after December 31, 2023 will only qualify for a 10 percent ITC. Under current tax rules, any unused tax credit has a one-year carry back and a twenty-year carry forward.

- On December 22, 2017, the U.S. President signed into law the Tax Act, which made changes that have some impact on the renewable energy industry. Some of the key changes are as follows:

  - The U.S. corporate income tax rate was reduced from 35% to 21% beginning in 2018.

  - Bonus depreciation was increased from 40% expensing of qualified projects in year one to 100% beginning in on September 27, 2017. The 100% expensing is valid through 2022 and then declines through 2026.

  - The BEAT provision is a new tax intended to apply to companies that significantly reduce their U.S. tax liability by making cross-border payments to affiliates. The provision aims to circumvent earnings stripping by imposing a minimum tax of 10% of taxable income. ITC and PTC can be used to offset approximately 80% BEAT. See the discussion under Item 1A — “Risk Factors”.

State level legislation

State governments have embarked on a program called RPS, under which utilities are required to include renewable energy sources as part of their energy generation. Under the RPS, participating states have set targets for the production of their energy from renewable sources by specified dates. Related to the RPS program is the REC initiative, under which utilities can support renewable energy generation and obtain certificates, which can be used to achieve the mandate prescribed by the RPS.

In the U.S., 37 states plus the District of Colombia and four territories have enacted an RPS, renewable portfolio goals, or similar laws requiring or encouraging utilities in such states to generate or buy a certain percentage of their electricity from renewable energy or recovered heat sources.

According to the National Conference of State Legislatures, 29 states, three territories, and the District of Columbia have set renewable energy goals. The vast majority of Ormat’s geothermal projects can be found in California, Nevada, and Hawaii which have some of the highest RPS standards in the country.

We see the impact of RPS and climate legislation as the most significant driver for us to expand existing power plants and to build new renewable projects.

Below are RPS targets in the states in which we are operating in:

State	Share	Year	Remarks
California	60%	2030	RPS targets set for future years: 33% – 2020, 40% – 2024, and 45% – 2027. 100% zero carbon by 2045.
Nevada	40%	2030	For solar power, there is a 6% of annual requirement for 2016–2025, 25%-2030
Hawaii	100%	2045	RPS targets set for future years: 30% – 2020, 40% – 2030, and 70% – 2040
Oregon	25%	2025	This as well as an Increased RPS of 50% by 2040 applies to IOU who have a share of more than 3% of the state's load; for utilities with a load-share of 1.5% – 3%, requirement is 10% in 2025, and for utilities with a load share of less than 1.5%, it is 5% in 2025
Utah	20%	2025	

Table of Contents

Global

We believe the global markets continue to present growth and expansion opportunities in both established and emerging markets.

Operations outside of the United States may be subject to and/or benefit from increasing efforts by governments and businesses around the world to fight climate change and move towards a low carbon, resilient and sustainable future. According to a 2017 report by the International Renewable Energy Agency entitled Rethinking Energy, more than 170 countries to date have established renewable energy targets, and nearly 150 have enacted policies to catalyze investments in renewable energy technologies.

We believe that several global initiatives will create business opportunities and support global growth of the renewable sector such as the historic agreement at the COP21 UN Climate Change Conference held in Paris, which, for the first time, created a commitment by 127 parties to setting nationally determined climate targets and reporting on their progress. Following this agreement, the EIB and other multilateral institutions have committed to provide $100 billion of new financing for climate action projects over the next five years to assist countries in reaching their targets.

In addition, in 2015, a group of 20 countries, including the United States, United Kingdom, France, China and India, pledged to double their respective budgets for renewable energy technology over five years as part of a separate initiative called Mission Innovation. At the same time, the Breakthrough Energy Coalition was launched by a group of 28 private investors with the objective of bringing companies with the potential to deliver affordable, reliable and carbon free power from the research lab to the market.

On June 1, 2017, President Donald J. Trump announced that the United States will withdraw from the Paris Climate Accord and begin negotiations to either re-enter or negotiate an entirely new agreement with more favorable terms for the U.S.

We believe that these developments and governmental plans will create for us growth and expansion opportunities internationally.

Outside of the U.S., the majority of power generating capacity has historically been owned and controlled by governments. Since the early 1990s, however, many foreign governments have privatized their power generation industries through sales to third parties encouraging new capacity development and/or refurbishment of existing assets by independent power developers. These foreign governments have taken a variety of approaches to encourage the development of competitive power markets, including awarding long-term contracts for energy and capacity to independent power generators and creating competitive wholesale markets for selling and trading energy, capacity, and related products. Some foreign regions and countries have also adopted active government programs designed to encourage clean renewable energy power generation such as the following countries in which we operate, sell products and/or are conducting business development activities:

Europe

Turkey

Until recently, Turkey was the fastest growing geothermal market worldwide with the theoretical potential for 31 GW of geothermal capacity and with a proven geothermal capacity of 4.5 GW, according to the Turkish Mineral Technical Exploration Agency. Due to economic developments in this region, there has been a slowdown.

Since 2004, we have established strong business relationships in the Turkish market and provided our range of solutions including our binary systems to 40 geothermal power plants with a total capacity of nearly 855 MW, of which six power plants are currently under construction.

In Turkey, the “National Renewable Energy Action Plan” proposes to increase the country's renewable energy generation capacity to 61 GW by 2023, including 1.5 GW of electricity generation from geothermal resources. This plan is supported by the European Bank for Reconstruction and Development. The plan aims to increase Turkish energy security by diversifying its energy supply, making greater use of domestic resources, protecting the environment by relying on clean, renewable and low carbon technologies and fostering energy market efficiency through private sector investment and integration.

Table of Contents

Iceland

Iceland has gone through several legislative and regulatory changes in recent years and the tariff for geothermal energy is no longer linked to the price of aluminum as it used to be, but rather is regulated independently. As a result, we anticipate growth in demand for geothermal power solutions in the country.

Latin America

Guatemala

In Guatemala, where our Zunil and Amatitlan power plants are located, the government approved and adopted the Energy Policy 2013-2027 that secure, among other things, a supply of electricity at competitive prices by diversifying the energy mix with an 80% renewable energy share target for 2027.

Honduras

In Honduras, where we operate our Platanares power plant, the government set a target to reach at least 80% renewable energy production by 2034.

Mexico

In Mexico, where we see long-term potential, the Mexican Congress passed, in December 2013, a constitutional reform in an attempt to increase the participation of private investors in the generation and commercialization of electric energy. We have not yet seen yet a notable progress in the development of new geothermal projects.

Ecuador

In Ecuador, which does not have any geothermal power plants online yet, aims to reach 90% clean energy and its National Energy Agenda estimates a local geothermal potential of 1,000 MW.

Caribbean

Many island nations in general and specifically the Caribbean nations, depend almost entirely on petroleum to meet their electricity needs. Caribbean nations have quite significant renewable energy potential, yet most have relatively small demand. Other than in Guadeloupe, where the geothermal power plant that we acquired has been operating since 1985, there are no other operating geothermal projects in the Caribbean region. Although few, we believe there are geothermal opportunities for us in the Caribbean islands of St. Kitts, Nevis, St. Lucia, Dominica, and Montserrat.

New Zealand

In New Zealand, where we have been actively providing geothermal power plant solutions since 1988, the government's policies to fight climate change include a GHG emissions reduction target of between 10% and 20% below 1990 levels by 2020 and a renewable electricity generation target of 90% of New Zealand's total electricity generation by 2025. We continue selling power plant equipment to our New Zealand customers, secured two projects in the last two years and intensified our cooperation with other potential customers for adding more geothermal power generation capacity within the coming years.

Asia

Indonesia

In Indonesia**,** where we hold a 12.75% equity interest in the Sarulla project, the government intends to increase the share of renewable energy sources in the energy mix, aiming to meet a target of 23% of domestic energy demand by 2025 and announced its intention to reduce the country's carbon dioxide emissions by 26% by 2020. Under the local regulation, the tariff policy for geothermal PPAs is mainly determined based on the location of the relevant power plant.

In addition to project development, we are also pursuing various supply opportunities in Indonesia and in other countries in Southeast Asia, including several optimization projects.

23

Table of Contents

China

In China, where we recently supplied our equipment to one of our clients' geothermal projects, the National Energy Administration adopted the 13th Renewable Energy Development Five Year Plan that establishes targets for renewable energy deployment until 2020. Key objectives under the plan include, among others, to increase the share of non-fossil fuel energy in total primary energy consumption to 15% by 2020 and to 20% by 2030, and to increase installed renewable power capacity to 680 GW by 2020.

East Africa

In East Africa the geothermal potential along the Rift Valley is estimated at several thousand MW. The different countries along the Rift Valley are at different stages of development of their respective geothermal potentials.

Kenya

In Kenya, there are already several geothermal power plants, including the only geothermal IPP in Africa, our 150 MW Olkaria III complex. The Kenyan government has identified the country's untapped geothermal potential as the most suitable indigenous source of electricity, and it aspires to reach 5 GW of geothermal power generation by 2030.

The Kenyan government is aiming to reach 22.7GW of power generating capacity by 2033, under the Least-Cost Power Development Plan 2013-33 with a target of 42% of such capacity generated from renewable energy sources (including large hydro but excluding solar).

Other Countries

The governments of Djibouti, Eritrea, Ethiopia, Tanzania, Uganda, Rwanda and Zambia are exploring ways to develop geothermal resources in their countries, mostly through the help of international development organizations such as the World Bank.

Ethiopia electrification targets for 2025 require additional investment in generation capacities. Such growth in demand will be principally met with the Grand Ethiopian Renaissance Dam (GERD). However, IPP's are encouraged to participate directly into the renewable development in order to meet expected local growth. Moreover, the current government sees electricity export to neighboring countries as a strategic asset. The country recently completed an interconnection with Kenya and plan to further increase connections to Djibouti, Sudan, South Sudan, Rwanda, Burundi. These exports will improve foreign exchange reserves in Ethiopia while reducing exposure to fossil fuel imports. We hold rights for four geothermal concessions in Ethiopia, for which we have completed initial exploration studies.

In January 2014, energy ministers and delegates from 19 countries committed to the creation of the Africa Clean Energy Corridor Initiative (Corridor), at a meeting in Abu Dhabi convened by the International Renewable Energy Agency. The Corridor will boost the deployment of renewable energy and aim to help meet Africa's rising energy demand with clean, indigenous, cost-effective power from sources including hydro, geothermal, biomass, wind and solar.

Other Opportunities

Recovered Energy Generation

In addition to our geothermal power generation activities, we are pursuing recovered energy-based power generation opportunities in North America and the rest of the world. We believe recovered energy-based power generation will ultimately benefit from the efforts to reduce GHG emissions. We have built 23 power plants which generate electricity utilizing "waste heat" from gas turbine-driven compressor stations along interstate natural gas pipelines, from midstream and gas processing facilities, and from other applications.

Several states, and to some extent, the federal government, have recognized the environmental benefits of recovered energy-based power generation. For example, 18 states currently allow electric utilities to include recovered energy-based power generation in calculating such utilities' compliance with their mandatory or voluntary RPS and/or Energy Efficient Resources Standards. In addition, California modified the Self Generation Incentive Program to allow recovered energy-based power generation to qualify for a per watt incentive.

Table of Contents

Recovery of waste heat is also considered “environmentally friendly” in the western Canadian provinces. On November 22, 2015, the Alberta Government released the Clean Leadership Plan that includes (a) phasing out of coal-fired electricity generation by 2030; (b) a commitment to generate 30 percent of Alberta’s electricity from renewable sources by 2030; (c) new financing for energy efficiency; and (d) an economy-wide price on carbon pollution. The plan also mandates that Alberta reduce methane emissions from oil and gas operations by 45% by 2025. In 2016, the Canadian government ratified its commitments in the Paris Agreement, which features a commitment to reduce emissions by 30% from 2005 levels by 2030. The federal government announced that Canadian provinces must have an emission reduction plan in place or be subject to a federal carbon tax in 2018. This comprehensive set of climate policies, once fully implemented, will encourage the development of renewable energy technologies, including waste heat recovery, in Alberta and other provinces. We believe that Europe and other markets worldwide may offer similar opportunities in recovered energy-based power generation.

In summary, the market for the recovery of waste heat converted into electricity exists either when already available electricity is expensive or where the regulatory environment facilitates construction and marketing of power generated from recovered waste heat. However, such projects tend to be smaller than 9 MW and we expect any growth to be relatively slow and geographically scattered.

Energy Storage

Globally, there is an increase in the use of renewable energy due to the continued decline in Solar PV prices. In the United States and Europe, this increase is placing strains on the electric grid because adding Solar PV power creates situations where a significant amount of power plant capacity must be available to ramp up and down to accommodate Solar PV daily output cycles and variations due to atmospheric conditions. Furthermore, the output from Solar PV power plants can change significantly over short periods of time due to environmental conditions like cloud movement and fog burn off and cause instability on the electric grid.

As a result, energy management, especially energy storage is becoming a key component of the future grid. In parallel, we also see movement of C&I and communities toward direct purchases of electricity and an increased focus on reliability of electricity supply.

Energy storage systems utilize surplus, available electricity that enables utilities to optimize the operation of the grid, run generators closer to full capacity for longer periods, and operate the grid more efficiently and effectively. As penetration of wind and solar resources increases, so does the need for services that energy storage systems can provide to “balance the grid”, such as local capacity, frequency regulation, ramping, reactive power, black start and movement of energy from times of excess supply to times of high demand. Common applications for energy storage systems include ancillary services, wind/solar smoothing, Peaker replacement, and transmission & distribution deferral.

The global energy storage market continues to evolve, with specific applications and geographies leading the market. According to Greentech Media, approximately 4.5 GWh of new energy storage projects were installed in 2018 and this number is expected to almost double in 2019 to approximately 8 GWh.

Significant growth in BESS deployment is already taking place and is expected to continue for both grid-connected (also referred to as “in front of the meter”) applications, as well as for “behind the meter” applications, where end-users benefit from savings through demand charge reductions and create revenues through active market participation, through demand response programs. Many power systems are also undergoing significant changes such as grid aging, grid congestion, retirement of aging generators, implementation of greenhouse gas emission reduction rules and increasing penetration of variable renewable energy resources.

According to the December 2018 U.S. energy storage monitor by Wood Mackenzie Power & Renewables and Energy Storage Association, the behind-the-meter segment has grown significantly in 2018 and now accounts for roughly half of the annual U.S. market. This is driven by many factors including improved system economics, economic incentives provided by some states, net-energy metering reform, changes to utility rate structures, increasing viability of demand-charge management for non-residential customers, and increased interest in reliability and resiliency. Similar trends to those currently seen in selected U.S. markets are expected to be prevalent in other global markets in Europe and Asia.

We plan to use our Viridity software platform and services to expand our market presence in the energy storage market and further develop our VPower™ software platform to be utilized in optimizing and generating revenues from demand response including ownership and supply of BESS systems. We expect that the eco system we have created, combining our Viridity business’s capabilities with our global presence, experience in technology and system integration, EPC capabilities, flexible business models and reputation and experience in the geothermal and recovered energy sectors, will enable us to expand into this growing sector.

Table of Contents

Grid-Connected BESS

We own and operate several grid-connected BESS facilities, where revenues come from selling energy, capacity and/or ancillary services in merchant markets like PJM Interconnect. We are pursuing the development of additional grid-connected BESS projects in multiple regions, with expected revenues coming from providing energy, capacity and/or ancillary services on a merchant basis, and/or through bilateral contracts with load serving entities, e.g. investor owned utilities, publicly owned utilities and community choice aggregators.

C&I

The electricity industry continues to shift from a purely centralized topology where electricity flows only in one direction from centralized power plants to consumers, into a more distributed architecture, that includes distributed energy resources and consumers selling excess electricity generated on-site to the grid. Many C&I companies are motivated to purchase renewable energy to meet sustainability goals and reduce costs. We see the C&I segment as a natural expansion of our customer base.

Solar PV

The Solar PV market continues to grow, driven by constant decline in equipment prices and an increasing desire to replace conventional generation with renewable resources, commonly supported by favorable regulatory policies. We are monitoring market drivers with the potential to develop Solar PV power plants in locations where we can offer competitively priced power generation. Our current focus is in adding Solar PV systems in some of our operating geothermal power plants to reduce internal consumption loads, developing standalone Solar PV projects in targeted regions where economics are favorable as well as developing combined Solar PV and BESS projects. We are currently constructing a Solar PV augmentation system at our Tungsten Mountain geothermal power plant in Churchill County, Nevada. We are also developing the 20 MW/AC Wister Solar PV project in Imperial County, California, for which a power purchase agreement with San Diego Gas & Electric was executed and received regulatory approval in 2018. Additional potential projects are undergoing feasibility analysis, and some are in earlier phases of development.

Recent Developments

The most significant recent developments in our company and business are described below.

- On December 20, 2018, we announced that the third phase of the McGinness Hills geothermal complex located in Lander County, Nevada had begun commercial operation. The 48-megawatt (net capacity) power plant started selling electricity to SCPPA under the Ormat Northern Nevada Geothermal Portfolio Power Purchase Agreement. SCPPA resells the entire output of the plant to the LADWP. The third phase is expected to generate approximately $30 million in average annual revenue.

- On October 31, 2018, we announced the completion of the closing of the finance agreement totaling $124.7 million in the aggregate for the 35 MW Platanares geothermal power plant in Honduras, with OPIC, the United States government's development finance institution, as the sole lender. Following the closing we received a disbursement of $114.7 million representing the full amount of Tranche I of the OPIC non-recourse project finance loan that carries a fixed interest rate of 7.02% per annum with a maturity of approximately 14 years. The second tranche of up to $10 million is expected during the first half of 2019.

- On September 30, 2018, we signed the termination of the Galena 2 Power PPA with NV Energy and agreed to pay a termination fee of approximately $5 million. The Galena 2 geothermal power plant was designated as a facility under the portfolio PPA that we signed with SCPPA in October 2016 and it is expected to start selling electricity to SCPPA in March 2019.

- In July 2018 we received a full notice to proceed for the $36 million EPC contract with Cyrq Energy Inc. for their Soda Lake 3 geothermal project in Nevada. This contract contributed part of its revenues to the Product segment in 2018.

- On June 27, 2018, we announced that the 11 MW Plant 1 expansion project in the Olkaria III complex in Kenya successfully completed its tests and commenced commercial operation on June 2, 2018. Between 2000 and 2018, the Company developed and expanded the Olkaria III complex in phases and increased its generating capacity from 13 MW to 150 MW.

- On May 17, 2018, one of our wholly-owned subsidiaries that indirectly owns the 26 MW Tungsten Mountain Geothermal power plant entered into a partnership agreement with a private investor. This private investor acquired membership interests in the Tungsten Mountain Geothermal power plant project for an initial purchase price of approximately $33.4 million and for which it will pay additional installments that are expected to amount to approximately $13 million. We will continue to operate and maintain the power plant and will receive substantially all the distributable cash flow generated by the power plant.

Table of Contents

- On May 8, 2018, we announced that NIL 2, the third unit of the Sarulla geothermal power plant, commenced commercial operation on May 4, 2018, and the Sarulla power plant reached its full capacity of 330 MW. SIL, the first unit of the power plant commenced commercial operation in March 2017 and NIL 1, the second unit, commenced commercial operation in October 2017.

- On May 3, 2018, the Kilauea volcano located in close proximity to our Puna 38 MW geothermal power plant in the Puna district of Hawaii's Big Island erupted following a significant increase in seismic activity in the area. Before it recently stopped flowing, the lava covered the wellheads of three geothermal wells, monitoring wells and the substation of the Puna complex and an adjacent warehouse that stored a drilling rig that was also consumed by the lava. The insurance policy coverage for property and business interruption is provided by a consortium of insurers. All the insurers accepted and started paying for the costs to rebuild the destroyed substation, and as of December 31, 2018 we received $3.3 million. However, only some of the insurers accepted that the business interruption coverage started in May 2018 and as of December 31, 2018, we recorded $12.1 million of such proceeds. We are still in discussions to reach an understanding with all insurers to start paying for the business interruption as of May 2018. The Company is still assessing the damages in the Puna facilities and continue to coordinate with HELCO and local authorities to bring the power plant back to operation. The Company continues to assess the accounting implications of this event on the assets and liabilities on its balance sheet and whether an impairment will be required. Any significant physical damage to the geothermal resource or continued shut-down following the recent stop of the lava of the Puna facilities could have an adverse impact on the power plant's electricity generation and availability, which in turn could have a material adverse impact on our business and results of operations.

- On April 24, 2018, we completed our acquisition of USG. The total cash consideration (exclusive of transaction expenses) was approximately $110 million, comprised of approximately $106 million funded from available cash of Ormat Nevada (to acquire the outstanding shares of common stock of USG) and approximately $4 million funded from available cash of USG (to cash-settle outstanding in-the-money options for common stock of USG). As a result of the acquisition, USG became an indirect wholly owned subsidiary of the Company, and the Company indirectly acquired, among other things, interests held by USG and its subsidiaries in:

  - three operating power plants at Neal Hot Springs, Oregon, San Emidio, Nevada and Raft River, Idaho with a total net generating capacity of approximately 38 MW (the USG Operating Projects); and

  - development assets at the Geysers, California; a second phase project at San Emidio, Nevada; a greenfield project in Crescent Valley, Nevada; and the El Ceibillo project located near Guatemala City, Guatemala (the “USG Development Projects”)

- On April 16, 2018, we announced that our Viridity subsidiary expected to start construction of two 20MW/20MWh utility scale, in-front-of-the-meter battery energy storage systems (BESS) located in Plumsted Township and Alpha, New Jersey. The two system started operation during the first quarter of 2019. Through Viridity, we will finance, construct, own and operate the projects. The BESS will be utilized to provide ancillary services to assist PJM Interconnection, a regional transmission organization, in balancing the electric grid, and will also be available as a capacity asset. The two projects together are expected to generate, in 2019, average revenues of between $7 million and $8 million, mainly from ancillary services. The projects derive revenue from the PJM ancillary service and electricity market which is a merchant market and subject to fluctuation.

- On March 22, 2018, we entered into a loan agreement with affiliates of the Migdal Group, one of Israel's leading insurance companies and institutional investors, to provide us with a $100.0 million senior unsecured loan. The loan will be repaid in 15 semi-annual payments of $4.2 million each, commencing on September 15, 2021, with a final payment of $37 million on March 15, 2029. The average duration of the loan is 7 years. The loan bears interest at a fixed rate of 4.8% per annum, payable semi-annually, subject to adjustments in certain cases.

Operations of our Electricity Segment

How We Own Our Power Plants

We customarily establish a separate subsidiary to own interests in each of our power plants. This ensures that the power plant, and the revenues generated by it, will be the only source for repaying indebtedness, if any, incurred to finance the construction or the acquisition (or to refinance the construction or acquisition) of the relevant power plant. If we do not own all of the interest in a power plant, we enter into a shareholders' agreement or a partnership agreement that governs the management of the specific subsidiary and our relationship with our partner in connection with the specific power plant. Our ability to transfer or sell our interests in certain power plants may be restricted by certain purchase options or rights of first refusal in favor of our power plant partners or the power plant's power purchasers and/or certain change of control and assignment restrictions in the underlying power plant and financing documents. All of our domestic geothermal and REG power plants are Qualifying Facilities under the PURPA and are eligible for regulatory exemptions from most provisions of the FPA and certain state laws and regulations.

Table of Contents

How We Explore and Evaluate Geothermal Resources

Since 2006, we have expanded our exploration activities, initially in the United States and in the last few years with an increasing focus internationally. It generally takes two to three years from the time we start active exploration of a particular geothermal resource to the time we have an operating production well, assuming we conclude the resource is commercially viable and determine to pursue its development. Exploration activities generally involve the phases described below.

Initial Evaluation

We identify and evaluate potential geothermal resources by sampling and studying new areas combined with information available from public and private sources. We generally adhere to the following process, although our process can vary from site to site depending on geological circumstances and prior evaluation:

- We evaluate historic, geologic and geothermal information available from public and private databases, including geothermal, mining, petroleum and academic sources.

- We visit sites, sampling fluids for chemistry if necessary, to evaluate geologic conditions.

- We evaluate available data, and rank prospects in a database according to estimated size and perceived risk. For example, pre-drilled sites with extensive data are considered lower risk than “green field” sites. Both prospect types are considered critical for our continued growth.

- We generally create a digital, spatial geographic information systems (GIS) database and 3D geologic model containing all pertinent information, including thermal water temperature gradients derived from historic drilling, geologic mapping information (e.g., formations, structure, alteration, and topography), and any available archival information about the geophysical properties of the potential resource.

- We assess other relevant information, such as infrastructure (e.g., roads and electric transmission lines), natural features (e.g., springs and lakes), and man-made features (e.g., old mines and wells).

Our initial evaluation is usually conducted by our own staff, although we might engage outside service providers for some tasks from time to time. The costs associated with an initial evaluation vary from site to site, based on various factors, including the acreage involved and the costs, if any, of obtaining information from private databases or other sources. On average, our expenses for an initial evaluation range from approximately $10,000 to $50,000 including

travel, chemical analyses, and data acquisition.

If we conclude, based on the information considered in the initial evaluation, that the geothermal resource could support a commercially viable power plant, taking into account various factors described below, we proceed to land rights acquisition.

Land Acquisition

We acquire land rights to any geothermal resources our initial evaluation indicates could potentially support a commercially viable power plant. For domestic power plants, we either lease or own the sites on which our power plants are located. For our foreign power plants, our lease rights for the power plant site are generally contained in the terms of a concession agreement or other contract with the host government or an agency thereof. In certain cases, we also enter into one or more geothermal resource leases (or subleases) or a concession or an option agreement or other agreement granting us the exclusive right to extract geothermal resources from specified areas of land, with the owners (or sublessors) of such land. In some cases, we first obtain the exploration license and once certain investment requirements are met, we can obtain the geothermal exploitation rights. This usually gives us the right to explore, develop, operate, and maintain the geothermal field, including, among other things, the right to drill wells (and if there are existing wells in the area, to alter them) and build pipelines for transmitting geothermal fluid. In certain cases, the holder of rights in the geothermal resource is a governmental entity and in other cases a private entity. Usually the duration of the lease (or sublease) and concession agreement corresponds to the duration of the relevant PPA, if any. In certain other cases, we own the land where the geothermal resource is located, in which case there are no restrictions on its utilization. The BLM and the Minerals Management Service regulate leasehold interests in federal land in the United States. These agencies have rules governing the geothermal leasing process as discussed below under “Description of Our Leases and Lands”.

