

DIS Case Number: 16-0699-EL-CRS

Section A: Application Information

A-1. Provider type:

☒ Power Broker
 ☒ Aggregator
 ☐ Retail Generation Provider
 ☒ Power Marketer

A-2. Applicant's legal name and contact information.

Legal Name: IDT Energy, Inc
Phone: 9734383500 **Extension (if applicable):**
Website (if any): www.idtenergy.com
Country: United States
Street: 520 Broad Street
City: Newark **Province/State:** NJ
Postal Code: 7102

A-3. Names and contact information under which the applicant will do business in Ohio

Provide the names and contact information the business entity will use for business in Ohio. This does not have to be an Ohio address and may be the same contact information given in A-2.

Name	Type	Address	Active?	Proof
IDT Energy, Inc.	Official Name	520 Broad Street Newark, NJ 07102	Yes	File

A-4. Names under which the applicant does business in North America

Provide all business names the applicant uses in North America, including the names provided in A-2 and A-3.

Name	Type	Address	Active?	Proof
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A-5. Contact person for regulatory matters

Avi Keilson
 520 Broad Street 4th Floor



Public Utilities Commission

Newark, NJ 07102

US

akeilson@genieretail.com

9734383920

A-6. Contact person for PUCO Staff use in investigating consumer complaints

CONSUMER COMPLAINT-IDT Energy

520 Broad Street

Newark, NJ 07102

US

regulatory@genieretail.com

9734383500

A-7. Applicant's address and toll-free number for customer service and complaints

Phone: 877-887-
6866

**Extension (if
applicable):**

Country: United States

Fax: 888-859-
9184

Extension (if applicable):

Street: PO Box 400

Email: contactus@idtenergy.com

City: Jamestown

Province/State: NY

Postal Code: 14702

A-8. Applicant's federal employer identification number

13-4285619

A-9. Applicant's form of ownership

Form of ownership: Corporation

A-10. Identify current or proposed service areas

Identify each service area in which the applicant is currently providing service or intends to provide service and identify each customer class that the applicant is currently serving or intends to serve.

Service area selection

Duke Energy Ohio

FirstEnergy - Cleveland Electric Illuminating

FirstEnergy - Ohio Edison



Public Utilities Commission

FirstEnergy - Toledo Edison
AES Ohio
American Electric Power (AEP)

Class of customer selection

Commercial
Industrial
Residential

A-11. Start date

Indicate the approximate start date the applicant began/will begin offering services: 05-05-2016

A-12. Principal officers, directors, and partners

Please provide all contacts that should be listed as an officer, director or partner.

Name	Email	Title	Address
Avi Goldin	agoldin@genie.com	CFO	520 Broad St Newark, NJ 07102 US
Alan Schwab	aschwab@genieretail.com	President & COO	520 Broad Street Newark, NJ 07102 US
Joyce Mason	jmason@genie.com	Secretary	520 Broad Street Newark, NJ 07102 US
Michael Stein	mstein@genie.com	CEO	520 Broad Street Newark, NJ 07102 US

A-13. Company history

IDT Energy, Inc. supplies electricity and/or natural gas to residential and commercial customers in six states and the District of Columbia. IDT Energy, Inc. entered the retail energy supply industry when it acquired an existing supplier, North American Energy, Inc., in 2005.

A-14. Secretary of State



Section B: Applicant Managerial Capability and Experience

B-1. Jurisdiction of operations

List all jurisdictions in which the applicant or any affiliated interest of the applicant is certified, licensed, registered or otherwise authorized to provide retail natural gas service or retail/wholesale electric service as of the date of filing the application..

File Attached

B-2. Experience and plans

Describe the applicant's experience in providing the service(s) for which it is applying (e.g., number and type of customers served, utility service areas, amount of load, etc.). Include the plan for contracting with customers, providing contracted services, providing billing statements and responding to customer inquiries and complaints in accordance with Commission rules adopted pursuant to Sections 4928.10 and/or 4929.22 of the Ohio Revised Code.

File(s) attached

B-3. Disclosure of liabilities and investigations

For the applicant, affiliate, predecessor of the applicant, or any principal officer of the applicant, describe all existing, pending or past rulings, judgments, findings, contingent liabilities, revocation of authority, regulatory investigations, judicial actions, or other formal or informal notices of violations, or any other matter related to competitive services in Ohio or equivalent services in another jurisdiction..

File Attached

B-4. Disclosure of consumer protection violations

Has the applicant, affiliate, predecessor of the applicant, or any principal officer of the applicant been convicted or held liable for fraud or for violation of any consumer protection or antitrust laws within the past five years?