Table of Contents

For most of our current exploration sites in the U.S., we acquire rights to use the geothermal resource through land leases with the BLM, with various states, or through private leases. Under these leases, we typically pay an up-front non-refundable bonus payment, which is a component of the competitive lease process. In addition, we undertake to pay nominal, fixed annual rent payments for the period from the commencement of the lease through the completion of construction. Upon the commencement of power generation, we begin to pay to the lessors long-term royalty payments based on the use of the geothermal resources as defined in the respective agreements. These payments are contingent on the power plant's revenues. A summary of our typical lease terms is provided below under "Description of our Leases and Lands". The up-front bonus and royalty payments vary from site to site and are based on, among other things, current market conditions.

Surveys

We conduct geological, geochemical, and/or geophysical surveys on the site we acquire. Following the acquisition of land rights for a potential geothermal resource, we conduct additional surface water analyses, soil surveys, and geologic mapping to determine proximity to possible heat flow anomalies and up-flow/permeable zones. We augment our digital database with the results of those analyses and create conceptual and digital geologic models to describe geothermal system controls. We then initiate a suite of geophysical surveys (e.g., gravity, magnetics, resistivity, magnetotellurics, reflection seismic, LiDAR, and spectral surveys) to assess surface and sub-surface structure (e.g., faults and fractures) and improve the geologic model of fluid-flow conduits and permeability controls. All pertinent geological and geophysical data are used to create three-dimensional geologic models to identify drill locations. These surveys are conducted incrementally considering relative impact and cost, and the geologic model is updated continuously.

We make a further determination of the commercial viability of the geothermal resource based on the results of this process, particularly the results of the geochemical surveys estimating temperature and the overall geologic model, including potential resource size. If the results from the geochemical surveys are poor (i.e., low derived resource temperatures or poor permeability) or the geologic model indicates small or deep resource, we re-evaluate the commercial viability of the geothermal resource and may not proceed to exploratory drilling. We generally only move forward with those sites that we believe have a high probability of successful development.

Exploratory Drilling

We drill one or more exploratory wells on the high priority, relatively low risk sites to confirm and/or define the geothermal resource. If we proceed to exploratory drilling, we generally use outside contractors to create access roads to drilling sites and related activities. We have continued efforts to reduce exploration costs and therefore, after obtaining drilling permits, we generally drill temperature gradient holes and/or core holes that are lower cost than slim holes (used in the past) using either our own drilling equipment, whenever possible, or outside contractors. If the obtained data supports a conclusion that the geothermal resource can support a commercially viable power plant, it

will be used as an observation well to monitor and define the geothermal resource. If the core hole indicates low temperatures or does not support the geologic model of anticipated permeability, it may be plugged, and the area reclaimed. In undrilled sites, we typically step up from shallow (500-1000 feet) to deeper (2000-4000 feet) wells as confidence improves. Following proven temperature in core wells, we typically move to slim and/or full- size wells to quantify permeability.

Each year we determine and approve an exploration budget for the entire exploration activity in such year. We prioritize budget allocation between the various geothermal sites based on commercial and geological factors. The costs we incur for exploratory drilling vary from site to site based on various factors, including the accessibility of the drill site, the geology of the site, and the depth of the resource. However, on average, exploration costs, prior to drilling of a full-size well are approximately $1.0 million to $3.0 million for each site, not including land acquisition. We only reach such spending levels for sites that proved to be successful in the early stages of exploration.

Table of Contents

At various points during our exploration activities, we re-assess whether the geothermal resource involved will support a commercially viable power plant based on information available at that time. Among other things, we consider the following factors:

- New data and interpretations obtained concerning the geothermal resource as our exploration activities proceed, and particularly the expected MW capacity power plant the resource can be expected to support. The MW capacity can be estimated using analogous systems and/or quantitative heat in place estimates until results from drilling and flow tests quantify temperature, permeability, and resulting resource size.

- Current and expected market conditions and rates for contracted and merchant electric power in the market(s) to be serviced.

- Availability of transmission capacity.

- Anticipated costs associated with further exploration activities and the relative risk of failure.

- Anticipated costs for design and construction of a power plant at the site.

- Anticipated costs for operation of a power plant at the site, particularly taking into account the ability to share certain types of costs (such as control rooms) with one or more other power plants that are, or are expected to be, operating near the site.

If we conclude that the geothermal resource involved will support a commercially viable power plant, we proceed to constructing a power plant at the site.

How We Construct Our Power Plants.

The principal phases involved in constructing one of our geothermal power plants are as follows:

- Drilling production and injection wells.

- Designing the well field, power plant, equipment, controls, and transmission facilities.

- Obtaining any required permits, electrical interconnection and transmission agreements.

- Manufacturing (or in the case of equipment we do not manufacture ourselves, purchasing) the equipment required for the power plant.

- Assembling and constructing the well field, power plant, transmission facilities, and related facilities.

In recent years, it has taken us two to three years from the time we drill a production well until the power plant becomes operational.

Drilling Production and Injection Wells

We consider completing the drilling of the first production well to be the beginning of our construction phase for a power plant. However, this is not always sufficient for a full release for construction. The number of production wells varies from plant to plant depending on, among other things, the geothermal resource, the projected capacity of the power plant, the power generation equipment to be used and the way geothermal fluids will be re-injected through injection wells to maintain the geothermal resource and surface conditions. We generally drill the wells ourselves although in some cases we use outside contractors.

The cost for each production and injection well varies depending on, among other things, the depth and size of the well and market conditions affecting the supply and demand for drilling equipment, labor and operators. In the last five years, our typical cost for each production and injection well is approximately $3.3 million with a range of $1.0 million to $8.5 million.

Design

We use our own employees to design the well field and the power plant, including equipment that we manufacture and that will be needed for the power plant. The designs vary based on various factors, including local laws, required permits, the geothermal resource, the expected capacity of the power plant and the way geothermal fluids will be re-injected to maintain the geothermal resource and surface conditions.

Table of Contents

Permits

We use our own employees and outside consultants to obtain any required permits and licenses for our power plants that are not already covered by the terms of our site leases. The permits and licenses required vary from site to site and are described below under “Environmental Permits”.

Manufacturing

Generally, we manufacture most of the power generating unit equipment we use at our power plants. Multiple sources of supply are generally available for all other equipment we do not manufacture.

Construction

We use our own employees to manage the construction work. For site grading, civil, mechanical, and electrical work we use subcontractors.

During fiscal year 2018, in the Electricity segment, we focused on the commencement of operations at McGinness Hills phase 3 in Nevada and at the Olkaria III plant expansion in Kenya. We began with construction of Steamboat Hills enhancement and Tungsten Solar in Nevada as well as with enhancement work in some of our operating power plants. During fiscal year 2017, we focused on the commencement of operations at Platanares power plant in Honduras and Tungsten Mountain in Nevada. We began with construction of the Olkaria III plant expansion in Kenya and enhancement work in some of our operating power plants. During fiscal year 2016, we focused on the commencement of operations at Olkaria III plant 4.

When deciding whether to continue holding lease rights and/or to pursue exploration activity, we diligently prioritize our prospective investments, taking into account resource and probability assessments in order to make informed decisions about whether a particular project will support commercial operation. As a result, during fiscal year 2018 we decided to discontinue our holding in the lease at one prospective site: Ruby Valley in Nevada. During fiscal year 2017 we discontinued exploration activities at four prospective sites: the Ungaran region in Indonesia, Glass Buttes - Midnight Point in Oregon and Tuscarora - phase 2 and Don A. Campbell - phase 3, in Nevada. During fiscal year 2016, we discontinued exploration activities at three future prospective sites, in the Kula region in Hawaii and the Aqua Quieta and Sollipulli regions in Chile.

After conducting exploratory studies at those sites, we concluded that the respective geothermal resources would not support commercial operations. Costs associated with exploration activities at these sites were expensed accordingly (see “Write-off of Unsuccessful Exploration Activities” under Item 7 — “Management’s Discussion and Analysis of Financial Condition and Results of Operations”).

We added to our exploration inventory six prospective sites in 2018 two prospective sites in 2017 and 10 prospective sites in the year ended 2016.

How We Operate and Maintain Our Power Plants

Our operations and maintenance practices are designed to minimize operating costs without compromising safety or environmental standards while maximizing plant flexibility and maintaining high reliability. Our operations and maintenance practices for geothermal power plants seek to preserve the sustainable characteristics of the geothermal resources we use to produce electricity and maintain steady-state operations within the constraints of those resources reflected in our relevant geologic and hydrologic studies. Our approach to plant management emphasizes the operational autonomy of our individual plant or complex managers and staff to identify and resolve operations and maintenance issues at their respective power plants; however, each power plant or complex draws upon our available collective resources and experience, and that of our subsidiaries. We have organized our operations such that inventories, maintenance, backup, and other operational functions are pooled within each power plant complex and provided by one operation and maintenance provider. This approach enables us to realize cost savings and enhances our ability to meet our power plant availability goals.

Safety is a key area of concern to us. We believe that the most efficient and profitable performance of our power plants can only be accomplished within a safe working environment for our employees. Our compensation and incentive program include safety as a factor in evaluating our employees, and we have a well-developed reporting system to track safety and environmental incidents, if any, at our power plants.

Table of Contents

How We Sell Electricity

In the U.S., the purchasers of power from our power plants are typically investor-owned electric utility companies or electric cooperatives including public owned utilities. Outside of the U.S., our purchasers are either state-owned utilities or a privately-owned-entities and we typically operate our facilities under rights granted to us by a governmental agency pursuant to a concession agreement. In each case, we enter into long-term contracts (typically, PPAs) for the sale of electricity or the conversion of geothermal resources into electricity. Although previously our power plants' revenues under a PPA generally consisted of two payments, energy payments and capacity payments, our recent PPAs provide for energy payments only. Energy payments are normally based on a power plant's electrical output actually delivered to the purchaser measured in kWh, with payment rates either fixed or indexed to the power purchaser's "avoided" power costs (i.e., the costs the power purchaser would have incurred itself had it produced the power it is purchasing from third parties) or rates that escalate at a predetermined percentage each year. Capacity payments are normally calculated based on the generating capacity or the declared capacity of a power plant available for delivery to the purchaser, regardless of the amount of electrical output actually produced or delivered. In addition, we have six domestic power plants located in California, Nevada and Hawaii that are eligible for capacity bonus payments under the respective PPAs upon reaching certain levels of generation, or subject to a capacity payment reduction if certain levels of generation are not reached.

How We Finance Our Power Plants

Historically we have funded our power plants with different sources of liquidity such as a non-recourse or limited recourse debt, lease financing, tax monetization transactions, internally generated cash, which includes funds from operation, as well as proceeds from loans under corporate credit facilities and the sale of equity interests and other securities. Such leveraged financing permits the development of power plants with a limited amount of equity contributions, but also increases the risk that a reduction in revenues could adversely affect a particular power plant's ability to meet its debt obligations. Leveraged financing also means that distributions of dividends or other distributions by our power plant subsidiaries to us are contingent on compliance with financial and other covenants contained in the applicable financing documents.

Non-recourse debt or lease financing refers to debt or lease arrangements involving debt repayments or lease payments that are made solely from the power plant's revenues (rather than our revenues or revenues of any other power plant) and generally are secured by the power plant's physical assets, major contracts and agreements, cash accounts and, in many cases, our ownership interest in our affiliate that owns that power plant. These forms of financing are referred to as "project financing".

In the event of a foreclosure after a default, our affiliate that owns the power plant would only retain an interest in the power plant assets, if any, remaining after all debts and obligations have been paid in full. In addition, incurrence of debt by a power plant may reduce the liquidity of our equity interest in that power plant because the equity interest is

typically subject both to a pledge in favor of the power plant's lenders securing the power plant's debt and to transfer and change of control restrictions set forth in the relevant financing agreements.

Limited recourse debt refers to project financing as described above with the addition of our agreement to undertake limited financial support for our affiliate that owns the power plant in the form of certain limited obligations and contingent liabilities. These obligations and contingent liabilities may take the form of guarantees of certain specified obligations, indemnities, capital infusions and agreements to pay certain debt service deficiencies. Creditors of a project financing of a particular power plant may have direct recourse to us to the extent of these limited recourse obligations.

We have used financing structures to monetize PTCs and depreciation, such as our recent tax equity partnership transaction involving Tungsten, and an operating lease arrangement for our Puna complex power plants.

We have also used a sale of equity interests in three of our geothermal assets and nine of our REG facilities to fund corporate needs including funding for the construction of new projects. We may use some of the same financing structures in the future.

How We Mitigate International Political Risk.

We generally purchase insurance policies to cover our exposure to certain political risks involved in operating in developing countries, as described below under "Insurance".

Table of Contents

Description of Our Leases and Lands

We have domestic leases on approximately 365,988 acres of federal, state, and private land in California, Hawaii, Nevada, New Mexico, Utah Idaho and Oregon. The approximate breakdown between federal, state and private leases and owned land is as follows:

- 80% of the acreage under our control is leased from the U.S. government, acting mainly through the BLM;
- 16% is leased or subleased from private landowners and/or leaseholders;
- 3% is owned by us; and
- 1% is leased from various states.

Each of the leases within each of the categories above has standard terms and requirements, as summarized below. Internationally, our land position includes approximately 60,903 acres.

BLM Geothermal Leases

Certain of our domestic project subsidiaries have entered into geothermal resources leases with the U.S. government, pursuant to which they have obtained the right to conduct their geothermal development and operations on federally-owned land. These leases are made pursuant to the Geothermal Steam Act and the lessor under such leases is the U.S. government, acting through the BLM.

BLM geothermal leases grant the geothermal lessee the right and privilege to drill for, extract, produce, remove, utilize, sell, and dispose of geothermal resources on certain lands, together with the right to build and maintain necessary improvements thereon. The actual ownership of the geothermal resources and other minerals beneath the land is retained in the federal mineral estate. The geothermal lease does not grant to the geothermal lessee the exclusive right to develop the lands, although the geothermal lessee does hold the exclusive right to develop geothermal resources within the lands. Since BLM leases do not grant to the geothermal lessee the exclusive right to use the surface of the land, BLM may grant rights to others for activities that do not unreasonably interfere with the geothermal lessee’s uses of the same land, including use, off-road vehicles, and/or wind or solar energy developments.

Typical BLM leases issued to geothermal lessees before August 8, 2005 have a primary term of ten years and will renew so long as geothermal resources are being produced or utilized in commercial quantities but cannot exceed a period of forty years after the end of the primary term. If at the end of the forty-year period geothermal steam is still being produced or utilized in commercial quantities and the lands are not needed for other purposes, the geothermal lessee will have a preferential right to renew the lease for a second forty-year term, under terms and conditions as the BLM deems appropriate.

BLM leases issued after August 8, 2005 have a primary term of ten years. If the geothermal lessee does not reach commercial production within the primary term, the BLM may grant two five-year extensions. If the lessee is drilling a well for the purposes of commercial production, the lease may be extended for five years and thereafter as long as steam is being produced and used in commercial quantities the lease may be extended for up to thirty-five years. If, at the end of the extended thirty-five-year term, geothermal steam is still being produced or utilized in commercial quantities and the lands are not needed for other purposes, the geothermal lessee will have a preferential right to renew the lease under terms and conditions as the BLM deems appropriate.

For BLM leases issued before August 8, 2005, the geothermal lessee is required to pay an annual rental fee (on a per acre basis), which escalates according to a schedule described therein, until production of geothermal steam in commercial quantities has commenced. After such production has commenced, the geothermal lessee is required to pay royalties (on a monthly basis) on the amount or value of (i) steam, (ii) by-products derived from production, and (iii) commercially de-mineralized water sold or utilized by the project (or reasonably susceptible to such sale or use).

For BLM leases issued after August 8, 2005, (i) a geothermal lessee who has obtained a lease through a non-competitive bidding process will pay an annual rental fee equal to $1.00 per acre for the first ten years and $5.00 per acre each year thereafter; and (ii) a geothermal lessee who has obtained a lease through a competitive process will pay a rental equal to $2.00 per acre for the first year, $3.00 per acre for the second through tenth year and $5.00 per acre each year thereafter. Rental fees paid before the first day of the year for which the rental is owed will be credited towards royalty payments for that year. For BLM leases issued, effective, or pending on August 5, 2005 or thereafter, royalty rates are fixed between 1.0-2.5% of the gross proceeds from the sale of electricity during the first ten years of production under the lease. The royalty rate set by the BLM for geothermal resources produced for the commercial generation of electricity but not sold in an arm’s length transaction is 1.75% for the first ten years of production and 3.5% thereafter. The royalty rate for geothermal resources sold by the geothermal lessee or an affiliate in an arm’s length transaction is 10.0% of the gross proceeds from the arm’s length sale.

Table of Contents

In the event of a default under any BLM lease, or the failure to comply with any of the provisions of the Geothermal Steam Act or regulations issued under the Geothermal Steam Act or the terms or stipulations of the lease, the BLM may, 30 days after notice of default is provided to the relevant project, (i) suspend operations until the requested action is taken, or (ii) cancel the lease.

Private Geothermal Leases

Certain of our domestic project subsidiaries have entered into geothermal resources leases with private parties, pursuant to which they have obtained the right to conduct their geothermal development and operations on privately owned land. In many cases, the lessor under these private geothermal leases owns only the geothermal resource and not the surface of the land.

Typically, the leases grant our project subsidiaries the exclusive right and privilege to drill for, produce, extract, take and remove from the leased land water, brine, steam, steam power, minerals (other than oil), salts, chemicals, gases (other than gases associated with oil), and other products produced or extracted by such project subsidiary. The project subsidiaries are also granted certain non-exclusive rights pertaining to the construction and operation of plants, structures, and facilities on the leased land. Additionally, the project subsidiaries are granted the right to dispose geothermal fluid as well as the right to re-inject into the leased land water, brine, steam, and gases in a well or wells for the purpose of maintaining or restoring pressure in the productive zones beneath the leased land or other land in the vicinity. Because the private geothermal leases do not grant to the lessee the exclusive right to use the surface of the land, the lessor reserves the right to conduct other activities on the leased land in a manner that does not unreasonably interfere with the geothermal lessee’s uses of the same land, which other activities may include agricultural use (farming or grazing), recreational use and hunting, and/or wind or solar energy developments.

The leases provide for a term consisting of a primary term in the range of five to 30 years, depending on the lease, and so long thereafter as lease products are being produced or the project subsidiary is engaged in drilling, extraction, processing, or reworking operations on the leased land.

As consideration under most of our project subsidiaries’ private leases, the project subsidiary must pay to the lessor a certain specified percentage of the value “at the well” (which is not attributable to the enhanced value of electricity generation), gross proceeds, or gross revenues of all lease products produced, saved, and sold on a monthly basis. In certain of our project subsidiaries’ private leases, royalties payable to the lessor by the project subsidiary are based on the gross revenues received by the lessee from the sale or use of the geothermal substances, either from electricity production or the value of the geothermal resource “at the well”.

In addition, pursuant to the leases, the project subsidiary typically agrees to commence drilling, extraction or processing operations on the leased land within the primary term, and to conduct such operations with reasonable diligence until lease products have been found, extracted and processed in quantities deemed “paying quantities” by the project subsidiary, or until further operations would, in such project subsidiary’s judgment, be unprofitable or impracticable. The project subsidiary has the right at any time within the primary term to terminate the lease and surrender the relevant land. If the project subsidiary has not commenced any such operations on said land (or on the unit area, if the lease has been unitized), or terminated the lease within the primary term, the project subsidiary must pay to the lessor, in order to maintain its lease position, annually in advance, a rental fee until operations are commenced on the leased land.

If the project subsidiary fails to pay any installment of royalty or rental when due and if such default continues for a period of fifteen days specified in the lease, for example, after its receipt of written notice thereof from the lessor, then at the option of the lessor, the lease will terminate as to the portion or portions thereof as to which the project subsidiary is in default. If the project subsidiary defaults in the performance of any obligations under the lease, other than a payment default, and if, for a period of 90 days after written notice is given to it by the lessor of such default, the project subsidiary fails to commence and thereafter diligently and in good faith take remedial measures to remedy such default, the lessor may terminate the lease.

We do not regard any property that we lease as material unless and until we begin construction of a power plant on the property, that is, until we drill a production well on the property.

Table of Contents

Description of Our Power Plants

Domestic Operating Power Plants

The following descriptions summarize certain industry metrics for our domestic operating power plants:

Brady Complex

Location	Churchill County, Nevada
Generating Capacity	26 MW
Number of Power Plants	Two (Brady and Desert Peak 2 power plants).
Technology	The Brady complex utilizes binary systems. The complex uses air and water-cooled systems.
Subsurface Improvements	12 production wells and nine injection wells are connected to the plants through a gathering system.
Major Equipment	Four OECs along with the Balance of Plant equipment.
Age	The Brady power plant commenced commercial operation in 1992 and a new OEC was added in 2004. In 2018, additional new OEC was added and three old steam turbines and associated systems were decommissioned. The Desert Peak 2 power plant commenced commercial operation in 2007.
Land and Mineral Rights	The Brady complex is comprised mainly of BLM leases that are held by production. The scheduled expiration dates for all of these leases are after the end of the expected useful life of the power plants in the Brady complex. The complex's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described in "Description of Our Leases and Lands".

Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases, and the Brady power plant holds rights of way from the BLM and from a private owner that allows access to and from the plant.
Resource Information	The resource temperatures at the Brady and Desert Peak 2 power plants are 266 degrees Fahrenheit and 332 degrees Fahrenheit, respectively. The Brady and Desert Peak geothermal systems are located within the Hot Springs Mountains, approximately 60 miles northeast of Reno, Nevada, in northwestern Churchill County. The dominant geological feature of the Brady area is a linear north-northeast-trending band of hot ground that extends two miles. The Desert Peak geothermal field is located within the Hot Springs Mountains, which form part of the western boundary of the Carson Sink. The structure is characterized by east-titled fault blocks and north-northeast-trending folds. The geologic structure in the area is dominated by high-angle normal faults of varying displacement.
Resource Cooling	During the last four years, the cooling at the Brady power plant has levelled off to a rate of 2.6 degrees Fahrenheit per year. The temperature decline at the Desert Peak 2 power plant is approximately two degrees Fahrenheit per year.
Sources of Makeup Water	Condensed steam is used for makeup water.

Table of Contents

Power Purchaser	The Sierra Pacific Power Company and Nevada Power Company purchase power generated by the Brady power plant and Desert Peak 2 power plant, respectively.
PPA Expiration Date	Brady power plant — 2022. Desert Peak 2 power plant — 2027.
Financing	The prior financing transactions covering the Brady complex have been fully paid off.
Supplemental Information	Construction of new OEC was completed and on-line since the first quarter of 2018.

Brawley Complex

Location	Imperial County, California
Generating Capacity	13 MW (See supplemental information below)
Number of Power Plants	One
Technology	The Brawley power plant utilizes a water-cooled binary system.
Subsurface Improvements	37 wells have been drilled and are connected to the Brawley power plant through its gathering system. As we improved our knowledge of the geothermal resource, we changed some of the wells from production to injection (and vice versa) and left others idle. Currently, we have 14 wells connected to the production header and 23 wells, connected to the injection header.
Major Equipment	Five OECs together with the Balance of Plant equipment.
Age	The Brawley power plant commenced commercial operation on March 31, 2011.
Land and Mineral Rights	The Brawley area is comprised entirely of private leases. The leases are held by production. The scheduled expiration date for all of these leases is after the end of the expected useful life of the power plant.

	The plant's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands".
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
Resource Information	Brawley production is from deltaic and marine sedimentary sands and sandstones deposited in the subsiding Salton Trough of the Imperial Valley. Based on seismic refraction surveys the total thickness of these sediments in the Brawley area is over 15,000 feet. The shallow production reservoir (from depths of 1,500 to 4,500 feet) that was developed is fed by fractures and matrix permeability and is conductively heated from the underlying fractured reservoir, which convectively circulates magmatically heated fluid. Produced fluid salinity ranges from 20,000 to 50,000 ppm, and the moderate scaling and corrosion potential is chemically inhibited. The temperature of the deeper fractured reservoir fluids exceed 525 degrees Fahrenheit, but the fluid is not yet developed because of severe scaling and corrosion potential. The deep reservoir is not dedicated to the Brawley power plant. The average produced fluid resource temperature is 323 degrees Fahrenheit.

Table of Contents

Resource Cooling	The temperature of the geothermal resource depends on the mix of operating production wells that we use.
Sources of Makeup Water	Water is provided by the IID.
Power Purchaser	Southern California Edison.
PPA Expiration Date	2031.
Financing	Corporate funds and ITC cash grant from the U.S. Treasury.
Supplemental Information	With a new chemical supply system, we plan to activate several idle wells. New production well was drilled and added to the production header in 2018 and as a result, we expect to see an increase in generation.

Don A. Campbell Complex

Location	Mineral County, Nevada
Generating Capacity	39 MW
Number of Power Plants	Two (phase 1 and phase 2)
Technology	The Don A. Campbell power plants utilize an air-cooled binary system
Subsurface Improvements	Nine production wells and five injection wells are connected to the plants
Major Equipment	Two air-cooled OECs with the Balance of Plant equipment
Age	The phase 1 power plant commenced commercial operation on January 1, 2014 and the phase 2 power plant commenced commercial operation on September 27, 2015

	The Don A. Campbell area is comprised of BLM leases.
Land and Mineral Rights	The complex's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands"
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted in leases from BLM.
Resource Information	The Don A. Campbell geothermal reservoir consists of highly fractured, silicified alluvium over at least two square miles. Production and injection are very shallow with nine pumped production wells (from depths of 1,350 feet to 1,900 feet) and five injection wells (from depths of 649 feet to 2,477 feet), all targeting northwest-dipping fractures. The thermal fluids are thought to be controlled by a combination of conductive heat transfer from deeper bedrock and through mixing of upwelling thermal fluids from a deeper geothermal system also contained in the bedrock. The system is considered blind with no surface expression of thermal features.
	The temperature of the resource is approximately 247 degrees Fahrenheit.
Resource Cooling	Temperature started declining in mid-2016. An injection well was drilled in 2017 and testing is in process to confirm the impact on temperature decline. Injection tests and tracer studies, along with reservoir modeling have been used to develop a plan to mitigate temperature decline of the reservoir. First stages of this plan will occur in Q1 2019.
Power Purchaser	Two separate PPAs with SCPPA.

Table of Contents

PPA Expiration Date	The phase 1 PPA expires in 2034 and the phase 2 PPA expires in 2036
Financing	The phase 1 power plant was financed through our sale of our 4.03% Senior Secured Notes and a cash grant that we received from the U.S. Treasury. The phase 2 power plant was financed using corporate funds and the proceeds of the tax equity transaction involving Opal Geo. In April 2015, we closed an equity transaction with Northleaf in which Northleaf acquired a 36.75% equity interest in ORPD. ORPD owns the Puna complex, the Don A. Campbell phase 1 power plant, and the OREG 1, OREG 2, and OREG 3 power plants.
Supplemental Information	In November 2016, Northleaf purchased a 36.75% equity interest in the Don A. Campbell phase 2 power plant, which was initially added to the existing ORPD portfolio and then later contributed to Opal Geo in connection with the tax equity partnership transaction as described below

Heber Complex

Location	Heber, Imperial County, California
Generating Capacity	81 MW
Number of Power Plants	Five (Heber 1, Heber 2, Heber South, Gould 1 and Gould 2).
Technology	The Heber 1 plant utilizes a dual flash system, a binary bottoming unit called Gould 1, a new high temperature OEC14 that was added in 2018 and the Heber 2, Gould 2 and Heber South plants all utilize binary systems. The complex uses a water cooled system
Subsurface Improvements	27 production wells and 38 injection wells connected to the plants through a gathering system.
Major Equipment	17 OECs and one steam turbine with the Balance of Plant equipment.

Age	The Heber 1 plant, Heber 2, Heber South, Gould 1 and Gould 2 plants commenced commercial operation in 1985, 1993, 2008, 2006 and 2005, respectively.
	The Heber Complex is comprised mainly of private leases. The leases are held by production. The scheduled expiration dates for all of these leases are after the end of the expected useful life of the power plants.
Land and Mineral Rights	
	The complex's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands"
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
Resource Information	The resource supplying the flash flowing Heber 1 wells averages 335 degrees Fahrenheit. The resource supplying the pumped Heber 2 wells averages 315 degrees Fahrenheit
	The Heber Complex's production is from deltaic sedimentary sandstones deposited in the subsiding Salton Trough of California's Imperial Valley. Produced fluids rise from near the magmatic heated basement rocks (18,000 feet) via fault/fracture zones to the near surface. Heber 1 wells produce directly from deep (4,000 to 8,000 feet) fracture zones. Heber 2 wells produce from the nearer surface (2,000 to 4,000 feet) matrix permeability sandstones in the horizontal outflow plume fed by the fractures from below and the surrounding ground waters.
	Scale deposition in the flashing Heber 1 producers is controlled by down hole chemical inhibition supplemented with occasional mechanical cleanouts and acid treatments. There is no scale deposition in the Heber 2 production wells.

Table of Contents

Resource Cooling	Average cooling of one degree Fahrenheit per year was observed during the past 20 years of production.
Sources of Makeup Water	Water is provided by condensate and by the IID.
Power Purchaser	One PPA with Southern California Edison and two PPAs with SCPPA.
PPA Expiration Date	Heber 1 — 2025, Heber 2 — 2023, and Heber South — 2031. The output from the Gould 1 and Gould 2 power plants is sold under the PPAs with SCPPA
Financing	The Heber Complex was financed through the sale of OrCal Senior Secured Notes and the proceeds of the transaction, which was closed in 2017, involving our subsidiary ORTP.
Supplemental Information	We are currently in the process of enhancing the Heber 1 and Heber 2 power plants as discussed below.

Jersey Valley Power Plant

Location	Pershing County, Nevada
Generating Capacity	10 MW
Number of Power Plants	One
Technology	The Jersey Valley power plant utilizes an air cooled binary system.
Subsurface Improvements	Two production wells and four injection wells are connected to the plant through a gathering system. A third production well is not connected to the power plant and will be used in the future as required.
Major Equipment	Two OECs together with the Balance of Plant equipment.

Age	Construction of the power plant was completed at the end of 2010 and the off-taker approved commercial operation under the PPA on August 30, 2011.
	The Jersey Valley site is comprised of BLM leases. The leases are held by production. The scheduled expiration dates for all of these leases are after the end of the expected useful life of the power plant.
Land and Mineral Rights	
	The power plant's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands".
Access to Property	Direct access to public roads from leased property and access across leased property are provided under surface rights granted in leases from BLM.
Resource Information	The Jersey Valley geothermal reservoir consists of a small high-permeability area surrounded by a large low-permeability area. The high-permeability area has been defined by wells drilled along an interpreted fault trending west-northwest. Static water levels are artesian; two of the wells along the permeable zone have very high productivities, as indicated by Permeability Index (PI) values exceeding 20 gpm/psi. The average temperature of the resource is 305 degrees Fahrenheit.

Table of Contents

Resource Cooling	Cooling is stable at 3 degrees Fahrenheit per year following reducing the injection rate in a well near the production wells. To offset the reduction of injection in this well, we diverted more fluid to farther away wells (by increasing injection pressure).
Power Purchaser	Nevada Power Company.
PPA Expiration Date	2032.
Financing	The Jersey Valley power plant was financed through the sale of our OFC 2 Senior Secured Notes, corporate funds, an ITC cash grant from the U.S. Treasury and the proceeds of the Opal Geo tax equity partnership transaction.

Mammoth Complex

Location	Mammoth Lakes, California
Generating Capacity	29 MW
Number of Power Plants	Three (G-1, G-2, and G-3).
Technology	The Mammoth complex utilizes air cooled binary systems.
Subsurface Improvements	Ten production wells and five injection wells are connected to the plants through a gathering system.
Major Equipment	Two new OECs and six turbo-expanders together with the Balance of Plant equipment.
Age	The G-1 plant commenced commercial operation in 1984 and the G-2 and G-3 power plants commenced commercial operation in 1990. We recently replaced the equipment at the G-1 plant with new OECs.
Land and Mineral Rights	The Mammoth complex is comprised mainly of BLM leases. The leases are held by production. The scheduled expiration dates for all of these leases are after the end of the

	expected useful life of the power plants.
	The complex's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands".
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
	The average resource temperature is 334 degrees Fahrenheit.
Resource Information	The Casa Diablo/Basalt Canyon geothermal field at Mammoth lies on the southwest edge of the resurgent dome within the Long Valley Caldera. It is believed that the present heat source for the geothermal system is an active magma body underlying the Mammoth Mountain to the northwest of the field. Geothermal waters heated by the magma flow from a deep source (greater than 3,500 feet) along faults and fracture zones from northwest to southeast east into the field area.
	The produced fluid has minimal scaling potential.

Table of Contents

Resource Cooling	Over the last four years temperature decline is less than 0.5 degrees Fahrenheit per year.
Power Purchaser	G1 and G3 plants — PG&E and G2 plant — Southern California Edison.
PPA Expiration Date	G-1 and G-3 plants — 2034 and G-2 plant — 2027
Financing	The prior financing transactions covering the Mammoth complex have been fully paid off.

McGinness Hills Complex

Location	Lander County, Nevada.
Generating Capacity	140 MW
Number of Power Plants	Three (first, second and third phases)
Technology	The McGinness Hills complex utilizes an air cooled binary system.
Subsurface Improvements	15 production wells and nine injection wells are connected to the power plant.
Major Equipment	Nine air cooled OECs with the Balance of Plant equipment.
Age	The first phase power plant commenced commercial operation on July 1, 2012, the second phase power plant commenced commercial operation on February 1, 2015, and the third phase power plant commenced operation on December 15, 2018.
Land and Mineral Rights	The McGinness Hills complex is comprised of private and BLM leases.
	The leases require annual rental payments, as described above in “Description of Our Leases and Lands”.

	The rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in “Description of Our Leases and Lands”.
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted in leases from BLM.
Resource Information	The McGinness Hills geothermal reservoir is contained within a network of fractured rocks over an area at least three square miles. The reservoir is contained in both Tertiary intrusive and Paleozoic sedimentary (basement) rocks. The thermal fluids within the reservoir are inferred to flow upward through the basement rocks along the NNE-striking faults at several fault intersections. The thermal fluids then generally outflow laterally to the NNE and SSW along the NNE-striking faults. No modern thermal manifestations exist at McGinness Hills, although hot spring deposits encompass an area of approximately 0.25 square miles and indicate a history of surface thermal fluid flow. The resource temperature averages 335 degrees Fahrenheit and the fluids are sourced from the reservoir between 2,000 and 5,000 feet below the surface.
Resource Cooling	The temperature has been stable with no notable cooling since the first phase power plant began operation.
Power Purchaser	Nevada Power Company and SCPPA.
PPA Expiration Date	First and second phases – 2033 and third phase – 2043.

Table of Contents

Financing	The power plants were financed through the sale of our OFC 2 Senior Secured Notes, an ITC cash grant from the U.S. Treasury for the first phase power plant and the proceeds of the Opal Geo tax equity partnership transaction.

Neal Hot Springs Plant

Location	Malheur County, Oregon.
Generating Capacity	22 MW
Number of Power Plants	One power plant consisting of three modules
Technology	The Neal Hot Springs project utilizes binary, air cooled systems. The heat exchanger uses R-134a fluid
Subsurface Improvements	The project has four production wells and nine injection wells (four are in use).
Major Equipment	Atlas Copco turbine, Lufkin gearbox, Ohmestead vaporizers, Ruhrpumpen feed pump Hyundai generator and Hudson ACC.
Age	The Neal Hot Springs project operation date was November 16, 2012.
Land and Mineral Rights	The Company holds 3 lease contracts for approximately 7,429 acres of geothermal water rights located in the Neal Hot Springs area near Vale, Oregon. The contracts have stated terms of 10 years with expiration dates that range from May 2015 to November 2019. Approximately 521 acres of geothermal rights at Neal Hot Springs are owned by Cyprus Gold Exploration Corporation (50%), JR Land and Livestock (25%), and USG Oregon LLC (25%). Royalty for the two private leases is paid on the gross revenue from energy sales paid by Idaho Power Company under the PPA. The JR Land & Livestock lease has a 3% royalty for the first five years of production, increases to 4% for years 6-15, and then to 5% for the remainder of the lease term. The Cyprus lease establishes a 2% royalty for the first ten years and then escalates to 3% for the remainder of the lease.

The Neal Hot Springs project has four primary permits governing power plant operations. The permits include:

1. Geothermal Well Permits issued by the Department of Geology.

2. A Right-of-Way issued by the Bureau of Land Management.

3. A Conditional Use Permit issued by the Malheur County Commission

4. Underground Injection Control Permit issued by the Oregon Department of Environmental Quality.

Access to Property	Direct access to the plant from public roads. Access across the leased property are provided pursuant to the leases.
	The Neal Hot Springs geothermal system is located near Vale, Oregon, in Malheur County.
Resource Information	Well depths are between 2,500 and 3,000 feet. As of 12/31/18, production well temperatures ranged between 280- and 285-degrees Fahrenheit. As of 12/31/18, the average brine inlet temperature was 283 degrees Fahrenheit.
Resource Cooling	Average brine inlet temperatures declined 1.3 degrees Fahrenheit over the past year.
Power Purchaser	Idaho Power Company.

Table of Contents

PPA Expiration Date	March 1, 2038.
Financing	Department of Energy senior secured loan.
Supplemental Information	The Neal Hot Spring power plant was acquired as part of USG acquisition in April 2018.

OREG 1 Power Plant

Location	Four gas compressor stations along the Northern Border natural gas pipeline in North and South Dakota.
Generating Capacity	22 MW
Number of Power Plants	Four
Technology	The OREG 1 power plant utilizes our air cooled OECs.
Major Equipment	Four WHOH and four OECs together with the Balance of Plant equipment.
Age	The OREG 1 power plant commenced commercial operation in 2006.
Land	Easement from NBPL.
Access to Property	Direct access to the plant from public roads.
Power Purchaser	Basin Electric Power Cooperative
	2031

PPA Expiration Date	
Financing	Corporate funds.
Supplemental Information	In April 2015, we closed an equity transaction with Northleaf in which Northleaf acquired a 36.75% equity interest in ORPD. ORPD owns the Puna complex, the Don A. Campbell phase 1 power plant, and the OREG 1, OREG 2, and OREG 3 power plants.

OREG 2 Power Plant

Location	Four gas compressor stations along the Northern Border natural gas pipeline in one in Montana, two in North Dakota, and one in Minnesota.
Generating Capacity	22 MW
Number of Power Plants	Four
Technology	The OREG 2 power plant utilizes our air cooled OECs.
Major Equipment	Four WHOH and four OECs together with the Balance of Plant equipment.
Age	The OREG 2 power plant commenced commercial operation during 2009.
Land	Easement from NBPL.
Access to Property	Direct access to the plant from public roads.
Power Purchaser	Basin Electric Power Cooperative
PPA Expiration Date	2034.
Financing	Corporate funds.

Supplemental Information	In April 2015, we closed an equity transaction with Northleaf in which Northleaf acquired a 36.75% equity interest in ORPD. ORPD owns the Puna complex, the Don A. Campbell phase 1 power plant, and the OREG 1, OREG 2, and OREG 3 power plants.

Table of Contents

OREG 3 Power Plant

Location	A gas compressor station along Northern Border natural gas pipeline in Martin County, Minnesota.
Generating Capacity	5.5 MW
Number of Power Plants	One
Technology	The OREG 3 power plant utilizes our air cooled OECs.
Major Equipment	One WHOH and one OECs together with the Balance of Plant equipment.
Age	The OREG 3 power plant commenced commercial operation during 2010.
Land	Easement from NBPL.
Access to Property	Direct access to the plant from public roads.
Power Purchaser	Great River Energy.
PPA Expiration Date	2029.
Financing	Corporate funds.
Supplemental Information	In April 2015, we closed an equity transaction with Northleaf in which Northleaf acquired a 36.75% equity interest in ORPD. ORPD owns the Puna complex, the Don A. Campbell phase 1 power plant, and the OREG 1, OREG 2, and OREG 3 power plants.

OREG 4 Power Plant

Location	A gas compressor station along natural gas pipeline in Denver, Colorado.
Generating Capacity	3.5 MW
Number of Power Plants	One
Technology	The OREG 3 power plant utilizes our air cooled OECs.
Major Equipment	Two WHOH and one OECs together with the Balance of Plant equipment.
Age	The OREG 4 power plant commenced commercial operations during 2009.
Land	Easement from Trailblazer Pipeline Company.
Access to Property	Direct access to the plant from public roads.
Power Purchaser	Highline Electric Association.
PPA Expiration Date	2029.
Financing	Corporate funds.

Table of Contents

Ormesa Complex

Location	East Mesa, Imperial County, California
Generating Capacity	39 MW
Number of Power Plants	Three (OG I, OG II and GEM 3). The GEM 2 plant was taken off line during 2015 due to plant operation optimization.
Technology	The OG I and OG II plants utilize a binary system and the GEM 3 plant utilizes a flash system. The complex uses a water cooling system.
Subsurface Improvements	24 production wells and 57 injection wells connected to the plants through a gathering system.
Major Equipment	8 OECs and one steam turbines with the Balance of Plant equipment.
Age	The various OG I power plants commenced commercial operation between 1987 and 1989, and the OG II plant commenced commercial operation in 1988. Between 2005 and 2007 a significant portion of the old equipment in the OG plants was replaced (including turbines through repowering). The GEM plant commenced commercial operation in 1989, and a new bottoming unit was added in 2007.
Land and Mineral Rights	The Ormesa complex is comprised of BLM leases. The leases are held by production. The scheduled expiration dates for all of these leases are after the end of the expected useful life of the power plants. The complex's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands".
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
Resource Information	

	The resource temperature ranges from 278 degrees Fahrenheit to 343 degrees Fahrenheit depending on which production wells are used. Production is from sandstones. Productive sandstones are from 1,800 to 6,000 feet and have only matrix permeability. The currently developed thermal anomaly was created in geologic time by conductive heating and direct outflow from an underlying convective fracture system. Produced fluid salinity ranges from 2,000 ppm to 13,000 ppm, and minor scaling and corrosion potential is chemically inhibited
Resource Cooling	Temperature decline is less than one degree Fahrenheit per year.
Sources of Makeup Water	Water is provided by the IID.
Power Purchaser	SCPPA under a single PPA.
PPA Expiration Date	November 30, 2042.
Financing	The prior financing transactions covering the Ormesa complex have been fully paid off.
Supplemental Information	On November 30, 2017, we started to sell the electricity generated by the Ormesa complex power plants under a 25-year PPA with SCPPA. This PPA replaced the 30-year SO#4 contract with Southern California Edison. Under the terms of the new PPA, energy from the power plant is sold to SCPPA at a rate of $77.25 per MWh with no annual escalation. Contract capacity is 35 MW with a maximum generation equivalent to a net capacity of about 43 MW. We are currently in the process of replacing old equipment with new technology equipment.

Table of Contents

Puna Complex

Location	Puna district, Big Island, Hawaii.
Generating Capacity	38 MW.
Number of Power Plants	Two
Technology	The Puna plants utilize our geothermal combined cycle and binary systems. The plants use an air cooled system.
Subsurface Improvements	Six production wells and five injection wells were connected to the plants through a gathering system prior to May 1st, 2018 volcano eruption. Two production and one injection well were covered by lava, but these were some of the least contributors.
Major Equipment	The first plant consists of ten OECs made up of ten binary turbines, ten steam turbines and two bottoming units along with the Balance of Plant equipment. The second plant consists of two OECs along with Balance of Plant equipment.
Age	The first plant commenced commercial operation in 1993. The second plant was placed in service in 2011 and commenced commercial operation in 2012.
	The Puna complex is comprised of a private lease. The private lease is between PGV and KLP and it expires in 2046. PGV pays an annual rental payment to KLP, which is adjusted every five years based on the CPI.
Land and Mineral Rights	The state of Hawaii owns all mineral rights (including geothermal resources) in the state. The state has issued a Geothermal Resources Mining Lease to KLP, and KLP in turn has entered into a sublease agreement with PGV, with the state's consent. Under this arrangement, the state receives royalties of approximately three percent of the gross revenues.
Access to Property	Direct access to the leased property is readily available via county public roads located adjacent to the leased property. The public roads are at the north and south boundaries of the leased property.

	The geothermal reservoir at Puna is located in volcanic rock along the axis of the Kilauea Lower East Rift Zone. Permeability and productivity are controlled by rift-parallel subsurface fissures created by volcanic activity. They may also be influenced by lens-shaped bodies of pillow basalt that have been postulated to exist along the axis of the rift at depths below 7,000 feet.
Resource Information	
	The distribution of reservoir temperatures is strongly influenced by the configuration of subsurface fissures and temperatures are among the hottest of any geothermal field in the world, with maximum measured temperatures consistently above 650 degrees Fahrenheit.
Resource Cooling	The resource temperature was stable prior to the volcano eruption. The shut- down of the power plant resulted in some increase in temperature, and reservoir studies are underway to quantify any changes.
Power Purchaser	Three PPAs with HELCO (see “Supplemental Information” below).
PPA Expiration Date	2027.
Financing	The Puna complex was financed through an operating lease, an ITC cash grant from the U.S. Treasury and the proceeds of the Northleaf transaction described above.

Table of Contents

Supplemental Information

On May 3, 2018, the Kilauea volcano located in close proximity to our Puna 38 MW geothermal power plant in the Puna district of Hawaii's Big Island erupted following a significant increase in seismic activity in the area. The power plant was shutdown immediately and has not been in operation since then. Following the lava stop we are working to bring the power plant back to operation, as discussed under “Recent Developments”.

Energy pricing under the PPA with HELCO is:

- For the first on-peak 25 MW, based on HELCO's avoided cost.
- For the next on-peak 5 MW, a flat rate of 11.8 cents per kWh escalating by 1.5% per year.
- For the new on-peak 8 MW, 9 cents per kWh for up to 30,000 MWh/year and 6 cents per kWh above 30,000

- MWh/year, escalated by 1.5% per year. We signed an agreement for the period between February 1, 2017 and December 31, 2017 that waives the 30,000 kWh threshold requirements that the price for energy delivered during on-peak hours shall be 6 cents per kWh regardless of the amount of MWh delivered. We recently extended the waiver until the end of 2018.

- For the first off-peak 22 MW, based on HELCO's avoided cost.

The off-peak energy above 22 MW is dispatchable:

- For the first off-peak 5 MW, a flat rate of 11.8 cents per kWh escalating by 1.5% per

year.

For the energy above 27 MW and up to 38 MW, six cents per kWh escalating by 1.5% per year.

The capacity payment for the first 30 MW $160 kW/year for the first 25 MW and $100.95 kW/year for the additional 5 MW. For the new eight MW power plant the annual capacity payment is $2 million

Raft River

Location	Near the town of Malta, Idaho
Generating Capacity	11 MW
Number of Power Plants	One.
Technology	The project utilizes binary, water-cooled systems. The heat exchanger uses Isopentane.
Subsurface Improvements	Five production wells and four injection wells are connected to the plant.
Major Equipment	The plant consists of one OEC along with the Balance of Plant equipment.
Age	The Raft River Energy I power plant achieved commercial operation on January 3, 2008.
Land and Mineral Rights	The project has 10.8 square miles under lease. The plant has a footprint of 3.5 acres. The project also has 8 private geothermal leases, one of which is owned by the parent company. The parent company retains direct control over 4 private leases and one federal lease outside the Raft River Energy position.

The federal lease was established in August 2007 with a primary term of 10 years and automatic renewal thereafter.

Table of Contents

Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
Resource Information	The Raft River Energy I geothermal system is located in Southern Idaho, approximately 12 miles south of Malta. Well depths are between 4,500 and 6,000 feet. The production well temperatures ranges between 250 to 302 degrees Fahrenheit. The average brine inlet temperature is 270 degrees Fahrenheit.
Resource Cooling	In 2018, the average brine inlet temperature increased 0.6 degrees Fahrenheit.
Power Purchaser	Idaho Power Company.
PPA Expiration Date	2032
Financing	Loan from Prudential capital Group.
Supplemental information	The Raft River power plant was acquired as part of USG acquisition in April 2018.

San Emidio

Location	Near the town of Gerlach, Nevada
Generating Capacity	11 MW
Number of Power Plants	One
Technology	The project utilizes a binary, water-cooled system. The heat exchanger uses R-134a fluid.
Subsurface Improvements	Four production wells (3 are used) and four injection wells (3 used) are connected to the plant.

Major Equipment	Atlas Copco, Lufkin gearbox, Ohmstede vaporizer, Ruhrpumpen feed pump, BosHaten condensers, Evaptech Cooling tower and Hyundai generator.
Age	The San Emidio power plant commenced commercial operation on May 25, 2012.
Land and Mineral Rights	The resource under lease is 27.9 square miles. The power plant footprint is 2.6 acres. Land ownership consists of 57.7% private property and 42.3% federally managed land. Per federal regulations applicable for the contracts, the lessee has the option to extend the primary lease term another 40 years if the BLM does not need the land for any other purpose and the lessee is maintaining production at commercial quantities. The leases require the lessee to conduct operations in a manner that minimizes adverse impacts to the environment. The project has a lease agreement with Kosmos Company, which requires royalty payments of 1.65% on gross electricity sales for the first 120 months and 3.5% royalty for the remaining term.
	The San Emidio project has five primary permits governing power plant operations.
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.

Table of Contents

Resource Information	The San Emidio geothermal system is located approximately 100 miles northeast of Reno, Nevada and approximately 14 miles south of the town of Gerlach. Well depths are between 1,500 and 3,000 feet. As of 12/31/18, production well temperatures ranged between 262 to 289 degrees Fahrenheit. The average brine inlet temperature is 275 degrees Fahrenheit.
Resource Cooling	During 2018, the average brine inlet temperature declined 3 degrees.
Power Purchaser	NV Energy.
PPA Expiration Date	2038.
Financing	A long-term note held by Prudential Financial Group.
Supplemental information	The San Emidio power plant was acquired as part of USG acquisition in April 2018.

Steamboat Complex

Location	Steamboat, Washoe County, Nevada
Generating Capacity	65 MW
Number of Power Plants	Six (Steamboat 2 and 3, Burdette (Galena 1), Steamboat Hills, Galena 2 and Galena 3).
Technology	The Steamboat complex utilizes a binary system (except for Steamboat Hills, which utilizes a single flash system). The complex uses air and water cooling systems.
Subsurface Improvements	25 production wells and 12 injection wells connected to the plants through a gathering system.
Major Equipment	Nine individual air-cooled OECs and one water-cooled OEC, and one steam turbine together with the Balance of Plant Equipment.

Age	The power plants commenced commercial operation in 1992, 2005, 2007 and 2008. During 2008, the Rotoflow expanders at Steamboat 2 and 3 were replaced with four turbines manufactured by us.
Land and Mineral Rights	The total Steamboat area is comprised of 41% private leases, 41% BLM leases and 18% private land owned by us. The leases are held by production. The scheduled expiration dates for all of these leases are after the end of the expected useful life of the power plants. The complex's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands".
Access to Property	We have easements for the transmission lines we use to deliver power to our power purchasers. Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
Resource Information	The resource temperature at the lower area averages 270 degrees Fahrenheit. The resource at Steamboat Hills averages 326 degrees Fahrenheit. The Steamboat geothermal field is a typical basin and range geothermal reservoir. Large and deep faults that occur in the rocks allow circulation of ground water to depths exceeding 10,000 feet below the surface. Horizontal zones of permeability permit the hot water to flow eastward in an out-flow plume.

Table of Contents

Resource Cooling	The Steamboat Hills and Galena 2 power plants produce hot water from fractures associated with normal faults. The rest of the power plants acquire their geothermal water from the horizontal out-flow plume. The water in the Steamboat reservoir has a low total solids concentration. Scaling potential is very low unless the fluid is allowed to flash which will result in calcium carbonate scale. Injection of cooled water for reservoir pressure maintenance prevents flashing. The Steamboat Hills area resource temperature decline rate is 4°F per year and the Lower Steamboat decline rate is between 2°F to 3°F per year.
Sources of Makeup Water	Water is provided by condensate and the local utility.
Power Purchaser	Sierra Pacific Power Company (for Steamboat 2 and 3, Burdette (Galena1) and Galena 3), Nevada Power Company (for Galena 2 until February 28, 2019) and SCPPA (for Steamboat Hills and Galena 2 on March 1st, 2019).
PPA Expiration Date	Steamboat 2 and 3 — 2022, Burdette (Galena1) — 2026, Steamboat Hills — 2043, Galena 3 — 2028, and Galena 2 — Nevada Power Company 2019 and SCPPA 2043.
Financing	Financings were fully paid.
Supplemental information	In Steamboat Hills we are replacing all the equipment and expect to add to the existing projects more than 16MW. See below “Steamboat Hills Enhancement”.

Tungsten Mountain (U.S.)

Location	Churchill County, Nevada.
Generating Capacity	27 MW
Number of Power Plants	One

Technology	The Tungsten Mountain power plant utilizes an air cooled binary system.
Subsurface Improvements	Four production and three injection wells are connected to the power plant.
Major Equipment	One air cooled OEC with the Balance of Plant equipment.
Age	The power plant commenced commercial operation on December 1, 2017.
Land and Mineral Rights	The Tungsten Mountain area is comprised of BLM land.
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted in leases from BLM.
Resource Information	The project exploits blind resource (no hot springs or fumaroles) in an area of complex faulting associated with the range front fault on the western side of Edwards Creek Valley. Wells are 1,650 to 4,500 feet deep. Production temperature is approximately 289 degrees Fahrenheit with measured high permeability.
Resource Cooling	Temperature decline is one-degree Fahrenheit per year.
Power Purchaser	SCPPA.
PPA Expiration Date	2043
Financing	Proceeds from the Tungsten tax equity partnership transaction

Table of Contents

Tuscarora Power Plant

Location	Elko County, Nevada.
Generating Capacity	18 MW
Number of Power Plants	One
Technology	The Tuscarora power plant utilizes a water cooled binary system.
Subsurface Improvements	Four production and six injection wells are connected to the power plant. A fourth production well is planned for 2018 and should be in place in early 2018.
Major Equipment	Two water cooled OECs with the Balance of Plant equipment.
Age	The power plant commenced commercial operation on January 11, 2012.
Land and Mineral Rights	The Tuscarora area is comprised of private and BLM leases. The leases are currently held by payment of annual rental payments, as described above in "Description of Our Leases and Lands". The plant's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands".
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted in leases from BLM.
Resource Information	The Tuscarora geothermal reservoir consists of an area of approximately 2.5 square miles. The reservoir is contained in both Tertiary and Paleozoic (basement) rocks. The Paleozoic section consists primarily of sedimentary rocks, overlain by tertiary volcanic rocks. Thermal fluid in the native state of the reservoir flows upward and to the north through apparently southward-dipping, basement formations. At an elevation of roughly 2,500 feet

	with respect to mean sea level, the upwelling thermal fluid enters the tertiary volcanic rocks and flows directly upward, exiting to the surface at Hot Sulphur Springs.
	The average resource temperature is 329 degrees Fahrenheit.
Resource Cooling	We expect gradual decline in the cooling trend from less than three degrees Fahrenheit per year in the next two to three years, to less than one degree Fahrenheit per year over the long term.
Sources of Makeup Water	Water is provided from five water makeup wells.
Power Purchaser	Nevada Power Company.
PPA Expiration Date	2032
Financing	OFC 2 Senior Secured Notes, ITC cash grant from the U.S. Treasury and the OrLeaf transaction.
Supplemental information	Due to the drought years, supply of make-up water for the plant cooling system is declining. With the increase in ambient temperatures, during the summer months we have experienced shortfall at levels that required at certain times reduction in plant generation. Cooling water supply continues to curtail production in the summer. During 2019, we plan to replace part of the water cooling systems by air cooling systems to reduce our dependence on the make-up water.

Table of Contents

Foreign Operating Power Plants

The following descriptions summarize certain industry metrics for our foreign operating power plants:

Amatitlan Power Plant (Guatemala)

Location	Amatitlan, Guatemala
Generating Capacity	20 MW
Number of Power Plants	One
Technology	The Amatitlan power plant utilizes an air cooled binary system and a small back pressure steam turbine (one MW).
Subsurface Improvements	Five production wells and two injection wells connected to the plants through a gathering system.
Major Equipment	Two OECs and one steam turbine together with the Balance of Plant equipment.
Age	The plant commenced commercial operation in 2007.
Land and Mineral Rights	Total resource concession area (under usufruct agreement with INDE) is for a term of 25 years starting in April 2003. Leased and company owned property is approximately three percent of the concession area. Under the agreement with INDE, the power plant company pays royalties of 3.5% of revenues up to 20.5 MW generated and 2% of revenues exceeding 20.5 MW generated.
Access to Property	The generated electricity is sold at the plant fence. The transmission line is owned by INDE.

	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the lease agreement.
	The resource temperature is an average of 518 degrees Fahrenheit.
	The Amatitlan geothermal area is located on the north side of the Pacaya Volcano at approximately 5,900 feet above sea level.
Resource Information	
	Hot fluid circulates up from a heat source beneath the volcano, through deep faults to shallower depths, and then cools as it flows horizontally to the north and northwest to hot springs on the southern shore of Lake Amatitlan and the Michatoya River Valley.
	Approximately two degrees Fahrenheit per year.
Resource Cooling	
	INDE and another local purchaser.
Power Purchaser	
	The PPA with INDE expires in 2028.
PPA Expiration Date	
	Senior secured limited recourse project finance loan from Banco Industrial S.A. and Westrust Bank (International) Limited.
Financing	
Supplemental information	During 2019 we plan to improve the gathering system that connect the geothermal wells to the power plant and expect generation to increase by reducing the pipe losses.

Table of Contents

Bouillante power plant (Guadeloupe)

Location	Guadeloupe, a French territory in the Caribbean
Generating Capacity	15 MW
Number of Power Plants	One
Technology	The Bouillante power plant uses direct steam turbines.
Subsurface Improvements	Two production wells and one injection well connected to the plant through a gathering system.
Major Equipment	Two steam turbine together with the Balance of Plant equipment.
Age	The first turbine commenced commercial operation in 1995 and the second turbine commenced operation in 2004.
Land and Mineral Rights	Geothermal concession of roughly 24 square miles valid through April 30, 2050. Facilities located on land held in fee, as well as long-term leases and easements.
Access to Property	Direct access to site through public roads.
Resource Information	The resource temperature is an average of 485 degrees Fahrenheit. Production comes from a fault that extends from the mountain into the ocean.
Resource Cooling	The resource temperature is stable.
Power Purchaser	EDF pursuant to a PPA.
PPA Expiration Date	December 31, 2030.
Financing	Corporate funds.

Supplemental information	85% of the project is owned jointly by Ormat and CDC allocated 75% to Ormat and 25% to CDC.

Olkaria III Complex (Kenya)

Location	Naivasha, Kenya.
Generating Capacity	150 MW
Number of Power Plants	Four (Plant 1 with the addition of new 11MW OEC), Plant 2, Plant 3 and Plant 4).
Technology	The Olkaria III complex utilizes an air cooled binary system.
Subsurface Improvements	18 production wells and five injection wells connected to the plants through a gathering system.
Major Equipment	13 OECs together with the Balance of Plant equipment.
Age	Plant 4 commenced commercial operation in January 2016, Plant 3 in January 2014 and Plant 2 in April 2013. The first phase of Plant 1 commenced operation in 2000 and the second phase in 2009. Decommissioned OEC1 and added OEC7 to plant 1 in 2018.
Land and Mineral Rights	The total Olkaria III area is comprised of government leases. A license granted by the Kenyan government provides exclusive rights of use and possession of the relevant geothermal resources for an initial period of 30 years, expiring in 2029, which initial period may be extended for two additional five-year terms. The Kenyan Minister of Energy has the right to terminate or revoke the license in the event work in or under the license area stops during a period of six months, or there is a failure to comply with the terms of the license or the provisions of the law relating to geothermal resources. Royalties are paid to the Kenyan government monthly based on the amount of power supplied to the power purchaser and an annual rent.
	The power generated is purchased at the metering point located immediately after the power transformers in the 220 kV sub-station within the power plant, before the transmission lines, which belong to the utility.

53

Table of Contents

Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the lease agreement.
Resource Information	The average resource temperature is 570 degrees Fahrenheit. The Olkaria III geothermal field is on the west side of the greater Olkaria geothermal area located at approximately 6,890 feet above sea level within the Rift Valley. Hot geothermal fluids rise up from deep in the northeastern portion of the concession area, penetrating a low permeability zone below 3,280 feet above sea level to a high productivity, two-phase zone identified between 3,280 and 4,270 feet above sea level.
Resource Cooling	The resource temperature is stable.
Power Purchaser	KPLC
PPA Expiration Date	Plant 2 - 2033, Plant 1 - 2034, Plant 3 - 2034 and Plant 4 - 2036
Financing	Senior secured project finance loan from OPIC and a subordinated loan from DEG.
Supplemental information	In June 2018, we successfully commenced commercial operation of the 11 MW Plant 1 expansion, which increased the Complex capacity to 150 MW.

Platanares (Honduras)

Location	Copan, Honduras
Generating Capacity	38 MW
Number of Power Plants	One

Technology	The Platanares power plant utilizes an air cooled binary system.
Subsurface Improvements	Four production wells and two injection wells connected to the plant through a gathering system.
Major Equipment	Two OECs together with the Balance of Plant equipment.
Age	The plant commenced commercial operation in September 2017.
Land and Mineral Rights	The Platanares site is located within a geothermal concession granted by the Department of Energy, Natural Resources, Environment, and Mines (SERNA) on fee land owned by GeoPlatanares and on land leased from various private and public entities. The concession conveys to GeoPlatanares the right to exploit the geothermal resources contained within. The transmission corridor consists of easement agreements between GeoPlatanares and various private and public entities.

Table of Contents

Access to Property	Public roads provide access to the Platanares site. In order to improve access for heavy equipment and large loads, GeoPlatanares has entered into a lease agreement with a private landowner for a small segment of road linking two leased parcels.
Resource Information	The Platanares site is located along a narrow river valley in western Honduras. The field is covered mostly by Miocene volcanic deposits. Numerous boiling hot springs and fumaroles emit along active faults along an area around two miles in length. The geothermal reservoir is supported by highly fractured volcanic and metasedimentary rock units. Wells are less than 800 meter deep. Production temperature is 350 degrees Fahrenheit with high productivity.
Resource Cooling	The cooling approximately 2 degrees Fahrenheit per year.
Power Purchaser	ENEE pursuant to a PPA.
PPA Expiration Date	2047
Financing	Secured project finance loan from OPIC.
Supplemental information	We hold the assets, including the project's wells, land, permits and a PPA, under a BOT structure for 15 years from the date the Platanares plant commenced commercial operation on September 26, 2017. A portion of the land on which the project is located is held by us through a lease from a local municipality. The lease is subject to approval by the Honduran Congress because the term of the lease exceeds the term in office of the relevant municipal government. Our project subsidiary has commenced the necessary steps to obtain such approval.

Sarulla – SIL and NIL 1(Indonesia)

Location	Tapanuli Utara North Sumatra Namura I Langit area, Indonesia.
Ownership	SOL is a consortium consisting of Medco Energi Internasional Tbk, Inpex Corporation, Itochu Corporation, Kyushu Electric Power Co. Inc., and one of our indirect wholly owned subsidiaries that hold a 12.75% interest.
Generating Capacity	Currently three phases (SIL and NIL 1&2) are operating with a total capacity of approximately 330 MW (Ormat's ownership share is approximately 42MW). Ormat's own

	equipment is producing approximately 40% of the power.
Number of Power Plants	Three (SIL and NIL 1 & 2)
Technology	Integrated Geothermal Combined Cycle Unit comprised of one back pressure steam turbine and six OECs for each phase (together three steam turbines and 18 OECs.
Subsurface Improvements	15 production wells and 20 injection wells are connected to the plant through a gathering system.
Major Equipment	Three back pressure steam turbines and 18 OECs together with its ancillary systems as well as field separation systems; sub-station, internal HV transmission line and other Balance of Plant equipment.
Age	SIL commenced commercial operation in March 2017, NIL 1 power plant in October 2017, and NIL 2 in April 2018.
Land and Mineral Rights	Most of the above ground land for the project was acquired from private owners with some land leased from governmental agencies. Mineral rights are state owned with special agreement for its usage by the project.

Table of Contents

Access to Property	Access to property for the project has been secured.
Resource Information	Two field areas, NIL and SIL host a steam-liquid-dominated system. Previously drilled wells have temperatures from 275°C to 310°C. Currently most wells are flowing at an average rate of about 750T/Hr per well which is sufficient for over 20MW electrical production.
Resource Cooling	Since the project commenced operation the resource temperature has been stable.
Power Purchaser	30-year Energy Sales Contract with PLN (the state electric utility).
PPA Expiration Date	2047
Financing	In May 2014, SOL reached financial closing on $1.17 billion to finance the development of the Sarulla project with a consortium of lenders comprised of JBIC, the Asian Development Bank and six other commercial banks. The project company obtained construction and term loans under a limited recourse financing package backed by political risk guarantee from JBIC.

Zunil Power Plant (Guatemala)

Location	Zunil, Guatemala.
Generating Capacity	23 MW (see “Supplemental Information” below for information on current generating capacity).
Number of Power Plants	One
Technology	The Zunil power plant utilizes an air cooled binary system.
Subsurface Improvements	Six production wells and two injection wells are connected to the plant through a gathering system.
Major Equipment	Seven OECs together with the Balance of Plant equipment.

Age	The Zunil power plant commanced commercial operation in 1999.
	The land owned by the Zunil power plant includes the power plant, workshop and open yards for equipment and pipes storage.
	Pipelines for the gathering system transit through a local agricultural area's right of way acquired by us.
Land and Mineral Rights	
	The geothermal wells and resource are owned by INDE.
	The power generated by the Zunil power plant is sold at our property line; power transmission lines are owned and operated by INDE.
Access to Property	Direct access to public roads.
Resource Information	The Zunil geothermal reservoir is hosted in Tertiary volcanic rocks which include overly fractured granodiorite. Production wells produce a reservoir from 536-572 degrees Fahrenheit to a depth of approximately 2,860-4,300 feet. A shallow steam cap exists in the production area of the field, and most of the wells produce high enthalpy fluid due to the presence of two-phase conditions in their feed zones. The wells target northwest- and northeast-trending fractures for permeability. These fractures are also thought to control upwelling from the volcanically-heated source. The upwelling fluids form a steam cap, and fluids and steam reach the surface along fractures, forming springs and fumaroles throughout the geothermal field.

Table of Contents

Resource Cooling	The resource temperature is stable.
Power Purchaser	ENDE
PPA Expiration Date	2034
Financing	In January 2014, we signed an amendment to the PPA with INDE to extend its term by 15 years until 2034.

The PPA amendment also transfers operation and management responsibilities of the Zunil geothermal field from INDE to Ormat for the term of the amended PPA in exchange for an increase in tariff. Additionally, INDE exercised its right under the PPA to become a partner in the Zunil power plant and to hold a three percent equity interest.

The power plant generates approximately 17 MW due to lack of sufficient geothermal resources. We successfully improved the heat supply and gradually increased the generation capacity. We expect that this improvement and the increased tariff will increase the energy portion of revenues.

According to the PPA amendment, payments for the Zunil plant will be made as follows:

Capacity payment:

o Until 2019, the capacity payment will be calculated based on a 24 MW generating capacity regardless of the actual performance of the power plant.

o From 2019 and thereafter, the capacity payment will be based on actual delivered capacity and the capacity rate will be reduced.

Energy payment:

o From 2014 until 2034, the energy payment will include a geothermal field operation and maintenance rate based on actual delivered energy in addition to the energy rate on actual delivered energy.

o From 2019 and thereafter, the energy rate on delivered energy will increase and will compensate the reduction in the capacity rate.

Projects under Construction

We have several projects in various stages of construction, including three projects that we have fully released for construction and two projects that are in initial stages of construction.

Table of Contents

The following is a description of projects in the U.S. that were released for, and are in different stages of, construction. These projects are expected to have a total generating capacity of 37 MW (representing our interest).

Heber Complex (U.S.)

Location	Heber, Imperial County, California
Projected Generating Capacity	11 MW
Projected Technology	The power plant will utilize an air cooled binary system
Condition	Construction (engineering is on-going)
Land	The Heber complex is comprised mainly of private leases. The leases are held by production. The scheduled expiration dates for all of these leases are after the end of the expected useful life of the power plants. The complex's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands".
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
Power Purchaser	One PPA with Southern California Edison and one PPA with SCPPA.
PPA Expiration Date	Heber 1 — 2025, Heber 2 — 2023
Financing	Corporate funds
Projected Operation	Early 2021

Supplemental Information	We are currently in the process of repowering the Heber 1 and Heber 2 power plants. We are planning to replace steam turbine and old OEC units with new advanced technology equipment. Following these enhancements, we expect the capacity of the complex to reach 92 MW.

Tungsten Mountain Solar (U.S.)

Location	Churchill County, Nevada
Projected Generating Capacity	7 MW AC (8.5 MW DC)
Projected Technology	Solar PV
Condition	Development (engineering and permitting)
Land	The Tungsten Mountain Solar site is comprised of a BLM leases
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted in leases from BLM.
Power Purchaser	SCPPA
PPA Expiration Date	2043
Financing	Corporate funds
Projected Operation	2019
	We plan to install Solar PV systems in the Tungsten Mountain geothermal power plant to reduce internal (a.k.a parasitic) load.
Supplemental Information	We are in the process of amending the Tungsten Mountain geothermal Large Generator Interconnection Agreement with NV Energy to reflect this addition of Solar PV systems.

58

Table of Contents

Steamboat Hills Enhancement (U.S.)

Location	Washo County, Nevada
Projected Generating Capacity	19 MW
Projected Technology	The power plant will utilize an air cooled binary system
Condition	Construction (engineering procurement is on-going)
Land	The Steamboat Hills area is comprised private leases, BLM leases and land owned by us. The leases are held by production. The scheduled expiration dates for all of these leases are after the end of the expected useful life of the power plants.
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
Power Purchaser	SCPPA
PPA Expiration Date	2043
Financing	Corporate funds
Projected Operation	2020
Supplemental Information	We are replacing all the equipment of this power plant and plan to add to the existing projects more than 16MW

The following is a description of projects in California and Nevada with an expected total generating capacity of 40-45 MW that are in an **initial stage of construction**:

Carson Lake Project (U.S.)

Location	Churchill County, Nevada
Projected Generating Capacity	10MW - 15MW
Projected Technology	The Carson Lake power plant will utilize a binary system.
Condition	Initial stage of construction.
Land	The Carson Lake project site is comprised of BLM leases. The leases are currently held by the payment of annual rental payments, as described above in "Description of Our Leases and Lands." Ormat holds the leases under the initial extension of the primary term which expires 2021. An additional extension of the primary term may be filed in 2021 for an additional 5 years. If commercial production occurs during either of these periods leases are extended for 35 years with the possibility of additional extension of 55 years. The project's rights to use the geothermal and surface rights under the leases are subject to various conditions, as described above in "Description of Our Leases and Lands".
Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted in leases from BLM.

Table of Contents

Resource information	The expected average temperature of the resource cannot be estimated as field development has not been completed yet.
Power Purchaser	SCPPA
PPA Expiration Date	2043
Financing	Corporate funds.
Projected Operation	End of 2021
Supplemental Information	We signed a Small Generator Interconnection Agreement with NV Energy in December 2017.

CD4 Project (Mammoth Complex) (U.S.)

Location	Mammoth Lakes, California
Projected Generating Capacity	30 MW
Projected Technology	The CD4 power plant will utilize an air cooled binary system.
	Initial stage of construction.
Condition	We have completed two production wells, one of which was previously considered as an injection well. In 2017 we drilled a core well to begin baseline monitoring, as required by our permit. Continued drilling is planned for 2019.
Land	The Mammoth complex is comprised mainly of BLM leases, which are held by production and are subject to a unitization agreement.

Access to Property	Direct access to public roads from the leased property and access across the leased property are provided under surface rights granted pursuant to the leases.
Resource information	The expected average temperature of the resource is 350-370 degrees Fahrenheit.
Power Purchaser	We have not executed a PPA.
Financing	Corporate funds.
Projected Operation	Subject to PPA execution.
Supplemental Information	We signed a Wholesale Distribution Access Tariff Cluster Large Generator Interconnection Agreement with SCE in December 2017. PPA is under negotiation,

Future Projects

Projects under Various Stages of Development

We also have projects under various stages of development in the U.S., and Guadeloupe. We expect to continue to explore these and other opportunities for expansion so long as they continue to meet our business objectives and investment criteria.

The following is a description of the projects currently under various stages of development and for which we are able to estimate their expected generating capacity. Upon completion of these projects, the generating capacity of our geothermal projects would increase by approximately 90 MW to 105 MW (representing our interest). However, we prioritize our investments based on their readiness for continued construction and expected economics and therefore we are not planning to invest in all of such projects in 2019.

Table of Contents

Bouillante power plant (Guadeloupe)

We are planning to increase the capacity of the Bouillante project by an additional 10 MW. The power plant currently sells its electricity under a 15-year PPA with EDF that was entered into in February 2016 and allows us to sell up to 14.75 MW. We expect this expansion to be completed in 2021, subject to PPA execution.

Dixie Meadows

We are currently developing the 10 MW to 15 MW Dixie Meadows geothermal power plant in Churchill County, Nevada. Following evaluation of drilling results, we have concluded that injection wells should be located in an area which is currently designated as protected land. We are exploring ways to remove the federal designation. Until we complete this process, we have put this project on hold.

Steamboat Solar

We are planning to develop a 5 MW Solar PV project on the site of the Steamboat geothermal complex. We plan to install Solar PV systems to reduce internal consumption loads. We expect this project to be completed in 2021.

North Valley

We are planning to develop a 30 MW to 40 MW geothermal project adjacent to the San Emidio project in Nevada. The project is expected to sell its electricity under the Portfolio SCPPA PPA. We expect the project to be completed by the end of 2021.

Tungsten Phase 2

We are planning to develop a 15 MW geothermal project that will be added to the current operating Tungsten power plant in Nevada. The project is expected to sell its electricity under the Portfolio SCPPA PPA. We expect the project to be completed by the end of 2020.

Wister Solar

We are planning to develop a 20 MW Solar PV project on the Wister site in California. We plan to install Solar PV systems and sell the electricity under a PPA with San Diego Gas & Electric. We expect the project to be completed by the end of 2020.

Future Prospects

We have a substantial land position that is expected to support future development and on which we have started or plan to start exploration activity. When deciding whether to continue holding lease rights and/or to pursue exploration activity, we diligently prioritize our prospective investments, taking into account resource and probability assessments in order to make informed decisions about whether a particular project will support commercial operation.

During fiscal year 2018, we discontinued holding a lease at one prospect at Ruby Valley, Nevada. We added six new prospects in 2018, in the U.S. and Indonesia.

Our current land position is comprised of various leases, concessions and private land for geothermal resources of approximately 248,680 acres in 38 prospects including the following:

Nevada (18)

1.	Alum	Exploration studies in progress;
2.	Baltazor	Under exploration drilling;
3.	Colado	Under exploration drilling;
4.	Crescent Valley	Under exploration drilling;
5.	Dixie Comstock	Exploration studies in progress;
6.	Edwards Creek	Under exploration drilling;
7.	Gerlach	Under exploration drilling;

61

Table of Contents

8.	Horsehaven (formerly Beowawe)	Exploration studies in progress;
9.	Lee Hot Springs	Exploration studies in progress;
10.	North Valley	Exploration studies in progress;
11.	North Valley 2	Exploration studies in progress;
12.	New York Canyon	Exploration studies in progress;
13.	Pearl Hot Springs	Exploration studies in progress;
14.	Rhodes Marsh	Exploration studies in progress;
15.	South Brady	Exploration studies in progress;
16.	Trinity	Exploration studies in progress;
17.	Tungsten Mountain – Phase 2	Assessment for future expansion; and
18.	Twin Buttes	Lease acquired but no further action has been taken yet.

California (4)

1.	Glamis	Exploration studies in progress;
2.	Geysers	Under exploration drilling;
3.	Rhyolite Plateau	Exploration studies in progress; and
4.	Truckhaven	Exploration studies in progress.

Oregon (3)

1.	Crump Geyser	Under exploration drilling;
2.	Lakeview/ Goose Lake	Exploration studies in progress; and
3.	Vale	Exploration studies in progress.

New Mexico (1)

1.	Rincon	Exploration studies in progress.

Utah (2)

1.	Pavant	Exploration studies in progress; and
2.	Roosevelt Hot Springs	Exploration studies in progress.

Guatemala (2)

1.	Amatitlan Phase II	Exploration studies in progress; and
2.	Tecumburu	Exploration studies in progress.

Guadeloupe (1)

1.	Bouillante	Exploration studies in progress.

New Zealand (1)

1.	Tikitere	Signed BOT agreement; exploratory drilling is pending resource consent acceptance.

Honduras (1)

1.	San Ignacio (12 Tribes)	Exploration studies in progress.

Indonesia (1)

1. Bitung Exploration studies in progress.

Table of Contents

Ethiopia (4)

1. Boku	Under exploration studies;
2. Dofan	Under exploration studies;
3. Dugumo Fango	Under exploration studies; and
4. Shashamane	Under exploration studies.

Storage Projects

In addition to our Geothermal activity, we own and operate as well as working to develop energy storage projects in the United States including the following:

Under operation

ACUA

Location	NJ
Size	1MW/1MWh
RTO/ISO	PJM
Owner	Ormat
Key Services provided	• Frequency Regulation • Peak Shaving / PLC Management • ACUA obtains annual lease payment for energy storage on their site for 10 years • ACUA gains additional reliability and power quality • ACUA gains demand charge savings on a shared basis
Status	In commercial operation since Q2 2018

Stryker

Location	NJ
Size	20MW/20MWh
RTO/ISO	PJM
Owner	Ormat
Key Services provided	• Frequency Regulation • Capacity • Reactive Power
Status	In commercial operation since Q1 2019

Plumstead

Location	NJ
Size	20MW/20MWh
RTO/ISO	PJM
Owner	Ormat
Key Services provided	• Frequency Regulation • Capacity • Reactive Power
Status	In commercial operation since Q1 2019

Table of Contents

Under construction and development

Rabitt Hills

Location	Georgetown, Texas
Size	10MW/12.5MWh
RTO/ISO	ERCOT
Owner	Ormat
Key Services provided	• Frequency Regulation • Load Shifting
Status	Under construction – COD is expected in 2019

Operations of our Product Segment

Power Units for Geothermal Power Plants

We design, manufacture, and sell power units for geothermal electricity generation, which we refer to as OECs. Our customers include contractors and geothermal plant owners and operators.

The power units are usually paid for in installments, in accordance with milestones set forth in the supply agreement. We also provide the purchaser with spare parts (either upon their request or our recommendation). We provide the purchaser with at least a 12-month warranty for such products. We provide the purchaser with performance guarantees (usually in the form of standby letters of credit), which partially terminates upon delivery of the equipment to the site and terminates in full at the end of the warranty period.

Power Units for Recovered Energy-Based Power Generation

We design, manufacture, and sell power units used to generate electricity from recovered energy or so-called “waste heat”. Our existing and target customers include interstate natural gas pipeline owners and operators, gas processing

plant owners and operators, cement plant owners and operators, and other companies engaged in other energy-intensive industrial processes. We manufacture and sell the power units for recovered energy-based power generation to third parties for use in “inside-the-fence” installations or otherwise. Our customers include gas processing plant owners and operators, cement plant owners and operators and companies in the process industry.

Remote Power Units and other Generators

We design, manufacture and sell fossil fuel powered turbo-generators with capacities ranging from 200 watts to 5,000 watts, which operate unattended in extreme hot or cold climate conditions. The remote power units supply energy to remote unmanned installations and along communications lines and provide cathodic protection along gas and oil pipelines. Our customers include contractors installing gas pipelines in remote areas. In addition, we manufacture and sell generators, including heavy duty direct current generators, for various other uses. The terms for sale of the turbo-generators are similar to those for the power units we produce for power plants.

EPC of Power Plants

We engineer, procure and construct, as an EPC contractor, geothermal and recovered energy power plants on a turnkey basis, using power units we design and manufacture. Our customers are geothermal power plant owners as well as our target customers for the sale of our recovered-energy based power units described above. Unlike many other companies that provide EPC services, we believe that our advantage is in using our own manufactured equipment and thus have better quality and control over the timing and delivery of equipment and related costs. The consideration for such services is usually paid in installments, in accordance with milestones set forth in the EPC contract and related documents. We provide performance guarantees (usually in the form of standby letters of credit) securing our obligations under the contract.

Table of Contents

In connection with the sale of our power units for geothermal power plants, power units for recovered energy-based power generation, remote power units and other generators, we enter into sales agreements, from time to time, with sales representatives for the marketing and sale of such products pursuant to which we are obligated to pay commissions to such representatives upon the sale of our products in the relevant territory covered by such agreements by such representatives or, in some cases, by other representatives in such territory.

Our manufacturing operations and products are certified ISO 9001, ISO 14001, American Society of Mechanical Engineers, and TÜV, and we are an approved supplier to many electric utilities around the world.

Backlog

We have a product backlog of approximately $216.8 million as of February 26, 2019, which includes revenues for the period between January 1, 2019 and February 26, 2019, compared to $243.0 million as of February 26, 2018, which included revenues for the period between January 1, 2018 and February 26, 2018.

The following is a breakdown of the Product segment backlog as of February 26, 2019 ($ in millions):

	% of Total Backlog	Latest Expected Completion
Geothermal	96.5%	2020
Recovered Energy	0	
Other	3.5%	2019

Competition

In our Electricity segment, we face competition from geothermal power plant owners and developers as well as other renewable energy providers and developers.

In our Product segment, we face competition from power plant equipment manufacturers and system integrators as well as engineering or project management companies.

As we implement our new strategic plan, we will face competition from a number of sources, many of which may have resources, industry experience, market acceptance or other advantages we do not have. For example, expanding into new technologies, such as energy storage, or new markets, such as C&I will involve competition from companies that already have established businesses in those technologies and markets as well as companies seeking to acquire established businesses and other new market entrants like us.

Electricity Segment

Competition in the Electricity segment is particularly marked in the very early stage of either obtaining the rights to the resource for development of future projects or acquiring a site already in a more advanced stage of development. Once we or other developers obtain such rights or own a power plant, competition is limited. From time to time and in different jurisdictions competing geothermal developers become our customers in the Product segment.

Table of Contents

Our main competitors in the geothermal sector in the United States are CalEnergy, Calpine Corporation, Terra-Gen Power LLC, Enel Green Power S.p.A., Cyrq Energy Inc. and other smaller pure play developers. Outside the U.S., in many cases our competitors are companies that are gaining experience developing geothermal projects in their own countries such as Mercury (formerly Mighty River Power) and Contact Energy in New Zealand, and local developers and steam turbine manufacturers in Indonesia. Some of our competitors are now seeking to take the local experience they have gained and develop geothermal projects in other countries. These competitors include Energy Development Corporation from the Philippines and Enel Green Power from Italy. Some Turkish developers are also focusing on the international market. Additionally, we face competition from small country-specific companies.

In obtaining new PPAs, we also face competition from companies engaged in the power generation business from other renewable energy sources, such as wind power, biomass, solar power and hydroelectric power. Increasingly we compete against these technologies combined with energy storage. In the last few years, competition from the wind and solar power generation developers has increased significantly.

As a geothermal company, we are focused on niche markets where our baseload and flexibility advantages can allow us to develop competitive projects.

Product Segment

Our competitors among power plant equipment suppliers are divided into high enthalpy and low enthalpy competitors. Our main high enthalpy competitors are industrial steam turbine manufacturers such as Mitsubishi Hitachi Power Systems, Fuji Electric Co., Ltd. and Toshiba Corporation of Japan, GE/Nuovo Pignone brand and Ansaldo Energia of Italy.

Our low enthalpy competitors are binary systems manufacturers using the ORC such as Fuji Electric Co., Ltd of Japan, Exergy of Italy, Mitsubishi Hitachi Power Systems (which acquired Turboden) and recently Egesim, a Turkish electrical contractor who is collaborating with Atlas Copco in the Turkish market. In addition in 2018 was Kaishan, a compressor manufacturer from China who develops its own projects. While we believe that we have a distinct competitive advantage based on our accumulated experience and current worldwide share of installed binary generation capacity (which is approximately 82%), an increase in competition, which we are currently experiencing, has started to affect our ability to secure new purchase orders from potential customers. The increased competition led to a reduction in the prices that we are able to charge for our binary equipment, which in turn impacted our profitability.

In the REG business, our competitors are other ORC manufacturers (such as GE and Mitsubishi/Turboden), manufacturers that use Kalina technology (such as Geothermal Energy Research & Development Co., Ltd in Japan),

other manufacturers of conventional steam turbines and small developers of small scale ORCs.

Currently, none of our competitors competes with us in both the Electricity and the Product segments.

In the case of proposed EPC projects we also compete with other service suppliers, such as project/engineering companies.

Other Segment

In the demand response markets, our Viridity business competes primarily with specialized demand management providers and traditional curtailment service providers. Viridity differentiates itself from its competitors by its proprietary software and analytical strengths, wider use cases, customer base, business model, and market presence.

The energy storage and energy management space is comprised of many companies divided into different verticals and sub verticals like independent power producers, project developers, system integrators, EPC providers, hardware suppliers (e.g. batteries, inverters, and balance of plant), scheduling coordinators, software suppliers, etc. Our proprietary software, analytical operational platform and experience in storage operation and integration with electricity markets, as well as our engineering capabilities, allow us to provide multiple value streams (value stacking) from a single storage installation. We have continued and plan to continue to grow our Viridity business in these markets.

Table of Contents

Customers

All of our revenues from the sale of Electricity in the year ended December 31, 2018 were derived from fully-contracted energy and/or capacity payments under long-term PPAs with governmental or private utility entities. The percentage of total revenues above 5% is detailed in the table below:

Utility	% of total revenues for the year ended December 31, 2018	
NV Energy	16.1%	
HELCO	2.2%	(lower than 5% due to the volcanic eruption)
SCPPA	15.2%	
KPLC	16.6%	

Based on publicly available information, as of December 31, 2018, the credit ratings of our rated electric utilities are as set forth below:

Issuer	Standard & Poor's Ratings Services	Moody's Investors Service Inc.
Southern California Edison	BBB+ (Negative)	A3 (Rating Affirmation)
HELCO	BBB- (Stable)	Baa2
Sierra Pacific Power Company	A (Stable)	Baa1 (Rating Affirmation)
Nevada Power Company	A (Stable)	Baa1 (Rating Affirmation)
SCPPA	BBB+ (Stable)	Aa2 (Stable)
PG&E	D (NM)	Caa3(Negative)
EDF	A- (Negative)	A3 (Stable)

The credit ratings of any power purchaser may change from time to time. There is no publicly available information with respect to the credit rating or stability of the power purchasers under the PPAs for our foreign power plants.

Pacific Gas & Electric which accounted for approx. 1.9% of our total revenues for fiscal year ended 2018, is facing extraordinary challenges relating to a series of catastrophic wildfires that occurred in Northern California in 2017 and 2018. If Pacific Gas & Electric is found liable for the wildfires, its potential liabilities could exceed $30B. As a result, on January 29, 2019, Pacific Gas & Electric filed for reorganization under Chapter 11 bankruptcy. The Company is closely monitoring its Pacific Gas & Electric account to ensure cash receipts are received timely each month.

However, we cannot estimate at this stage the impact that may have on us as a result of the Chapter 11.

We have historically been able to collect on substantially all of our receivable balances. Recently, we have received late payments from KPLC in Kenya related to our Olkaria Complex and from ENEE in Honduras related to our Platanares power plant. No provision for doubtful accounts has been recorded since we believe we will be able to collect all past due amounts.

Our revenues from the Product segment are derived from contractors, owners, or operators of power plants, process companies, and pipelines.

Raw Materials, Suppliers and Subcontractors

In connection with our manufacturing activities, we use raw materials such as steel and aluminum. We do not rely on any one supplier for the raw materials used in our manufacturing activities, as all of these raw materials are readily available from various suppliers.

We use subcontractors for some of the manufacturing activities with respect to our products components and for construction activities with respect to our power plants, which allows us to expand our construction and development capacity on an as-needed basis. We are not dependent on any one subcontractor and expect to be able to replace any subcontractor or assume such manufacturing and construction activities ourselves, if necessary or desirable, without adverse effect to our operations.

Table of Contents

Employees

As of December 31, 2018, we employed 1,346 employees, of which 584 were located in the U.S., 556 were located in Israel and 206 were located in other countries. We expect that future growth in the number of our employees will be mainly attributable to the purchase and/or development of new power plants.

As of December 31, 2018, the only employees that are represented by a labor union are the employees of our recently acquired Bouillante power plant located in Guadeloupe. The employees in Guadeloupe are represented by the Confédération Générale du Travail de Guadeloupe. We have never experienced any labor dispute, strike or work stoppage. We consider our relations with our employees to be satisfactory. We believe our future success will depend on our continuing ability to hire, integrate, and retain qualified personnel.

In the U.S., we currently do not have employees represented by unions recognized by the Company under collective bargaining agreements.

We have no collective bargaining agreements with respect to our Israeli employees. However, by order of the Israeli Ministry of Economy and Industry, the provisions of a collective bargaining agreement between the Histadrut (the General Federation of Labor in Israel) and the Coordination Bureau of Economic Organizations (which includes the Industrialists Association) may apply to some of our Israeli non-managerial, finance and administrative, and sales and marketing personnel. This collective bargaining agreement principally concerns cost of living pay increases, length of the workday, minimum wages and insurance for work-related accidents, annual and other vacation, sick pay, and determination of severance pay, pension contributions, and other conditions of employment. We currently provide such employees with benefits and working conditions, which are at least as favorable as the conditions specified in the collective bargaining agreement.

Insurance

We maintain business interruption insurance, casualty insurance, including flood, volcanic eruption, earthquake and cyber coverage, general liability, primary and excess liability insurance, control of wells, drilling rig, construction all risk, as well as customary worker’s compensation and automobile, marine transportation insurance and such other commercial insurance as is generally carried by companies engaged in similar businesses and owning similar properties in the same general areas as us. To the extent any such casualty insurance covers the Company and/or any owned controlled, direct or indirect affiliated or associated company, subsidiary company or corporation in an amount based upon the estimated replacement value and maximum foreseeable loss of our power plants (provided that earthquake, volcanic eruption and flood coverage may be subject to annual aggregate limits depending on the type and location of the power plant) and business interruption insurance coverage in an amount that also varies from power

plant to power plant. As an exception, at this stage we have not secured physical damage and business interruption coverage for our Puna power plant in Hawaii. Since the volcano eruption in May 2018 we are working to seek such coverage as soon as it becomes available.

We generally purchase insurance policies to cover our exposure to certain political risks involved in operating in developing countries. We hold a global political risk insurance program for two to three years covering the significant political risk we identified as described below. This global program is issued by the global lead insurers in the private sector. Currently we hold such insurance for our Zunil, Amatitlan, Olkaria, Platanares and Sarulla operating power plants. Such insurance policies generally cover, subject to the limitations and restrictions contained therein, losses derived from a specified governmental act, such as confiscation, expropriation, riots, and the inability to convert local currency into hard currency and, in certain cases, the breach of agreements with governmental entities, up to approximately 90% of our net equity investment.

Regulation of the Electric Utility Industry in the United States

The following is a summary overview of the electric utility industry and applicable federal and state regulations and should not be considered a full statement of the law or all issues pertaining thereto.

Table of Contents

PURPA

PURPA and FERC's regulations thereunder exempt owners of small power production Qualifying Facilities that use geothermal resources as their primary source and other Qualifying Facilities that are 30 MW or under in size from regulation under the PUHCA 2005, from many provisions of the FPA and from state laws relating to the financial, organization and rate regulation of electric utilities.

PURPA provides the owners of power plants certain benefits described below if a power plant is a “Qualifying Facility.” A small power production facility is a Qualifying Facility if: (i) the facility does not exceed 80 MW; (ii) the primary energy source of the facility is biomass, waste, geothermal, or renewable resources, or any combination thereof, and at least 75% of the total energy input of the facility is from these sources, and fossil fuel input is limited to specified uses; and (iii) the facility, if larger than one megawatt, has filed with FERC a notice of self-certification of qualifying status, or has been certified as a Qualifying Facility by FERC. The 80 MW size limitation, however, does not apply to a facility if (i) it produces electric energy solely by the use, as a primary energy input, of solar, wind, waste or geothermal resources; and (ii) an application for certification or a notice of self-certification of qualifying status of the facility was submitted to not later than December 31, 1994, and construction of the facility commenced not later than December 31, 1999.

With respect to the FPA, FERC's regulations under PURPA do not exempt from the rate provisions of the FPA sales of energy or capacity from Qualifying Facilities larger than 20 MW in size that are made (a) pursuant to a contract executed after March 17, 2006 or (b) not pursuant to a state regulatory authority’s implementation of PURPA. The practical effect of these regulations is to require owners of Qualifying Facilities that are larger than 20 MW in size to obtain market-based rate authority from FERC if they seek to sell energy or capacity other than pursuant to a contract executed on or before March 17, 2006 or pursuant to a state regulatory authority’s implementation of PURPA.

In addition, provided that the purchasing electric utility has not been relieved from its mandatory purchase obligation, PURPA and FERC’s regulations under PURPA obligate electric utilities to purchase energy and capacity from Qualifying Facilities at either the electric utility’s avoided cost or a negotiated rate. FERC's regulations under PURPA allow FERC, upon request of a utility, to terminate a utility’s obligation to purchase energy from Qualifying Facilities upon a finding that Qualifying Facilities have nondiscriminatory access to: (i) independently administered, auction-based day ahead, and real time markets for electric energy and wholesale markets for long-term sales of capacity and electric energy; (ii) transmission and interconnection services provided by a FERC-approved regional transmission entity and administered under an open-access transmission tariff that affords nondiscriminatory treatment to all customers, and competitive wholesale markets that provide a meaningful opportunity to sell capacity, including long-term and short-term sales, and electric energy, including long-term, short-term, and real-time sales, to buyers other than the utility to which the Qualifying Facility is interconnected; or (iii) wholesale markets for the sale of capacity and electric energy that are at a minimum of comparable competitive quality as markets described in (i) and (ii) above. FERC regulations protect a Qualifying Facility’s rights under any contract or obligation involving purchases or sales that are entered into before FERC has determined that the contracting utility is entitled to relief from the mandatory purchase obligation. FERC has granted the request of California investor-owned utilities for a waiver of

the mandatory purchase obligation for Qualifying Facilities larger than 20 MW in size. FERC is re-evaluating aspects of its PURPA regulations, including the 20 MW threshold.

We expect that our power plants in the U.S will continue to meet all of the criteria required for Qualifying Facility status under PURPA. However, since the Heber power plants have PPAs with Southern California Edison that require Qualifying Facility status to be maintained, maintaining Qualifying Facility status remains a key obligation. If any of the Heber power plants loses its Qualifying Facility status our operations could be adversely affected. Loss of Qualifying Facility status would eliminate the Heber power plants' exemption from the FPA and thus, among other things, the rates charged by the Heber power plants in the PPAs with Southern California Edison and SCPPA would become subject to FERC regulation. Further, it is possible that the utilities that purchase power from the power plants could successfully obtain a waiver of the mandatory-purchase obligation in their service territories. For example, the three California investor-owned utilities have received such a waiver from FERC for projects larger than 20 MW. If a waiver of the mandatory purchase obligation is obtained, or if FERC reduces the 20 MW threshold or eliminates the mandatory purchase obligation, the power plants' existing PPAs will not be affected, but the utilities will not be obligated under PURPA to renew or extend these PPAs or execute new PPAs upon the existing PPAs' expiration.

Table of Contents

PUHCA

Under PUHCA 2005, the books and records of a utility holding company, its affiliates, associate companies, and subsidiaries are subject to FERC and state commission review with respect to transactions that are subject to the jurisdiction of either FERC or the state commission or costs incurred by a jurisdictional utility in the same holding company system. However, if a company is a utility holding company solely with respect to Qualifying Facilities, exempt wholesale generators, or foreign utility companies, it will not be subject to review of books and records by FERC under PUHCA 2005. Qualifying Facilities or exempt wholesale generators that make only wholesale sales of electricity are not subject to state commissions' rate regulations and, therefore, in all likelihood would not be subject to any review of their books and records by state commissions pursuant to PUHCA 2005 as long as the Qualifying Facility is not part of a holding company system that includes a utility subject to regulation in that state.

FPA

Pursuant to the FPA, FERC has exclusive jurisdiction over the rates for most wholesale sales of electricity and transmission in interstate commerce. These rates may be based on a cost of service approach or may be determined on a market basis through competitive bidding or negotiation. FERC can accept, reject or suspend rates. The rates can be suspended for up to five months, at which point the rates become effective subject to refund. FERC can order refunds for rates that are found to be "unjust and unreasonable" or "unduly discriminatory or preferential."

Moreover, the loss of the Qualifying Facility status of any of our power plants selling energy to Southern California Edison could also permit Southern California Edison, pursuant to the terms of its PPA, to cease taking and paying for electricity from the relevant power plant and to seek refunds for past amounts paid and/or a reduction in future payments. In addition, the loss of any such status would result in the occurrence of an event of default under indenture for the OrCal Senior Secured Notes and hence would give the indenture trustee the right to exercise remedies pursuant to the indenture and the other financing documents.

Additionally, FERC possesses civil penalty authority, up to approximately $1.2M per violation of the FPA per day. FERC can also require the disgorgement of unjust profits earned in connection with such violations of the FPA and revoke the right of the power plants to make sales at market-based rates.

Under the Energy Policy Act of 2005, the FPA was supplemented to empower FERC to ensure the reliability of the bulk electric system. Such authority required that FERC assume both oversight and enforcement roles. Pursuant to its new directive, FERC certified the North American Electric Reliability Corporation as the nation's Electric Reliability Organization (ERO) to develop and enforce mandatory reliability standards to address medium and long-term reliability concerns. Today, enforcement of the mandatory reliability standards, including the protection of critical

energy infrastructure, is a substantial function of the ERO and of FERC, which may impose penalties of up to approximately US$1.2 million a day for violating mandatory reliability standards.

Thus, if any of the power plants were to lose Qualifying Facility status, the application of the FPA and other applicable state regulations to such power plants could require compliance with an increasingly complex regulatory regime that may be costly and greatly reduce our operational flexibility. Even if a power plant does not lose Qualifying Facility status, the owner of a Qualifying Facility/power plant in excess of 20 MW will become subject to rate regulation under the FPA for sales of energy or capacity pursuant to a contract executed after March 17, 2006 or not pursuant to a state regulatory authority's implementation of PURPA. A decrease in existing rates or being ordered by FERC to pay refunds for rates found to be "unjust and unreasonable" or "unduly discriminatory or preferential" would likely result in a decrease in our future revenues.

State Regulation

Our power plants in California, Nevada, Oregon, and Idaho, by virtue of being Qualifying Facilities that make only wholesale sales of electricity, are not subject to rate, financial and organizational regulations applicable to electric utilities in those states. The power plants each sell or will sell their electrical output under PPAs to electric utilities (Sierra Pacific Power Company, Nevada Power Company, Southern California Edison, SCPPA and Idaho Power Company). All of the utilities except SCPPA are regulated by their respective state public utilities commissions. Sierra Pacific Power Company and Nevada Power Company, which merged and are doing business as NV Energy, are regulated by the PUCN. Southern California Edison is regulated by the CPUC.

Under Hawaii law, non-fossil generators are not subject to regulation as public utilities. Hawaii law provides that a geothermal power producer is to negotiate the rate for its output with the public utility purchaser. If such rate cannot be determined by mutual accord, the PUCH will set a just and reasonable rate. If a non-fossil generator in Hawaii is a Qualifying Facility, federal law applies to such Qualifying Facility and the utility is required to purchase the energy and capacity at its avoided cost. The rates for our power plant in Hawaii are established under a long-term PPA with HELCO.

Table of Contents

Environmental Permits

U.S. environmental permitting regimes with respect to geothermal projects center upon several general areas of focus. The first involves land use approvals. These may take the form of Special Use Permits or Conditional Use Permits from local planning authorities or a series of development and utilization plan approvals and right of way approvals where the geothermal facility is entirely or partly on BLM or United States Forest Service lands. Certain federal approvals require a review of environmental impacts in conformance with the federal National Environmental Policy Act. In California, some local permit approvals require a similar review of environmental impacts under a state statute known as the California Environmental Quality Act. These federal and local land use approvals typically impose conditions and restrictions on the construction, scope and operation of geothermal projects.

The second category of permitting focuses on the installation and use of the geothermal wells themselves. Geothermal projects typically have three types of wells: (i) exploration wells designed to define and verify the geothermal resource, (ii) production wells to extract the hot geothermal liquids (also known as brine) for the power plant, and (iii) injection wells to inject the brine back into the subsurface resource. For example, on BLM lands in Nevada, California, Oregon, and Idaho, the well permits take the form of geothermal drilling permits for well installation. Approvals are also required to modify wells, including for use as production or injection wells. For all wells drilled in Nevada, a geothermal drilling permit must be obtained from the Nevada Division of Minerals. Those wells in Nevada to be used for injection will also require UIC permits from the Nevada Division of Environmental Protection and Bureau of Water Pollution Control. All geothermal wells drilled in Oregon require a geothermal well drilling permit from the Oregon Department of Geology and Mineral Industries. All geothermal wells drilled in Idaho require a well construction permit from the IDWR and injection wells also require UIC permitting through IDWR. Geothermal wells on private lands in California require drilling permits from the California Department of Conservation’s DOGGR. The eventual designation of these installed wells as individual production or injection wells and the ultimate closure of any wells is also reviewed and approved by DOGGR pursuant to a DOGGR-approved Geothermal Injection Program.

A third category of permits involves the regulation of potential air emissions associated with the construction and operation of wells and power plants and surface water discharges associated with construction and operations activities. Generally, each well and plant requires a preconstruction air permit and storm water discharge permit before earthwork can commence. In addition, in some jurisdictions the wells that are to be used for production require and those used for injection may require air emissions permits to operate. Internal combustion engines and other air pollutant emissions sources at the projects may also require air emissions permits. For our projects, these permits are typically issued at the state or county level. Permits are also required to manage storm water during project construction and to manage drilling muds from well construction, as well as to manage certain discharges to surface impoundments, if any.

A fourth category of permits, that are required in Nevada, California, Oregon, and Idaho, includes ministerial permits such as building permits, hazardous materials storage and management permits, and pressure vessel operating permits. We are also required to obtain water rights permits in Nevada if water cooling is being used at the power plant. In addition to permits, there are various regulatory plans and programs that are required, including risk management

plans (federal and state programs) and hazardous materials management plans (in California).

In some cases, our projects may also require permits, issued by the applicable federal agencies or authorized state agencies, regarding threatened or endangered species, permits to impact wetlands or other waters and notices of construction of structures which may have an impact on airspace. Environmental laws and regulations may change in the future that may modify the time to receive such permits and associated costs of compliance.

As of the date of this report, all of the material environmental permits and approvals currently required for our operating power plants have been obtained. We sometimes experience regulatory delays in obtaining various environmental permits and approvals required for projects in development and construction. These delays may lead to increases in the time and cost to complete these projects. Our operations are designed and conducted to comply with applicable environmental permit and approval requirements. Non-compliance with any such requirements could result in fines and penalties and could also affect our ability to operate the affected project.

Environmental Laws and Regulations

Our facilities and operations are subject to a number of environmental laws and regulations relating to development, construction and operation. In the U.S, these may include the Clean Air Act, the Clean Water Act, the Emergency Planning and Community Right-to-Know Act, the Endangered Species Act, the National Environmental Policy Act, the Resource Conservation and Recovery Act, and related state laws and regulations.

Table of Contents

Our geothermal operations involve significant quantities of brine (substantially, all of which we reinject into the subsurface) and scale, both of which can contain materials (such as arsenic, antimony, lead, and naturally occurring radioactive materials) in concentrations that exceed regulatory limits used to define hazardous waste. We also use various substances, including isopentane and industrial lubricants that could become potential contaminants and are generally flammable. Hazardous materials are also used in our equipment manufacturing operations in Israel. As a result, our projects are subject to domestic and foreign federal, state and local statutory and regulatory requirements regarding the use, storage, fugitive emissions, and disposal of hazardous substances. The cost of investigation and removal or remediation activities associated with a spill or release of such materials could be significant.

Although we are not aware of any mismanagement of these materials, including any mismanagement prior to the acquisition of some of our power plants that has materially impaired any of the power plant sites, any disposal or release of these materials onto the power plant sites, other than by means of permitted injection wells, could lead to contamination of the environment and result in material cleanup requirements or other responsive obligations under applicable environmental laws.

Regulation Related to New Activity

Our recent entry into the energy storage space and planned provision of energy management and demand response require us to obtain and maintain certain additional authorizations and approvals. These include (1) authorization from FERC to make wholesale sales of energy, capacity, and ancillary services at market-based rates, and (2) membership status with eligibility to serve designated contractual functions in the ISO/RTOs of PJM, NYISO, and ERCOT. In the future, we may need to obtain and maintain similar membership and eligibility status with other ISO/RTOs in order to offer such services in their respective areas.

Regulation of the Electric Utility Industry in our Foreign Countries of Operation

The following is a summary overview of certain aspects of the electric industry in the foreign countries in which we have an operating geothermal power plant. As such, it should not be considered a full statement of the laws in such countries or all of the issues pertaining thereto.

Guatemala

The General Electricity Law of 1996, Decree 93-96, created a wholesale electricity market in Guatemala and established a new regulatory framework for the electricity sector. The law created a new regulatory commission, the

CNEE, and a new wholesale power market administrator, the AMM, for the regulation and administration of the sector. The AMM is a private not-for-profit entity. The CNEE functions as an independent agency under the Ministry of Energy and Mines and is in charge of regulating, supervising, and controlling compliance with the electricity law, overseeing the market and setting rates for transmission services, and distribution to medium and small customers. All distribution companies must supply electricity to such customers pursuant to long-term contracts with electricity generators. Large customers can contract directly with the distribution companies, electricity generators or power marketers, or buy energy in the spot market. Guatemala has approved a Law of Incentives for the Development of Renewable Energy Power plants, Decree 52-2003, in order to promote the development of renewable energy power plants in Guatemala. This law provides certain benefits to companies utilizing renewable energy, including a 10-year exemption from corporate income tax and VAT on imports and customs duties. On September 16, 2008, CNEE issued a resolution that approved the Technical Norms for the Connection, Operation, Control and Commercialization of the Renewable Distributed Generation and Self-producers Users with Exceeding Amounts of Energy. This Technical Norm was created to regulate all aspects of generation, connection, operation, control and commercialization of electric energy produced with renewable sources to promote and facilitate the installation of new generation plants, and to promote the connection of existing generation plants which have exceeding amounts of electric energy for commercialization. It is applicable to projects with a capacity of up to 5 MW. At present, the General Electricity Law and the Law of Incentives for the Development or Renewable Energy Power Plants are still in force.

Kenya

The electric power sector in Kenya is regulated by the Kenyan Energy Act. Among other things, the Kenyan Energy Act provides for the licensing of electricity power producers and public electricity suppliers or distributors. KPLC is the major licensed public electricity supplier and has a virtual monopoly in the distribution of electricity in the country with the exception of a few off-grid, which have recently been licensed by the ERC. The Kenyan Energy Act permits IPPs to install power generators and sell electricity to KPLC, which is owned by various private and government entities, and which currently purchases energy and capacity from other IPPs in addition to our Olkaria III complex. The electricity sector is regulated by the ERC which was created under the Kenyan Energy Act. KPLC's retail electricity rates are subject to approval by the ERC. The ERC has an expanded mandate to regulate not just the electric power sector but the entire energy sector in Kenya. Transmission of electricity is now undertaken by KETRACO while another company, GDC, is responsible for geothermal assessment, drilling of wells and sale of steam for electricity operations to IPPs and KenGen. Both KETRACO and GDC are wholly owned by the government of Kenya. Renewable energy (principally solar, wind and biomass) is now one of the key energy sub-sectors in Kenya contributing significantly to the overall energy mix as a result of the implementation of the feed-in- tariff policy by the Ministry of Energy. Under the national constitution enacted in August 2010, formulation of energy policy (including electricity) and energy regulation are functions of the national government. However, the constitution lists the planning and development of electricity and energy regulation as a function of the county governments (i.e. the regional or local level where an individual power plant is or is intended to be located).

Table of Contents

Indonesia

The 2009 Electricity Law divided the power business into two broad categories: (1) activities that supply electrical power, both public supply and captive supply (own use), such as electrical power generation, electrical power transmission, electrical power distribution and the sale of electrical power and (2) the activities involved in electrical power support such as service businesses (consulting, construction, installation, operation & maintenance, certification & training, testing etc.) and industry businesses (power tools & power equipment supply). The power generation is dominated by PLN (state owned company) which controls around 70% of generating assets in Indonesia. Private sector participation is allowed through IPPs arrangement. IPP appointment is most often through tender although IPPs can be directly appointed or selected. The law provides PLN with priority rights to conduct its business throughout Indonesia. As the sole owner of transmission and distribution assets, PLN remains the only business entity involved in transmitting and distributing although the Law allows for private participation. While the 2014 Geothermal Law endorses private participation as Geothermal IPP, the Geothermal IPP appointment is through tender held by the Central Government. The Central Government also awards the tender winner a Geothermal License. Accordingly, the Geothermal License holder will conduct exploration and feasibility studies within five years subject to two one-year extensions, conduct well development and power plant construction and sell the electricity generated to PLN for a maximum of 30 years. Prior to the expiration of the Geothermal License, the IPP can propose to extend for another 20 years. Starting in 2017, the regulatory framework with respect to tariffs is based on PLN's existing average cost of generation (known by its Indonesian acronym, BPP) with respect to the relevant local grid and excludes transmission and distribution costs. The Minister of Energy releases each year a list of local BPPs and the national BPP (which is an average of the local BPPs). The BPPs for a particular year are based on PLN's previous year audited generation costs. For 2017, the national BPP was set at Rp 983 (equivalent to US$ cent 7.39/kWh at Rp 13,307/US$) based on PLN's 2016 audited generation costs. For geothermal, the tariff is measured as follows: (i) if the local BPP is higher than the national BPP, the maximum tariff is the local BPP, (ii) if the local BPP is lower than or the same as the national BPP, the tariff is based on mutual agreement between PLN and the IPP.

Guadeloupe

EDF is the transmission and distribution utility in Guadeloupe and also operates a significant portion of Guadeloupe’s fossil energy generation. There are also a number of IPPs in Guadeloupe, primarily producing renewable electricity. The electricity sector in Guadeloupe is regulated by the Commission Regulation of Energy (CRE), which also regulates EDF’s operations in mainland France and its other overseas territories. The electricity sector in Guadeloupe is characterized by both enabling features and obstacles with respect to renewable energy. One of the most influential enabling features is a French law requiring the utility to purchase power from any interconnected renewable generator. The major obstacle preventing further uptake of renewable electricity generation is the cap on variable generation at 30% of instantaneous system load.

Honduras

In 2014, Honduras approved its new Law of Electrical Industry (Decree 404-2013), which provides the legal framework for the electricity sector and replaces the previous Electricity Subsector Framework Law (Decree 158 of 1994, regulated by Accord 934 of 1997). The Law establishes technology-specific auctions for renewable energy. It creates the Regulatory Commission of Electric Power (CREE) as the entity in charge of supervising the bidding processes and the awarding of PPAs. The CREE is also responsible for granting study permits for the construction of generation projects that use renewable natural resources. Permits will have a maximum duration of two years, and will be revoked if, no studies have been initiated within a period of six months and the reports required by the CREE have not been submitted. The new Law also establishes that all new capacity must be contracted through auctions and that the government can set a minimum quota for renewables in each auction. With respect to metering, after previous regulation applied legal incentives to renewable energy metering, the new law mandates utilities to buy excess power and credit it towards monthly bills and to install bi-directional meters.

Table of Contents

Among others, the objectives of the law are to adapt the electricity sector's legislation to the Framework Treaty for the Central American Electricity Market, which Honduras is a party to, and update the operating rules in the country's electricity industry by incorporating structures and modern practices to increase the sector's efficiency and competency in the production and marketing of electricity services.

With the passage of this new law, Honduras is moving into a new and open market. Under this legislation, all aspects of the market have been opened to private parties. This legislation is still being implemented within the market.

Honduras has also approved a Law of Incentives for Renewable Energy Projects, Decree 70-2007, further amended by Decree 138-2013, with additional incentives to Solar PV projects, etc. The purpose, as in other countries of the region, is to promote the development of renewable energy power plants. Laws provide certain benefits to companies that generate power through renewable sources, including a 10-year exemption from corporate income tax and VAT on imports and customs duties, a fast track process for certain permits and a Sovereign Guaranty by the Central Government for the payments of the off-taker, the Public Utility Company, ENEE. At present, the Law of the Electrical Industry and the Laws of Incentives for Renewable Energy Projects are still in force.

Table of Contents

ITEM 1A. RISK FACTORS

The following risk factors should be read carefully in connection with evaluating us and this Annual Report on Form 10-K. Certain statements in “Risk Factor” are forward-looking statements. See “Cautionary Note Regarding Forward-Looking Statements” elsewhere in the report:

Risks Related to the Company’s Business and Operation

Our financial performance depends on the successful operation of our geothermal and REG power plants, which are subject to various operational risks.

Our financial performance depends on the successful operation of our geothermal and REG power plants. In connection with such operations, we derived 70.9% of our total revenues for the year ended December 31, 2018 from the sale of electricity. The cost of operation and maintenance and the operating performance of our geothermal power and REG plants may be adversely affected by a variety of factors, including the following:

- regular and unexpected maintenance and replacement expenditures;
- shutdowns due to the breakdown or failure of our equipment or the equipment of the transmission serving utility;
- labor disputes;
- the presence of hazardous materials on our power plant sites;
- continued availability of cooling water supply;
- catastrophic events such as fires, explosions, earthquakes, volcanic activity, landslides, floods, releases of hazardous materials, severe weather storms, or similar occurrences affecting our power plants or any of the power purchasers or other third parties providing services to our power plants, such as the recent volcanic eruption that occurred in Hawaii's Big Island that impacted our Puna project, as discussed elsewhere in this Report; and
- the aging of power plants (which may reduce their availability and increase the cost of their maintenance).

Any of these events could significantly increase the expenses incurred by our power plants or reduce the overall generating capacity of our power plants and could significantly reduce or entirely eliminate the revenues generated by one or more of our power plants, which in turn would reduce our net income and could materially and adversely affect our business, financial condition, future results and cash flows.

Our exploration, development, and operation of geothermal energy resources are subject to geological risks and uncertainties, which may result in decreased performance or increased costs for our power plants.

Our primary business involves the exploration, development, and operation of geothermal energy resources. These activities are subject to uncertainties that, in certain respects, are similar to those typically associated with oil and gas exploration, development, and exploitation, such as dry holes, uncontrolled releases, and pressure and temperature decline. Any of these uncertainties may increase our capital expenditures and our operating costs or reduce the efficiency of our power plants. We may not find geothermal resources capable of supporting a commercially viable power plant at exploration sites where we have conducted tests, acquired land rights, and drilled test wells, which would adversely affect our development of geothermal power plants. Further, since the commencement of their operations, several of our power plants have experienced geothermal resource cooling, uncontrolled flow and/or reservoir pressure decline in the normal course of operations. Because geothermal reservoirs are complex geological structures, we can only estimate their geographic area and sustainable output. The viability of geothermal power plants depends on different factors directly related to the geothermal resource (such as the temperature, pressure, storage capacity, transmissivity, and recharge) as well as operational factors relating to the extraction or reinjection of geothermal fluids. Our geothermal energy power plants may also suffer an unexpected decline in the capacity of their respective geothermal wells and are exposed to a risk of geothermal reservoirs not being sufficient for sustained generation of the electrical power capacity desired over time.

Table of Contents

Another aspect of geothermal operations is the management and stabilization of subsurface impacts caused by fluid injection pressures of production and injection fluids to mitigate subsidence. In the case of the geothermal resource supplying the Heber complex, pressure drawdown in the center of the well field has caused some localized ground subsidence, while pressure in the peripheral areas has caused localized ground inflation. Inflation and subsidence, if not controlled, can adversely affect farming operations and other infrastructure at or near the land surface. Costs of failing to stabilize site pressures in the Heber Complex area include repair and modification of gravity-based farm irrigation systems and municipal sewer piping and repair or replacement of a local road bridge spanning an irrigation canal.

Additionally, active geothermal areas, such as the areas in which our power plants are located, are subject to frequent low-level seismic disturbances. Also, volcanic eruptions and lava flows may happen in Hawaii, Guatemala and Indonesia. Serious seismic disturbances, volcanic eruptions and lava flows are possible and could result in damage to our power plants (or transmission lines used by customers who buy electricity from us) or equipment or degrade the quality of our geothermal resources to such an extent that we could not perform under the PPA for the affected power plant, which in turn could reduce our net income and materially and adversely affect our business, financial condition, future results and cash flow. If we suffer a serious seismic disturbance, volcanic eruptions and lava flows, our business interruption and property damage insurance may not be adequate to cover all losses sustained as a result thereof. In addition, insurance coverage may not continue to be available in the future in amounts adequate to insure against such seismic disturbances, volcanic eruptions and lava flows.

On May 3, 2018, the Kilauea volcano located in close proximity to our Puna 38 MW geothermal power plant in the Puna district of Hawaii's Big Island erupted following a significant increase in seismic activity in the area. Before it recently stopped flowing, the lava covered the wellheads of three geothermal wells, monitoring wells and the substation of the Puna complex and an adjacent warehouse that stored a drilling rig that was also consumed by the lava. The insurance policy coverage for property and business interruption is provided by a consortium of insurers. All the insurers accepted and started paying for the costs to rebuild the destroyed substation, and as of December 31, 2018 we received $3.3 million. However only some of the insurers accepted that the business interruption coverage started in May 2018 and as of December 31, 2018 we recorded $12.1 million of such proceeds. We are still in discussions to reach an understanding with all insurers to start paying for the business interruption as of May 2018. The Company is still assessing the damages in the Puna facilities and continue to coordinate with HELCO and local authorities to bring the power plant back to operation. The Company continues to assess the accounting implications of this event on the assets and liabilities on its balance sheet and whether an impairment will be required. Any significant physical damage to the geothermal resource or continued shut-down following the recent stop of the lava of the Puna facilities could have an adverse impact on the power plant's electricity generation and availability, which in turn could have a material adverse impact on our business and results of operations.

In addition to our power plant in Puna, Hawaii, our power plant in Amatitlan, Guatemala is located in proximity to an active volcano. As a result of recent events impacting our Puna facility, we cannot be certain how investors will assess the risks to which our facilities are subject and whether this assessment will adversely impact perceptions of our business and our share price.

Furthermore, absent additional geologic/hydrologic studies, any increase in power generation from our geothermal power plants, failure to reinject the geothermal fluid or improper maintenance of the hydrological balance may affect the operational duration of the geothermal resource and cause it to decline in value over time and may adversely affect our ability to generate power from the relevant power plant.

We may decide not to implement, or may not be successful in implementing, one or more elements of our multi-year strategic plan, and the plan as implemented may not achieve its goal of enhancing shareholder value through long-term growth of the Company

We adopted a multi-year strategic plan to:

expand our geographic base;

expand into new technologies, such as energy storage and solar PV electric power generation both in large “utility scale” projects and smaller C&I projects for commercial, industrial, governmental, educational and other institutional customers; and

expand our customer base.

Table of Contents

There are uncertainties and risks associated with the plan, both as to implementation and outcome. We may decide to change, or to not implement, one or more elements of the plan over time or we may not be successful in implementing one or more elements of the plan, in each case for a number of reasons. For example, we may face significant challenges and risks expanding into new technologies (or expanding our geographical or customer base for those new technologies), including:

- our ability to compete with the large number of other companies pursuing similar business opportunities in energy storage and solar PV power generation, many of which already have established businesses in these areas and/or have greater financial, strategic, technological or other resources than we have;
- our ability to obtain financing on terms we consider acceptable, or at all, which we may need, for example, to obtain any technology, personnel, intellectual property, or to acquire one or more existing businesses as a platform for our expansion, or to fund internal research and development, for energy storage and solar PV electric power generation products and services;
- our ability to provide energy storage or solar electric power generation products or services that keep pace with rapidly changing technology, customer preferences, equipment costs, market conditions and other factors that are unknown to us now that will impact these markets;
- our ability to devote the amount of management time and other resources required to implement this plan, while continuing to grow our core geothermal and recovered energy businesses; and
- our ability to recruit appropriate employees.

Expanding our geothermal and recovered energy businesses to new customers and geographical areas will have many of the same risks and uncertainties as those outlined above.

Implementing the plan may also involve various costs, including, among other things:

- opportunity costs associated with foregone alternative uses of our resources;
- various expense items that will impact our current financial results; and
- asset revaluations (for example, businesses or other assets acquired for new energy storage or solar PV power generation products or services may suffer impairment charges, as a result of rapidly changing technology, market

conditions or otherwise).

These costs may not be recovered, in whole or in part, if one or more elements of the plan are not successfully implemented. These costs, or the failure to implement successfully one or more elements of the plan, could adversely affect our reputation and the reputation of our subsidiaries and could materially and adversely affect our business, financial condition, future results and cash flow.

Apart from the risks associated with implementing the plan, the plan itself will expose us to other risks and uncertainties once implemented. Expanding our customer base may expose us to different credit profile customers than our current customers. Expanding our geographic base will subject us to risks associated with doing business in new foreign countries in which we will have to learn the business and political environment. In addition, expanding into new technologies will expose us to new risks and uncertainties that are unknown to us now in addition to the risks and uncertainties that may be similar to those we now face. The success of the plan, once implemented, will depend, among other things, on our ability to manage these risks effectively.

The trading price of our common stock could decline if securities, industry analysts or our investors disagree with our strategic plan or the way we implement it accordingly, there is no assurance that the plan will enhance shareholder value through long-term growth of the Company to the extent currently anticipated by our management or at all.

Concentration of customers and regions may expose us to heightened financial exposure.

Our businesses often rely on a single customer to purchase all or a significant portion of a facility’s output. The financial performance of these facilities depends on such customer continuing to perform its obligations under a long-term agreement between the parties. A facility’s financial results could be materially and adversely affected if any of our customers fail to fulfill its contractual obligations and we are unable to find other customers to purchase at the same level of profitability. We cannot assure that such performance failures by our customers will not occur, or that if they do occur, such failures will not adversely affect the cash flows or profitability of our businesses.

Table of Contents

For example, in the Electricity segment, we are exposed to the credit and financial condition of KPLC that buy the power generated from our Olkaria III in Kenya. In 2018, KPLC accounted for 16.6% of our total revenues. Any change in KPLC's financial condition may adversely affect us. Another example, we are exposed to the credit and financial condition of SCPPA and its municipal utility members that account for 15.2% of our total revenues, as customers that buy the output from seven of our geothermal power plants. Because our contracts with SCPPA are long-term, we may be adversely affected if the credit quality of any of these customers were to decline or if their respective financial conditions were to deteriorate or if they are otherwise unable to perform their obligations under our long-term contracts.

Another example, Pacific Gas & Electric who accounted for approximately 1.9% of our total revenues, is facing extraordinary challenges relating to a series of catastrophic wildfires that occurred in Northern California in 2017 and 2018. If Pacific Gas & Electric is found liable for the wildfires, its potential liabilities could exceed $30B. As a result, on January 29, 2019, Pacific Gas & Electric filed for reorganization under Chapter 11 bankruptcy. We are closely monitoring our Pacific Gas & Electric account to ensure cash receipts are received timely each month. However, we cannot estimate at this stage the impact that this Chapter 11 reorganization may have on us.

In the Product segment, 23.5% and 83.6% of our 2018 total revenues and Products segment revenue, respectively, derived from our operation in Turkey and we rely on the continued geothermal development growth and government support for geothermal development in the country. Our revenue exposure to the Turkish market increased in 2018 and expects to remain significant in 2019, as we signed a number of new contracts in Turkey. Adverse political developments in the relationship between Turkey and the U.S., adverse economic developments in this region including the latest failed coup, devaluation of the Turkish Lira, a general slowdown in the Turkish economy and an inability to obtain project and bank financing or a decline in government support for the development of geothermal power in the country could materially and adversely affect regional demand for the geothermal equipment and services we provide in the Turkish market or the prices we may charge for such equipment and services, which in turn could materially and adversely affect our Product segment profit margins and, consequently, our business, financial condition, future results and cash flows.

Ormat established a facility in Turkey in order to locally produce several power plant components that entitle our customer for increased incentives under the renewable energy laws. The use of local equipment in renewable energy based generating facilities in Turkey entitles such facilities to significant benefits under Turkish law, provided such facilities have obtained an RER Certificate from EMRA, which requires the issuance of a local certificate. If we do not obtain the local certificate, then some of our customers under the relevant supply agreements in Turkey may not be issued a RER Certificate based on the equipment we supply to them, and we will be required to make a payment to such customers equal to the amount of the expected lost benefit

Our international operations expose us to risks related to the application of foreign laws and regulations, any of which may adversely affect our business, financial condition, future results and cash flows.

Our foreign operations in Kenya, Turkey, Guadeloupe, Guatemala, Honduras and other countries are subject to regulation by various foreign governments and regulatory authorities and are subject to the application of foreign laws. Such foreign laws or regulations may not provide the same type of legal certainty and rights, in connection with our contractual relationships in such countries, as are afforded to our operations in the U.S., which may adversely affect our ability to receive revenues or enforce our rights in connection with our foreign operations. The systems of some of these countries can be characterized by:

- selective or inconsistent enforcement of laws or regulations, sometimes in ways that have been perceived as being motivated by political or financial considerations;
- a perceived lack of judicial and prosecutorial independence from political, social and commercial forces;
- a high degree of discretion on the part of the judiciary and governmental authorities;
- legal and bureaucratic obstacles and corruption; and
- rapid evolution of legal systems in ways that may not always coincide with market developments.

These characteristics give rise to investment risks that do not exist in countries with more established legal systems in more developed economies.

Table of Contents

We face additional risks inherent in conducting business internationally, including compliance with laws and regulations of many jurisdictions that apply to our international operations. These laws and regulations include data privacy requirements, labor relations laws, tax laws, competition regulations, import and trade restrictions, economic sanctions, export requirements, the Foreign Corrupt Practices Act, and other local laws that prohibit corrupt payments to governmental officials or certain payments or remunerations to customers. Given the high level of complexity of these laws, there is a risk that some provisions may be breached by us, for example through fraudulent or negligent behavior of individual employees (or third parties acting on our behalf), our failure to comply with certain formal documentation requirements, or otherwise. Violations of these laws and regulations could result in fines, criminal sanctions against us, our officers or our employees, requirements to obtain export licenses, cessation of business activities in sanctioned countries, implementation of compliance programs and prohibitions on the conduct of our business. Any such violation could include prohibitions on our ability to offer our products in one or more countries and could materially damage our reputation, our brand, our ability to attract and retain employees, our business, our financial condition and our results of operations.

Furthermore, existing laws or regulations may be amended or repealed, and new laws or regulations may be enacted or issued. In addition, the laws and regulations of some countries may limit our ability to hold a majority interest in some of the power plants that we may develop or acquire, thus limiting our ability to control the development, construction and operation of such power plants, or our ability to import our products into such countries.

Political and economic conditions in the emerging economies where we operate may subject us to greater risk than in the developed U.S. economy, which may have a materially adverse effect on our business.

We have substantial operations outside of the U.S., both in our Electricity segment and our Product segment. In 2018, 54% of our total revenues were derived from international operations, and our international operations were significantly more profitable than our U.S. operations. A substantial portion of international revenues came from Kenya and Turkey and, to a lesser extent, from Guadeloupe, Guatemala and Honduras and other countries. Thus, disturbances to and challenges facing our foreign operations, especially in Kenya and Turkey, could have impacts on our business ranging from moderate to severe. Our foreign operations subject us to significant political, economic and financial risks, which vary by country, and include:

- changes in government policies or personnel;
- changes in general economic conditions;
- restrictions on currency transfer or convertibility;
-

the adoption or expansion of trade restrictions, the occurrence or escalation of a "trade war," or other governmental action related to tariffs or trade agreements or policies among the governments of the United States and countries where we operate;

- changes in labor relations;
- political instability and civil unrest, and risk of war;
- changes in the local electricity and/or geothermal markets;
- difficulties enforcing our rights against a governmental agency because of the doctrine of sovereign immunity and foreign sovereignty over international operations;
- breach or repudiation of important contractual undertakings by governmental entities; and
- expropriation and confiscation of assets and facilities, including without adequate compensation.

Electricity Segment. In 2018, the international operations of the Electricity segment accounted for 28% of our revenues, but accounted for 53% of our gross profit, 77% of our net income and 53% of our EBITDA. A substantial portion of Electricity segment international revenues came from Kenya (which also contributed disproportionately to our gross profit and net income) and, to a lesser extent, from Guadeloupe, Guatemala and Honduras. In Kenya, any break-up or potential privatization of KPLC, the power purchase for our power plants located in Kenya, may adversely affect our Olkaria III complex and our overall results of operations. Additionally, in Guatemala the electricity sector was partially privatized, and it is currently unclear whether further privatization will occur in the future. Such developments may affect our Amatitlan and Zunil power plants if, for example, they result in changes to the prevailing tariff regime or in the identity and creditworthiness of our power purchasers.

Product Segment. With respect to our Product segment, 93% of our Product segment revenues in 2018 came from international sales, primarily Turkey. Since we primarily engage in sales in those markets where there is a geothermal reservoir, any such change might adversely affect geothermal developers in those markets and, subsequently, the ability of such developers to purchase our products.

Generally. Outbreaks of civil and political unrest and acts of terrorism have also occurred in several countries in Africa, the Middle East and Latin America, where we have significant operations, such as Kenya and Turkey. For instance, Kenya experienced numerous terrorist attacks in 2014 and 2015, and has experienced an upsurge in attacks in more recent years, including in early 2019, from extremist groups. Continued or escalated civil and political unrest and acts of terrorism in the countries in which we operate could result in our curtailing operations. In the event that countries in which we operate experience civil or political unrest or acts of terrorism, especially in events where such unrest leads to an unseating of the established government, our operations in such countries could be materially impaired. Although we generally obtain political risk insurance in connection with our foreign power plants, such

political risk insurance does not mitigate all of the above-mentioned risks. In addition, insurance proceeds received pursuant to our political risk insurance policies, where applicable, may not be adequate to cover all losses sustained as a result of any covered risks and may at times be pledged in favor of the power plant lenders as collateral. Also, insurance may not be available in the future with the scope of coverage and in amounts of coverage adequate to insure against such risks and disturbances. Any or all of the changes discussed above could materially and adversely affect our business, financial condition, future results and cash flow.

Table of Contents

Two of our facilities accounts for 26% of our revenues and contribute significantly to our profitability.

Our business relies significantly on the performance of our two largest projects, the McGinness Hills complex in East Nevada and Olkaria III Complex in Kenya, which together account for more than 30% of the total generating capacity of our Electricity segment. These two facilities accounted for 26% of our total revenues for the year ended December 31, 2018. Just over one third of the generating capacity at McGinness Hills reached commercial operation in December 2018 and its contribution to our results may therefore be higher in the future. Any disruption to the operation of these facilities would have a disproportionately adverse effect on our revenues and on our profitability compared to our other facilities.

Conditions in and around Israel, where the majority of our senior management and our main production and manufacturing facilities are located, may adversely affect our operations and may limit our ability to produce and sell our products or manage our power plants.

The majority of our senior management and our main production and manufacturing facilities are located in Israel approximately 26 miles from the border with the Gaza Strip. As such, political, economic and security conditions in Israel directly affect our operations.

The political instability and civil unrest in the Middle East and North Africa (including the ongoing civil war in Syria) as well as the increased tension between Iran and Israel have raised new concerns regarding security in the region and the potential for armed conflict or other hostilities involving Israel. We could be adversely affected by any such hostilities, the interruption or curtailment of trade between Israel and its trading partners, or a significant downturn in the economic or financial condition of Israel. In addition, the sale of products manufactured in Israel may be adversely affected in certain countries by restrictive laws, policies or practices directed toward Israel or companies having operations in Israel.

In addition, some of our employees in Israel are subject to being called upon to perform military service in Israel, and their absence may have an adverse effect upon our operations.

These events and conditions could disrupt our operations in Israel, which could materially and adversely affect our business, financial condition, future results, and cash flow.

We have significant operations globally, including in countries that may be adversely affected by political or economic instability, major hostilities or acts of terrorism, which exposes us to risks and challenges associated with conducting business internationally.

We have substantial operations outside of the U.S., both in our Electricity segment and our Product segment. Terrorist acts or other similar events could harm our business by limiting our ability to generate or transmit power and by delaying the development and construction of new generating facilities and capital improvements to existing facilities. These events, and governmental actions in response, could result in a material decrease in revenues and significant additional costs to repair and insure our assets, and could adversely affect operations by contributing to the disruption of supplies and markets for geothermal and recovered energy. Such events could also impair our ability to raise capital by contributing to financial instability and lower economic activity.

Some of our leases will terminate if we do not extract geothermal resources in "commercial quantities", thus requiring us to enter into new leases or secure rights to alternate geothermal resources, none of which may be available on terms as favorable to us as any such terminated lease, if at all.

Most of our geothermal resource leases are for a fixed primary term, and then continue for so long as geothermal resources are extracted in "commercial quantities" or pursuant to other terms of extension. The land covered by some of our leases (approximately 249,000 acres) is undeveloped and has not yet produced geothermal resources in commercial quantities. Leases that cover land which remains undeveloped and does not produce, or does not continue to produce, geothermal resources in commercial quantities and leases that we allow to expire, may terminate. In the event that a lease is terminated and we determine that we will need that lease once the applicable power plant is operating, we would need to enter into one or more new leases with the owner(s) of the premises that are the subject of the terminated lease(s) in order to develop geothermal resources from, or inject geothermal resources into, such premises or secure rights to alternate geothermal resources or lands suitable for injection. We may not be able to do this or may not be able to do so without incurring increased costs, which could materially and adversely affect our business, financial condition, future results and cash flow.

Our BLM leases may be terminated if we fail to comply with any of the provisions of the Geothermal Steam Act or if we fail to comply with the terms or stipulations of such leases, which could materially and adversely affect our business, financial condition, future results and cash flow.

Pursuant to the terms of our BLM leases, we are required to conduct our operations on BLM-leased land in a workmanlike manner and in accordance with all applicable laws and BLM directives and to take all mitigating actions required by the BLM to protect the surface of and the environment surrounding the relevant land. Additionally, certain BLM leases contain additional requirements, some of which relate to the mitigation or avoidance of disturbance of any antiquities, cultural values or threatened or endangered plants or animals. In the event of a default under any BLM lease, or the failure to comply with such requirements, or any non-compliance with any of the provisions of the Geothermal Steam Act or regulations issued thereunder, the BLM may, 30 days after notice of default is provided to our relevant project subsidiary, suspend our operations until the requested action is taken or terminate the lease, either of which could materially and adversely affect our business, financial condition, future results and cash flow.

Some of our leases (or subleases) could terminate if the lessor (or sublessor) under any such lease (or sublease) defaults on any debt secured by the relevant property, thus terminating our rights to access the underlying geothermal resources at that location.

The fee interest in the land which is the subject of some of our leases (or subleases) may currently be or may become subject to encumbrances securing loans from third-party lenders to the lessor (or sublessor). Our rights as lessee (or sublessee) under such leases (or subleases) are or may be subject and subordinate to the rights of any such lender. Accordingly, a default by the lessor (or sublessor) under any such loan could result in a foreclosure on the underlying fee interest in the property and thereby terminate our leasehold interest and result in the shutdown of the power plant located on the relevant property and/or terminate our right of access to the underlying geothermal resources required for our operations.

Table of Contents

Reduced levels of recovered energy required for the operation of our REG power plants may result in decreased performance of such power plants.

Our REG power plants generate electricity from recovered energy or so-called "waste heat" that is generated as a residual by-product of gas turbine-driven compressor stations and a variety of industrial processes. Any interruption in the supply of the recovered energy source, such as a result of reduced gas flows in the pipelines or reduced level of operation at the compressor stations, or in the output levels of the various industrial processes, may cause an unexpected decline in the capacity and performance of our recovered energy power plants.

Our business development activities may not be successful and our projects under construction may not commence operation as scheduled.

We are in the process of developing and constructing a number of new power plants. Our success in developing a project is contingent upon, among other things, negotiation of satisfactory engineering and construction agreements and obtaining PPAs and transmission services agreements, receipt of required governmental permits, obtaining adequate financing, and the timely implementation and satisfactory completion of field development, testing and power plant construction and commissioning. We may be unsuccessful in accomplishing any of these matters or doing so on a timely basis. Although we may attempt to minimize the financial risks attributable to the development of a project by securing a favorable PPA and applicable transmission services agreements, obtaining all required governmental permits and approvals and arranging, in certain cases, adequate financing prior to the commencement of construction, the development of a power project may require us to incur significant expenses for preliminary engineering, permitting and legal and other expenses before we can determine whether a project is feasible, economically attractive or capable of being financed.

Currently, we have geothermal projects and prospects under exploration, development or construction in the U.S., as well as in Ethiopia, Guadeloupe, Guatemala, Honduras, Indonesia and New Zealand, and we intend to pursue the expansion of some of our existing plants and the development of other new plants. Our completion of these facilities is subject to substantial risks, including:

- inability to secure a PPA;
- inability to secure transmission services agreements;
- inability to secure the required financing;

cost increases and delays due to unanticipated shortages of adequate resources to execute the project such as equipment, material and labor;

work stoppages resulting from force majeure event including riots, strikes and whether conditions;

inability to obtain permits, licenses and other regulatory approvals;

failure to secure sufficient land positions for the wellfield, power plant and rights of way;

failure by key contractors and vendors to timely and properly perform, including where we use equipment manufactured by others;

inability to secure or delays in securing the required transmission line and/or capacity;

adverse environmental and geological conditions (including inclement weather conditions);

adverse local business law; and

our attention to other projects and activities, including those in the solar energy and energy storage sectors.

Any one of these could give rise to delays, cost overruns, the termination of the plant expansion, construction or development or the loss (total or partial) of our interest in the project under development, construction, or expansion.

We rely on power transmission facilities that we do not own or control.

We depend on transmission facilities owned and operated by others to deliver the power we sell from our power plants to our customers. If transmission is disrupted, or if the transmission capacity infrastructure is inadequate, of if there is a failure that requires long shutdown for repair, or if curtailment is required due to load and inefficiency system, our ability to sell and deliver power to our customers may be adversely impacted and we may either incur additional costs or forego revenues. In addition, lack of access to new transmission capacity may affect our ability to develop new projects. Existing congestion of transmission capacity, as well as expansion of transmission systems and competition from other developers seeking access to expanded systems, could also affect our performance.

Table of Contents

Our use of joint ventures may limit our flexibility with jointly owned investments.

We have partners in several of our plants and we may continue in the future to develop and/or acquire and/or hold properties in joint ventures with other entities when circumstances warrant the use of these structures. Ownership of assets in joint ventures is subject to risks that may not be present with other methods of ownership, including:

- we could experience an impasse on certain decisions because we do not have sole decision-making authority, which could require us to expend additional resources on resolving such impasses or potential disputes, including arbitration or litigation;

- our joint venture partners could have investment goals that are not consistent with our investment objectives, including the timing, terms and strategies for any investments in the projects that are owned by the joint ventures, which could affect decisions about future capital expenditures, major operational expenditures and retirement of assets, among other things;

- our ability to transfer our interest in a joint venture to a third party may be restricted and the market for our interest may be limited;

- our joint venture partners may be structured differently than us for tax purposes, and this could impact our ability to fully take advantage of federal tax incentives available for renewable energy projects;

- our joint venture partners might become bankrupt, fail to fund their share of required capital contributions or fail to fulfill their obligations as a joint venture partner, which may require us to infuse our own capital into the venture on behalf of the partner despite other competing uses for such capital; and

- our joint venture partners may have competing interests in our markets and investments in companies that compete directly or indirectly with us that could create conflict of interest issues.

Seasonal variations may cause fluctuations in our cash flows, which may cause the market price of our common stock to fall in certain periods.

Our results of operations are subject to seasonal variations. This is primarily because some of our power plants may experience reduced generation during warm periods due to the lower heat differential between the geothermal fluid and the ambient surroundings. Such seasonal variations could materially and adversely affect our business, financial condition, future results and cash flow. If our operating results fall below the public's or analysts' expectations in some future period or periods, the market price of our common stock will likely fall in such period or periods.

Storage projects that we are currently developing or plan to develop in the future may operate as "merchant" facilities without long-term power services agreements for some or all of their generating capacity and output and therefore such projects will be exposed to market fluctuations.

Storage projects that we own and operate, as well others we are currently developing or plan to develop in the future, may operate as "merchant" facilities without long-term sales agreements for some or all of their generating capacity and output and therefore such projects are exposed to market fluctuations. Without the benefit of long-term services agreements for these assets, we cannot be sure that we will be able to sell any or all of the power and ancillary services generated by these facilities at commercially attractive rates or that these facilities will be able to operate profitably. This could lead to future impairments of our property, plant and equipment or to the closing of certain of our storage facilities, resulting in economic losses and liabilities, which could have a material adverse effect on our results of operations, financial condition or cash flows.

We may not be able to successfully integrate companies, which we acquired and may acquire in the future, which could materially and adversely affect our business, financial condition, future results and cash flow.

Our strategy is to continue to expand in the future, including through acquisitions. Integrating acquisitions is often costly, and we may not be able to successfully integrate our acquired companies with our existing operations without substantial costs, delays or other adverse operational or financial consequences. Integrating our acquired companies involves a number of risks that could materially and adversely affect our business, including:

failure of the acquired companies to achieve the results we expect;

Table of Contents

- inability to retain key personnel of the acquired companies;
- risks associated with unanticipated events or liabilities; and
- the difficulty of establishing and maintaining uniform standards, controls, procedures and policies, including accounting controls and procedures.

If any of our acquired companies suffers customer dissatisfaction or performance problems, this could adversely affect the reputation of our group of companies and could materially and adversely affect our business, financial condition, future results and cash flow.

The power generation industry is characterized by intense competition, and we encounter competition from electric utilities, other power producers, and power marketers that could materially and adversely affect our business, financial condition, future results and cash flow.

The power generation industry is characterized by intense competition from electric utilities, other power producers and power marketers. In recent years, there has been increasing competition in the sale of electricity, in part due to excess capacity in a number of U.S. markets and an emphasis on short-term or "spot" markets, and competition has contributed to a reduction in electricity prices. For the most part, we expect that power purchasers interested in long-term arrangements will engage in "competitive bid" solicitations to satisfy new capacity demands. This competition could adversely affect our ability to obtain and/or renew long-term PPAs and the price paid for electricity by the relevant power purchasers. There is also increasing competition between electric utilities. This competition has put pressure on electric utilities to lower their costs, including the cost of purchased electricity, and increasing competition in the future will put further pressure on power purchasers to reduce the prices at which they purchase electricity from us.

We face increasing competition from other companies engaged in the solar, energy storage, demand response and energy management sectors.

The solar power market is intensely competitive and rapidly evolving. We compete with many companies that have longer operating histories in this sector, larger customer bases, and greater brand recognition, as well as, in some cases, significantly greater financial and marketing resources than us. In some cases, these competitors are vertically integrated in the solar energy sector, manufacturing Solar PV panels, silicon wafers, and other related products for the solar industry, which may give them an advantage in developing, constructing, owning and operating solar power projects. Our limited experience in the Solar PV sector may affect our ability to successfully develop, construct, finance, and operate Solar PV power projects.

We are experiencing intense competition in the energy storage, demand response and energy management markets. Our competitors in the energy storage, demand response and energy management markets include utilities, independent power producers, developers, new start-ups, and third-party investors, who compete more successfully in these markets than our Viridity business. If we are unable, as a result of increased competition, to expand our customer base or increase our market share in these rapidly growing markets, our business, financial condition, future results and cash flow could be materially and adversely affected.

Changes in costs and technology may significantly impact our business by making our power plants and products less competitive.

A basic premise of our business model is that generating baseload power at geothermal power plants produces electricity at a competitive price. However, traditional coal-fired systems and gas-fired systems may under certain economic conditions produce electricity at lower average prices than our geothermal plants. In addition, there are other technologies that can produce electricity such as hydroelectric systems, fuel cells, microturbines, wind turbines, energy storage systems and solar PV systems. Some of these alternative technologies currently produce electricity at a higher average price than our geothermal plants while others produce electricity at a lower average price, It is possible that technological advances and economies of scale will further reduce the cost of alternate methods of power generation. It is also possible that energy technologies will compete with our basic premise of a firm (non-intermittent) renewable baseload power source by combining renewable technologies with energy storage to provide an alternative to firm baseload energy. If this were to happen, the competitive advantage of our power plants may be significantly impaired.

Our intellectual property rights may not be adequate to protect our business.

Our existing intellectual property rights, including those we acquired in connection with the acquisition of our Viridity business, may not be adequate to protect our business. While we occasionally file patent applications, patents may not be issued on the basis of such applications or, if patents are issued, they may not be sufficiently broad to protect our technology. In addition, any patents issued to us or for which we have use rights may be challenged, invalidated or circumvented.

Table of Contents

In order to safeguard our unpatented proprietary know-how, trade secrets and technology, we rely primarily upon trade secret protection and non-disclosure provisions in agreements with employees and others having access to confidential information. These measures may not adequately protect us from disclosure or misappropriation of our proprietary information.

Even if we adequately protect our intellectual property rights, litigation may be necessary to enforce these rights, which could result in substantial costs to us and a substantial diversion of management attention. Also, while we have attempted to ensure that our technology and the operation of our business do not infringe other parties' patents and proprietary rights, our competitors or other parties may assert that certain aspects of our business or technology may be covered by patents held by them. Infringement or other intellectual property claims, regardless of merit or ultimate outcome, can be expensive and time-consuming and can divert management's attention from our core business.

We previously identified a material weakness in our internal control over financial reporting and subsequently restated certain of our financial statements as a result of factors related to that weakness. This may adversely affect the accuracy and reliability of our financial statements and impact our reputation, business and the price of our common stock, as well as lead to a loss of investor confidence in us.

In connection with the change in our repatriation strategy and the related release of the U.S. income tax valuation allowance in the second quarter of 2017, we did not perform an effective risk assessment related to our internal controls over the accounting for income taxes. As a result, we identified a deficiency in the design of our internal control over financial reporting related to our accounting for income taxes, which affected the recording of income tax accounts by us in our interim and annual consolidated financial statements during 2017. Our management previously concluded that this deficiency constituted a material weakness in our internal control over financial reporting and, accordingly, our internal control over financial reporting and our disclosure controls and procedures were not effective as of December 31, 2017. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim consolidated financial statements will not be prevented or detected on a timely basis.

On May 16, 2018, we concluded that we would restate our previously issued consolidated financial statements as of and for the year ended December 31, 2017 to correct for (i) errors in our income tax provision, primarily related to our ability to utilize foreign tax credits in the United States ("U.S.") prior to their expiration starting in 2027 and the resulting impact on the deferred tax asset valuation allowance, and (ii) the inappropriate netting of certain deferred income tax assets and deferred income tax liabilities across different tax jurisdictions that was not permissible under U.S. generally accepted accounting principles. In addition, we also concluded that we would revise our previously issued consolidated financial statements as of and for the years ended December 31, 2016 and December 31, 2015 to correct for errors in our income tax provision primarily related to the translation of deferred tax liabilities in a foreign subsidiary. These tax and tax-related errors also resulted in the restatement, for 2017, and revision, for 2016, of the Company's previously issued unaudited condensed consolidated financial statements for the three months ended March 31, 2017, for the three and six months ended June 30, 2017 and 2016 and for the three and nine months ended September 30, 2017 and 2016.

While we have developed and are in the process of implementing a plan to remediate this material weakness, there can be no assurance that this will occur within 2019. We may identify additional material weaknesses in our internal control over financial reporting in the future. If we are unable to remediate this material weakness or we identify additional material weaknesses in our internal control over financial reporting in the future, our ability to analyze, record and report financial information accurately, to prepare our financial statements within the time periods specified by the rules and forms of the SEC and to otherwise comply with our reporting obligations under the federal securities laws, and in relation to covenants in certain debt facilities will likely be adversely affected. The occurrence of, or failure to remediate, and any future material weaknesses in our internal control over financial reporting may adversely affect the accuracy and reliability of our financial statements, and our reputation, business and the price of our Common Stock or any other securities we may issue, as well as lead to a loss of investor confidence in us.

Our failure to prepare and timely file our periodic reports with the SEC limits our access to the public markets to raise debt or equity capital.

We did not file our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 within the timeframe required by the SEC, meaning we were not current in our reporting requirements with the SEC. Even though we have regained compliance with our SEC reporting obligations, we will be not be eligible to use a short-form registration statement on Form S-3 that would allow us to incorporate by reference our SEC reports into the registration statement, or to use “shelf” registration statements, until one year from the date we regained and maintain status as a current filer. If we wish to pursue a public offering during this time period, we would be required to file a long-form registration statement on Form S-1 and have it reviewed and declared effective by the SEC. Doing so would likely take significantly longer than using a short-form registration statement on Form S-3, increase transaction costs and adversely impact our ability to raise capital or complete acquisitions of other companies in a timely manner.

Table of Contents

Risks Related to Governmental Regulations, Laws and Taxation

Our financial performance could be adversely affected by changes in the legal and regulatory environment affecting our operations.

All of our power plants are subject to extensive regulation, and therefore changes in applicable laws or regulations, or interpretations of those laws and regulations, could result in increased compliance costs, the need for additional capital expenditures or the reduction of certain benefits currently available to our power plants. The structure of domestic and foreign federal, state and local energy regulation currently is, and may continue to be, subject to challenges, modifications, the imposition of additional regulatory requirements, and restructuring proposals. We or our power purchasers may not be able to obtain all regulatory approvals that may be required in the future, or any necessary modifications to existing regulatory approvals, or maintain all required regulatory approvals. In addition, the cost of operation and maintenance and the operating performance of geothermal power plants may be adversely affected by changes in certain laws and regulations, including tax laws.

Any changes to applicable laws and regulations could significantly increase the regulatory-related compliance and other expenses incurred by the power plants and could significantly reduce or entirely eliminate the revenues generated by one or more of the power plants, which in turn would reduce our net income and could materially and adversely affect our business, financial condition, future results and cash flow.

Regulations related to conflict minerals, adopted by the SEC and requires us to disclose the use of “conflict minerals” (including tantalum, tin, tungsten and gold) in our products, may force us to incur additional expenses and may damage our relationship with certain customers. If we utilize any of these minerals and they are necessary to the production or functionality of any of our products or products we are contracted to manufacture, we will need to conduct specified due diligence activities and file with the SEC a report disclosing, among other things, whether such minerals originate from the Democratic Republic of Congo or adjoining countries. The implementation of these SEC rules could adversely affect the sourcing, availability and pricing of minerals used in the manufacture of certain components incorporated in our products. In addition, we expect to incur additional costs to comply with the disclosure requirements, including costs related to determining the source of any of the relevant minerals and metals used in our products, and possibly additional expenses related to any changes to our products we may decide are advisable based upon our due diligence findings. Since our supply chain is complex, we may not be able to sufficiently verify the origins for these minerals and metals used in our products through the diligence procedures that we implement, which may harm our reputation. In such event, we may also face difficulties in satisfying customers who require that all of the components of our products are certified as conflict mineral free.

Pursuant to the terms of some of our PPAs with investor-owned electric utilities and publicly-owned electric utilities in states that have renewable portfolio standards, the failure to supply the contracted capacity and energy thereunder may result in the imposition of penalties.

Pursuant to the terms of certain of our PPAs, we may be required to make payments to the relevant power purchaser under certain conditions, such as shortfall in delivery of renewable energy and energy credits, and not meeting certain performance threshold requirements, as defined in the relevant PPA. The amount of payment required is dependent upon the level of shortfall in delivery or performance requirements and is recorded in the period the shortfall occurs. In addition, if we do not meet certain minimum performance requirements, the capacity of the relevant power plant may be permanently reduced. Any or all of these considerations could materially and adversely affect our business, financial condition, future results and cash flow.

The SRAC for our power purchasers may decline, which would reduce our power plant revenues and could materially and adversely affect our business, financial condition, future results and cash flow

Under two of the PPAs for our power plants in California, the price that Southern California Edison pays is based upon its SRAC, which are the incremental costs that it would have incurred had it generated the relevant electricity itself or purchased such electricity from others. Under settlement agreements between Southern California Edison and a number of power generators in California that are Qualifying Facilities, including our subsidiaries, the energy price component payable by Southern California Edison was fixed through April 2012, but since then is based on Southern California Edison's SRAC, as determined by the CPUC. The SRAC may vary substantially on a monthly basis and are expected to be based primarily on natural gas prices for gas delivered to California as well as other factors. The levels of SRAC prices paid by Southern California Edison may decline following the expiration of the settlement agreements in, which in turn would reduce our power plant revenues derived from Southern California Edison under our PPAs and could materially and adversely affect our business, financial condition, future results and cash flow.

Table of Contents

Under the terms of a global settlement approved by CPUC (Global Settlement) SRAC for our Heber 2 and Mammoth G2 PPAs are tied to a formula with energy market heat rates. The Global Settlement further provides that after July 1, 2015 if the term of any of the PPAs we have for these power plants expires, Southern California Edison would have no obligation to purchase power from any of these plants that has a generating capacity in excess of 20 MW, which would apply to the PPAs for our Heber 2 power plant (37 MW contract capacity) with Southern California Edison. Our Mammoth G2 plant (10.5 MW contract capacity) will be entitled to a new standard offer PPA, with SRAC pricing and capacity payments as determined from time to time by the CPUC. The joint parties to the Global Settlement agreed that the utilities can request from FERC a waiver of the mandatory purchase obligation under PURPA for Qualifying Facilities above 20 MW and FERC has granted such waiver for these California utilities.

If any of our domestic power plants loses its current Qualifying Facility status under PURPA, or if amendments to PURPA are enacted that substantially reduce the benefits currently afforded to Qualifying Facilities, our domestic operations could be adversely affected.

Most of our domestic power plants are Qualifying Facilities pursuant to PURPA, which largely exempts the power plants from the FPA, and certain state and local laws and regulations regarding rates and financial and organizational requirements for electric utilities.

If any of our domestic power plants were to lose its Qualifying Facility status, such power plant could become subject to the full scope of the FPA and applicable state regulation. The application of the FPA and other applicable state regulation to our domestic power plants could require our operations to comply with an increasingly complex regulatory regime that may be costly and greatly reduce our operational flexibility.

If a domestic power plant were to lose its Qualifying Facility status, it would become subject to full regulation as a public utility under the FPA, and the rates charged by such power plant pursuant to its PPAs may be subject to the review and approval of FERC. FERC, upon such review, may determine that the rates currently set forth in such PPAs are not appropriate and may set rates that are lower than the rates currently charged. In addition, FERC may require that the affected domestic power plant refund amounts previously paid by the relevant power purchaser to such power plant. Even if a power plant does not lose its Qualifying Facility status, pursuant to regulations issued by FERC for Qualifying Facility power plants above 20 MW, if a power plant's PPA is terminated or otherwise expires, and the subsequent sales are not made pursuant to a state's implementation of PURPA, that power plant will become subject to FERC's ratemaking jurisdiction under the FPA. Moreover, a loss of Qualifying Facility status also could permit the power purchaser, pursuant to the terms of the particular PPA, to cease taking and paying for electricity from the relevant power plant or, consistent with FERC precedent, to seek refunds of past amounts paid. This could cause the loss of some or all of our revenues payable pursuant to the related PPAs, result in significant liability for refunds of past amounts paid, or otherwise impair the value of our power plants. If a power purchaser were to cease taking and paying for electricity or seek to obtain refunds of past amounts paid, there can be no assurance that the costs incurred in connection with the power plant could be recovered through sales to other purchasers or that we would have sufficient funds to make such payments. In addition, the loss of Qualifying Facility status would be an event of default under the financing arrangements currently in place for some of our power plants, which would enable the lenders to

exercise their remedies and enforce the liens on the relevant power plant.

Pursuant to the Energy Policy Act of 2005, FERC also has the authority to prospectively lift the mandatory obligation of a utility under PURPA to offer to purchase the electricity from a Qualifying Facility if the utility operates in a workably competitive market. Our existing PPAs between a Qualifying Facility and a utility are not affected. If, in addition to the California utilities' waiver of the mandatory purchase obligation for QF projects that exceed 20 MW described in the risk factor above, the utilities in the other regions in which our domestic power plants operate were to be relieved of the mandatory purchase obligation, they would not be required to purchase energy from the power plant in the region under Federal law upon termination of the existing PPA or with respect to new power plants, which could materially and adversely affect our business, financial condition, future results and cash flow. Moreover, FERC has the authority to modify its regulations relating to the utility's mandatory purchase obligation under PURPA, which could result in the reduction in the purchase obligation of California and other utilities to a level below 20 MW, or the elimination of the purchase obligation. If that were to occur it could materially and adversely affect our business, financial condition, future results and cash flow.

Table of Contents

The PURPA and QF described risks identified above are not likely to affect our Nevada based facilities that entered into PPAs with NV Energy as the off-taker after Nevada initially adopted its RPS in 2001. Those PPAs and the related rates agreed to for such facilities by the off-taker were not based upon PURPA or a QF mandated rate but were instead adopted as a result of a competitive bidding process and approved as part of the off-taker's integrated resource planning process and in order for the off-taker to comply with Nevada's RPS. While those PPAS were initially required to file for QF or EWG status with the FERC, the PPAs and their related prices for the term of the PPA were not approved by the FERC pursuant to PURPA. The PURPA and QF risks described above also are not likely to affect our Nevada and California based projects that have their PPAs with the SCPPA because SCPPA is not a regulated public utility under PURPA.

The reduction or elimination of government incentives could adversely affect our business, financial condition, future results and cash flows.

Construction and operation of our geothermal power plants and recovered energy-based power plants has benefited, and may benefit in the future, from public policies and government incentives that support renewable energy and enhance the economic feasibility of these projects in regions and countries where we operate. Such policies and incentives include PTCs (that are applicable for projects that started construction by the end of 2017) and ITCs, accelerated depreciation tax benefits, renewable portfolio standards, carbon trading mechanisms, rebates, and mandated feed-in-tariffs, and may include similar or other incentives to end users, distributors, system integrators and manufacturers of geothermal, solar and other power products. Some of these measures have been implemented at the federal level, while others have been implemented by different states within the U.S. or countries outside the U.S. where we operate.

The availability and continuation of these public policies and government incentives have a significant effect on the economics and viability of our development program and continued construction of new geothermal, recovered energy-based, Solar PV power plants and, recently, energy storage projects. Any changes to such public policies, or any reduction in or elimination or expiration of such government incentives could affect us in different ways. For example, any reduction in, termination or expiration of renewable portfolio standards may result in less demand for generation from our geothermal and recovered energy-based, power plants. Any reductions in, termination or expiration of other government incentives could reduce the economic viability of, and cause us to reduce, the construction of new geothermal, recovered energy-based, Solar PV or any other power plants. Similarly, any such changes that affect the geothermal energy industry in a manner that is different from other sources of renewable energy, such as wind or solar, may put us at a competitive disadvantage compared to businesses engaged in the development, construction and operation of renewable power projects using such other resources. Any of the foregoing outcomes could have a material adverse effect on our business, financial condition, future results, and cash flows.

We are a holding company and our cash depends substantially on the performance of our subsidiaries and the power plants they operate, most of which is subject to restrictions and taxation on dividends and distributions.

We are a holding company whose primary assets are our ownership of the equity interests in our subsidiaries. We conduct no other business and, as a result, we depend entirely upon our subsidiaries' earnings and cash flow.

The agreements pursuant to which some of our subsidiaries have incurred debt restrict the ability of these subsidiaries to pay dividends, make distributions or otherwise transfer funds to us prior to the satisfaction of other obligations, including the payment of operating expenses, debt service and replenishment or maintenance of cash reserves. In the case of some of our power plants that are owned jointly with other partners, there may be certain additional restrictions on dividend distributions pursuant to our agreements with those partners. In all of the foreign countries where our existing power plants are located, dividend payments to us may also be subject to withholding taxes. Each of the events described above may reduce or eliminate the aggregate amount of cash we can receive from our subsidiaries.

Table of Contents

The costs of compliance with environmental laws and of obtaining and maintaining environmental permits and governmental approvals required for construction and/or operation may increase in the future and these costs (as well as any fines or penalties that may be imposed upon us in the event of any non-compliance with such laws or regulations) could materially and adversely affect our business, financial condition, future results and cash flow.

Environmental laws, ordinances and regulations affecting us can be subject to change and such change could result in increased compliance costs, the need for additional capital expenditures, or otherwise adversely affect us. In addition, our power plants are required to comply with numerous domestic and foreign, federal, regional, state and local statutory and regulatory environmental standards and to maintain numerous environmental permits and governmental approvals required for construction and/or operation. We may not be able to renew, maintain or obtain all environmental permits and governmental approvals required for the continued operation or further development of the power plants. We have not yet obtained certain permits and government approvals required for the completion and successful operation of power plants under construction or enhancement. Our failure to renew, maintain or obtain required permits or governmental approvals, including the permits and approvals necessary for operating power plants under construction or enhancement, could cause our operations to be limited or suspended. Finally, some of the environmental permits and governmental approvals that have been issued to the power plants contain conditions and restrictions, including restrictions or limits on emissions and discharges of pollutants and contaminants, or may have limited terms. If we fail to satisfy these conditions or comply with these restrictions, or with any statutory or regulatory environmental standards, we may become subject to regulatory enforcement action and the operation of the power plants could be adversely affected or be subject to fines, penalties or additional costs.

We could be exposed to significant liability for violations of hazardous substances laws because of the use or presence of such substances at our power plants.

Our power plants are subject to numerous domestic and foreign federal, regional, state and local statutory and regulatory standards relating to the use, storage and disposal of hazardous substances. We use butane, pentane, industrial lubricants, and other substances at our power plants which are or could become classified as hazardous substances. If any hazardous substances are found to have been released into the environment at or by the power plants in concentrations that exceed regulatory limits, we could become liable for the investigation and removal of those substances, regardless of their source and time of release. If we fail to comply with these laws, ordinances or regulations (or any change thereto), we could be subject to civil or criminal liability, the imposition of liens or fines, and large expenditures to bring the power plants into compliance. Furthermore, in the U.S., we can be held liable for the cleanup of releases of hazardous substances at other locations where we arranged for disposal of those substances, even if we did not cause the release at that location. The cost of any remediation activities in connection with a spill or other release of such substances could be significant.

Current and future urbanizing activities and related residential, commercial, and industrial developments may encroach on or limit geothermal or Solar PV activities in the areas of our power plants, thereby affecting our ability to utilize access, inject and/or transport geothermal resources on or underneath the affected surface areas.

Current and future urbanizing activities and related residential, commercial and industrial development may encroach on or limit geothermal activities in the areas of our power plants or construction and operation of Solar PV facilities, thereby affecting our ability to utilize, access, inject, and/or transport geothermal resources on or underneath the affected surface areas or build Solar PV facilities, which require large areas of relatively flat land. In particular, the Heber power plants rely on an area, which we refer to as the Heber Known Geothermal Resource Area, or Heber KGRA, for the geothermal resource necessary to generate electricity at the Heber power plants. Imperial County has adopted a “specific plan area” that covers the Heber KGRA, which we refer to as the “Heber Specific Plan Area”. The Heber Specific Plan Area allows commercial, residential, industrial and other employment-oriented development in a mixed-use orientation, which currently includes geothermal uses. Several of the landowners from whom we hold geothermal leases have expressed an interest in developing their land for residential, commercial, industrial or other surface uses in accordance with the parameters of the Heber Specific Plan Area. Currently, Imperial County’s Heber Specific Plan Area is coordinated with the cities of El Centro and Calexico. There has been ongoing underlying interest since the early 1990s to incorporate the community of Heber. While any incorporation process would likely take several years, if Heber were to be incorporated, the City of Heber could replace Imperial County as the governing land use authority, which, depending on its policies, could have a significant effect on land use and availability of geothermal resources.

Current and future development proposals within Imperial County and the City of Calexico, applications for annexations to the City of Calexico, and plans to expand public infrastructure may affect surface areas within the Heber KGRA, thereby limiting our ability to utilize, access, inject and/or transport the geothermal resource on or underneath the affected surface area that is necessary for the operation of our Heber power plants, which could adversely affect our operations and reduce our revenues.

Table of Contents

Current construction works and urban developments in the vicinity of our Steamboat complex of power plants in Nevada may also affect future permitting for geothermal operations relating to those power plants. Such works and developments include plans for the construction of a new casino hotel and other commercial or industrial developments on land in the vicinity of our Steamboat complex.

Possible application of the new base erosion and anti-abuse tax in the U.S. may adversely affect us.

The recently enacted Tax Act in the U.S. included BEAT, that could apply to us and, more importantly, could reduce the amount of tax equity that can be raised on geothermal projects on which PTCs will be claimed. The aim of the base erosion tax is to prevent multinational companies from reducing their U.S. taxes by "stripping" earnings across the U.S. border by making payments to foreign affiliates that can be deducted in the U.S. An example of such a payment is interest on an intercompany loan or a payment to a back office in a foreign country for equipment or services. The goal of the BEAT is to ensure that multinational companies do not use cross-border payments to reduce their U.S. taxes to less than 10 percent (5 percent for 2018) of an expanded definition of taxable income. BEAT requires an annual calculation. Generally, the tax only applies to certain corporations with at least $500 million in average annual gross receipts for the United States for the three prior taxable years before the calculation and with base erosion payments that account for at least 3 percent (2 percent for certain corporations) of their deductions for the taxable year. If the tax applies to us, our tax equity raised on geothermal projects on which PTCs can be claimed may be reduced, which in turn may materially and adversely affect our business, financial condition, future results and cash flow.

The Israeli Tax Ruling we obtained in connection with our acquisition of Ormat Industries imposes conditions that may limit our flexibility in operating our business and our ability to enter into certain corporate transactions.

The Israeli Tax Ruling we obtained in connection with the acquisition of Ormat Industries imposes a number of conditions that limit our flexibility in operating our business and in engaging in certain corporate transactions. Until the end of 2018, we agreed to maintain (and, to the extent that our operations expand, likewise expand) the production activities we currently carry out in Israel. Under certain circumstances, these conditions may not allow us the flexibility that we need to operate our business and may prevent us from taking advantage of strategic opportunities that would benefit our business and our stockholders.

Risks Related to Economic and Financial Conditions

We may be unable to obtain the financing we need to pursue our growth strategy and any future financing we receive may be less favorable to us than our current financing arrangements, either of which may adversely affect our ability to expand our operations.

Most of our geothermal power plants generally have been financed using leveraged financing structures, consisting of non-recourse or limited recourse debt obligations. Each of our projects under development or construction and those projects and businesses we may seek to acquire, or construct will require substantial capital investment. Our continued access to capital on acceptable terms is necessary for the success of our growth strategy. Our attempts to obtain future financings may not be successful or on favorable terms**.**

Market conditions and other factors may not permit future project and acquisition financings on terms similar to those our subsidiaries have previously received. Our ability to arrange for financing on a substantially non-recourse or limited recourse basis, and the costs of such financing, are dependent on numerous factors, including general economic conditions, conditions in the global capital and credit markets, investor confidence, the continued success of current power plants, the credit quality of the power plants being financed, the political situation in the country where the power plant is located, and the continued existence of tax and securities laws which are conducive to raising capital. If we are not able to obtain financing for our power plants on a substantially non-recourse or limited recourse basis, we may have to finance them using recourse capital such as direct equity investments or the incurrence of additional debt by us.

Also, in the absence of favorable financing options, we may decide not to build new plants or acquire facilities from third parties. Any of these alternatives could have a material adverse effect on our growth prospects.

We may also need additional financing to implement our strategic plan. For example, our cash flow from operations and existing liquidity facilities may not be adequate to finance any acquisitions we may want to pursue or new technologies we may want to develop or acquire. Financing for acquisitions or technology development activities may not be available on the non-recourse or limited recourse basis we have historically used for our business, or on other terms we find acceptable.

Table of Contents

Our foreign power plants and foreign manufacturing operations expose us to risks related to fluctuations in currency rates, which may reduce our profits from such power plants and operations.

Risks attributable to fluctuations in currency exchange rates can arise when any of our foreign subsidiaries incur operating or other expenses in one type of currency but receive revenues in another. In such cases, an adverse change in exchange rates can reduce such subsidiary's ability to meet its debt service obligations, reduce the amount of cash and income we receive from such foreign subsidiary or increase such subsidiary's overall expenses. In addition, the imposition by foreign governments of restrictions on the transfer of foreign currency abroad, or restrictions on the conversion of local currency into foreign currency, would have an adverse effect on the operations of our foreign power plants and foreign manufacturing operations, and may limit or diminish the amount of cash and income that we receive from such foreign power plants and operations.

A significant portion of our electricity revenues is attributed to payments made by power purchasers under PPAs. The failure of any such power purchaser to perform its obligations under the relevant PPA or the loss of a PPA due to a default would reduce our net income and could materially and adversely affect our business, financial condition, future results and cash flow.

A significant portion of our revenues is attributable to electricity our power plants sell to power purchasers under the relevant PPAs. There is a risk that any one or more of the power purchasers may not fulfill their respective payment obligations under their PPAs. If any of the power purchasers fails to meet its payment obligations under its PPA(s), such failure could materially and adversely affect our business, financial condition, future results and cash flow.

Our power plants have generally been financed through a combination of our corporate funds and limited or non-recourse project finance debt and lease financing. If our project subsidiaries default on their obligations under such limited or non-recourse debt or lease financing, we may be required to make certain payments to the relevant debt holders, and if the collateral supporting such leveraged financing structures is foreclosed upon, we may lose certain of our power plants.

Our power plants have generally been financed using a combination of our corporate funds and limited or non-recourse project finance debt or lease financing. Limited recourse project finance debt refers to our additional agreement, as part of the financing of a power plant, to provide limited financial support for the power plant subsidiary in the form of limited guarantees, indemnities, capital contributions and agreements to pay certain debt service deficiencies. Non-recourse project finance debt or lease financing refers to financing arrangements that are repaid solely from the power plant's revenues and are secured by the power plant's physical assets, major contracts, cash accounts and, in many cases, our ownership interest in the project subsidiary. If our project subsidiaries default on their obligations under the relevant debt documents, creditors of a limited recourse project financing will have direct recourse to us, to the extent of our limited recourse obligations, which may require us to use distributions received by us from other power plants, as well as other sources of cash available to us, in order to satisfy such

obligations. In addition, if our project subsidiaries default on their obligations under the relevant debt documents (or a default under such debt documents arises as a result of a cross-default to the debt documents of some of our other power plants) and the creditors foreclose on the relevant collateral, we may lose our ownership interest in the relevant project subsidiary or our project subsidiary owning the power plant would only retain an interest in the physical assets, if any, remaining after all debts and obligations were paid in full.

Possible fluctuations in the cost of construction, raw materials, commodities and drilling may materially and adversely affect our business, financial condition, future results, and cash flow.

Our manufacturing operations are dependent on the supply of various raw materials, including primarily steel and aluminum, commodities and industrial equipment components that we use. We currently obtain all such raw materials, commodities and equipment at prevailing market prices. We are not dependent on any one supplier and do not have any long-term agreements with any of our suppliers. Future cost increases of such raw materials, commodities and equipment, to the extent not otherwise passed along to our customers, could adversely affect our profit margins.

Table of Contents

Risks Related to Force Majeure

The existence of a prolonged force majeure event or a forced outage affecting a power plant, or the transmission systems could reduce our net income and materially and adversely affect our business, financial condition, future results and cash flow.

The operation of our subsidiaries' geothermal power plants is subject to a variety of risks discussed elsewhere in these risk factors, including events such as fires, explosions, earthquakes, landslides, floods, severe storms, volcanic eruptions, lava flow or other similar events. If a power plant experiences an occurrence resulting in a force majeure event, although our subsidiary that owns that power plant would be excused from its obligations under the relevant PPA the relevant power purchaser may not be required to make any capacity and/or energy payments with respect to the affected power plant for as long as the force majeure event continues and, pursuant to certain of our PPAs, will have the right to prematurely terminate the PPA. Additionally, to the extent that a forced outage has occurred, and if as a result the power plant fails to attain certain performance requirements under certain of our PPAs, the power purchaser may have the right to permanently reduce the contract capacity (and correspondingly, the amount of capacity payments due pursuant to such agreements in the future), seek refunds of certain past capacity payments, and/or prematurely terminate the PPA. As a consequence, we may not receive any net revenues from the affected power plant other than the proceeds from any business interruption insurance that applies to the force majeure event or forced outage after the relevant waiting period and may incur significant liabilities in respect of past amounts required to be refunded.

Threats of terrorism and catastrophic events that could result from, cyber-attacks, or individuals and/or groups attempting to disrupt our business, or the businesses of third parties, may impact our operations in unpredictable ways and could adversely affect our business, financial condition, future results and cash flow.

We are subject to the potentially adverse operating and financial effects of terrorist acts and threats, as well as cyber-attacks, including, among others, malware, viruses and attachments to e-mails, and other disruptive activities of individuals or groups. Our generation and transmission facilities, information technology systems and other infrastructure facilities, systems and physical assets, including our Viridity business's VPower™ software platform, could be directly or indirectly affected by such activities.

We operate in a highly regulated industry that requires the continued operation of sophisticated information technology systems and network infrastructure. Despite our implementation of security measures, all of our technology systems (and any programs or data stored thereon or therein) are vulnerable to security breaches, failures, data leakage or unauthorized access due to such activities. Those breaches and events may result from acts of our employees, contractors or third parties. If our technology systems were to fail or be breached and we were unable to recover in a timely way, we would be unable to fulfill critical business functions, and sensitive confidential and other data could be compromised, which could adversely affect our business, financial condition, future results and cash

flow.

The implementation of security guidelines and measures and maintenance of insurance, to the extent available, addressing such activities could increase costs. These types of events could adversely affect our business, financial condition, future results and cash flow. In addition, such events could require significant management attention and resources and could adversely affect our reputation among customers and the public.

A disruption of transmission or the transmission infrastructure facilities of third parties could negatively impact our business. Because generation and transmission systems are part of an interconnected system, we face the risk of possible loss of business due to a disruption caused by the impact of an event on the interconnected system within our systems or within a neighboring system. Any such disruption could adversely affect our business, financial condition, future results and cash flow.

U.S. federal income tax reform could adversely affect us.

On December 22, 2017, U.S. federal tax legislation, commonly referred to as the Tax Act was signed into law, significantly reforming the U.S. Internal Revenue Code. The Tax Act, among other things, reduces the U.S. federal corporate tax rate from the previous top marginal rate of 35% to a flat rate of 21%, imposes significant additional limitations on the deductibility of interest, allows for the expensing of capital expenditures, puts into effect the migration from a “worldwide” system of taxation to a territorial system and modifies or repeals many business deductions and credits, including the treatment of net operating losses.

Table of Contents

Under the Tax Act, the deductibility of "net interest" for a business is limited to 30% of adjusted taxable income. The new proposed regulations issued by Treasury applies regardless of whether the interest payment is made to a US or foreign person, whether the interest recipient is related, or whether the interest recipient is exempt from US tax. Further, any interest that cannot be deducted in a year can be carried forward indefinitely. The Company has not early adopted these proposed regulations and intends to adopt during the 2019 tax year. For the year ended December 31, 2018, we have evaluated the impact and determined there is no limit on our interest deductibility for federal income tax purposes for the current period, but anticipates there could be significant limitations upon adoption.

We continue to examine the impact the Tax Act may have on our business. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the Tax Act is uncertain, and our business, financial condition, future results and cash flow, as well as our stock price, could be adversely affected.

Risks Related to Our Stock

A substantial percentage of our common stock is held by stockholders whose interests may conflict with the interests of our other stockholders.

On July 26, 2017, ORIX purchased approximately 22% of our shares of common stock outstanding. Pursuant to the Governance Agreement between the Company and ORIX entered into in connection with this stock purchase transaction, ORIX has the right to designate three directors to our Board for as long as ORIX and its affiliates collectively hold at least 18% of the voting power of all of the outstanding voting securities of the Company as well as the right to representation on certain committees of our Board. ORIX may also exercise certain registration rights pursuant to the Registration Rights Agreement between the Company and ORIX.

As a result of these rights and ORIX's beneficial ownership of our common stock, ORIX could exert influence through its Board representation on the business, operations and management of the Company and its subsidiaries, including our strategic plans, or, as a significant stockholder, on matters submitted to a vote of our stockholders, including mergers, consolidations and the sale of all or substantially all of our assets. This concentration of ownership of our common stock could delay or prevent proxy contests, mergers, tender offers, or other purchases of our common stock that might otherwise give our stockholders the opportunity to realize a premium over the then-prevailing market price for our shares. If ORIX exercises its registration rights to require the Company to register for sale the common stock held by ORIX or ORIX otherwise sells its common stock in the public markets, the price of our common stock may decline. This concentration of ownership may also adversely affect the liquidity of our common stock.

The price of our common stock may fluctuate substantially, and your investment may decline in value.

The market price of our common stock may be highly volatile and may fluctuate substantially due to many factors, including:

- actual or anticipated fluctuations in our results of operations including as a result of seasonal variations in our Electricity segment-based revenues or variations from year-to-year in our Product segment-based revenues;
- variance in our financial performance from the expectations of market analysts;
- conditions and trends in the end markets we serve, and changes in the estimation of the size and growth rate of these markets;
- our ability to integrate acquisitions;

Table of Contents

announcements of significant contracts by us or our competitors;

changes in our pricing policies or the pricing policies of our competitors;

restatements of historical financial results and changes in financial forecasts;

loss of one or more of our significant customers;

legislation;

changes in market valuation or earnings of our competitors;

the trading volume of our common stock;

the trading of our common stock on multiple trading markets, which takes place in different currencies and at different times; and

general economic conditions.

In addition, the stock market in general, and the NYSE and the market for energy companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of particular companies affected. These broad market and industry factors may materially harm the market price of our common stock, regardless of our operating performance. In the past, following periods of volatility in the market price of a company's securities, securities class-action litigation has often been instituted against that company. Such litigation, if instituted against us, such as the recent class action filed on June 2018 by Mac Costas and discussed elsewhere in this report, could result in substantial costs and a diversion of management's attention and resources, which could materially harm our business, financial condition, future results and cash flow.

Table of Contents

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We currently lease corporate offices at 6140 Plumas street Reno, Nevada 89519 to which we moved in the second quarter of 2018. We also occupy an approximately 807,000 square foot office and manufacturing facility located in the Industrial Park of Yavne, Israel, which we lease from the Israel Land Administration. See Item 13 — "Certain Relationships and Related Transactions". We also lease small offices in each of the countries in which we operate.

We believe that our current offices and manufacturing facilities will be adequate for our operations as currently conducted.

Each of our power plants is located on property leased or owned by us or one of our subsidiaries or is a property that is subject to a concession agreement.

Information and descriptions of our plants and properties are included in Item 1 — "Business", of this annual report.

ITEM 3. LEGAL PROCEEDINGS

The information required with respect to this item can be found under "Commitments and Contingencies" in Note 22 of notes to the consolidated financial statements contained in this annual report and is incorporated by reference into this Item 8.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

94

Table of Contents

PART II

ITEM 5. ***MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES***

Our common stock has traded on the NYSE under the symbol "ORA" since November 11, 2004. Prior to November 11, 2004, there was no public market for our common stock. Effective on February 10, 2015, our common stock also began trading on the TASE under the same symbol.

As of February 26, 2019, there were 16 record holders of our common stock. On February 26, 2019, the closing price of our common stock as reported on the NYSE was $56.72 per share.

Dividends

We have adopted a dividend policy pursuant to which we currently expect to distribute at least 20% of our annual profits available for distribution by way of quarterly dividends. In determining whether there are profits available for distribution, our Board will take into account our business plan and current and expected obligations, and no distribution will be made that in the judgment of our Board would prevent us from meeting such business plan or obligations.

Date Declared	Dividend Amount per Share	Record Date	Payment Date
February 28, 2017	$ 0.17	March 15, 2017	March 29, 2017
May 8, 2017	$ 0.08	May 22, 2017	May 31, 2017
August 3, 2017	$ 0.08	August 15, 2017	August 29, 2017
November 7, 2017	$ 0.08	November 21, 2017	December 5, 2017
March 1, 2018	$ 0.23	March 14, 2018	March 29, 2018

May 7, 2018	$ 0.10	May 21, 2018	May 30, 2018
August 7, 2018	$ 0.10	August 21, 2018	August 29, 2018
November 6, 2018	$ 0.10	November 20, 2018	December 4, 2018
February 26, 2019	$ 0.11	March 14, 2019	March 28, 2019

	First Quarter 2017	**Second Quarter 2017**	**Third Quarter 2017**	**Fourth Quarter 2017**	**First Quarter 2018**	**Second Quarter 2018**	**Third Quarter 2018**	**Fourth Quarter 2018**	**January 1 to February 26, 2019**
High	$ 59.63	$ 61.49	$ 63.56	$ 65.55	$ 70.08	$ 59.8	$ 57.82	$ 56.72	$ 58.0
Low:	$ 51.44	$ 55.73							