No

B-5. Disclosure of certification, denial, curtailment, suspension or revocation

Has the applicant, affiliate, or a predecessor of the applicant had any certification, license, or application to provide retail natural gas or retail/wholesale electric service denied, curtailed, suspended, revoked, or cancelled or been terminated or suspended from any of Ohio's Natural Gas or Electric Utility's Choice programs within the past two years?

No

B-6. Environmental disclosures

Provide a detailed description of how the applicant intends to determine its generation resource mix and environmental characteristics, including air emissions and radioactive waste. Include the annual projection methodology and the proposed approach to compiling the quarterly actual environmental disclosure data. See 4901:1-21-09 of the Ohio Administrative Code for additional details of this requirement.

PJM disclosure option chosen

Section C: Applicant Financial Capability and Experience

C-1. Financial reporting

Provide a current link to the most recent Form 10-K filed with the Securities and Exchange Commission (SEC) or upload the form. If the applicant does not have a Form 10-K, submit the parent company's Form 10-K. If neither the applicant nor its parent is required to file Form 10-K, state that the applicant is not required to make such filings with the SEC and provide an explanation as to why it is not required.

File(s) attached

C-2. Financial statements

Provide copies of the applicant's two most recent years of audited financial statements, including a balance sheet, income statement, and cash flow statement. If audited financial statements are not available, provide officer certified financial statements. If the applicant has not been in business long enough to satisfy this requirement, provide audited or officer certified financial statements covering the life of the business. If the applicant does not have a balance sheet, income statement, and cash flow statement, the applicant may provide a copy



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of its two most recent years of tax returns with **social security numbers and bank account numbers redacted**.

If the applicant is unable to meet the requirement for two years of financial statements, the Staff reviewer may request additional financial information.

Links to Financial Statement(s): IDT Energy, Inc., does not have its own audited financials. All of its financial information is consolidated into the financial statements of its publicly-traded ultimate parent company, Genie Energy Ltd., which can be accessed at <https://genie.com/investors/sec-filings/>.

C-3. Forecasted financial statements

Provide two years of forecasted income statements **based solely on the applicant's anticipated business activities in the state of Ohio**.

Include the following information with the forecast: a list of assumptions used to generate the forecast; a statement indicating that the forecast is based solely on Ohio business activities only; and the name, address, email address, and telephone number of the preparer of the forecast.

The forecast may be in one of two acceptable formats: 1) an annual format that includes the current year and the two years succeeding the current year; or 2) a monthly format showing 24 consecutive months following the month of filing this application broken down into two 12-month periods with totals for revenues, expenses, and projected net incomes for both periods. Please show revenues, expenses, and net income (revenues minus total expenses) that is expected to be earned and incurred in **business activities only in the state of Ohio** for those periods.

If the applicant is filing for both an electric certificate and a natural gas certificate, please provide a separate and distinct forecast for revenues and expenses representing Ohio electric business activities in the application for the electric certificate and another forecast representing Ohio natural gas business activities in the application for the natural gas certificate.

Preferred to file confidentially

C-4. Credit rating

Provide a credit opinion disclosing the applicant's credit rating as reported by at least one of the following ratings agencies: Moody's Investors Service, Standard & Poor's Financial Services, Fitch Ratings or the National Association of Insurance Commissioners. If the applicant does not



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have its own credit ratings, substitute the credit ratings of a parent or an affiliate organization and submit a statement signed by a principal officer of the applicant's parent or affiliate organization that guarantees the obligations of the applicant. If an applicant or its parent does not have such a credit rating, enter 'Not Rated'.

This does not apply

C-5. Credit report

Provide a copy of the applicant's credit report from Experian, Equifax, TransUnion, Dun and Bradstreet or a similar credit reporting organization. If the applicant is a newly formed entity with no credit report, then provide a personal credit report for the principal owner of the entity seeking certification. At a minimum, the credit report must show summary information and an overall credit score. **Bank/credit account numbers and highly sensitive identification information must be redacted.** If the applicant provides an acceptable credit rating(s) in response to C-4, then the applicant may select 'This does not apply' and provide a response in the box below stating that a credit rating(s) was provided in response to C-4.

Preferred to file this information confidentially

C-6. Bankruptcy information

Within the previous 24 months, have any of the following filed for reorganization, protection from creditors or any other form of bankruptcy?

- Applicant
- Parent company of the applicant
- Affiliate company that guarantees the financial obligations of the applicant
- Any owner or officer of the applicant

No

C-7. Merger information

Is the applicant currently involved in any dissolution, merger or acquisition activity, or otherwise participated in such activities within the previous 24 months?

No

C-8. Corporate structure



Provide a graphical depiction of the applicant's corporate structure. Do not provide an internal organizational chart. The graphical depiction should include all parent holding companies, subsidiaries and affiliates as well as a list of all affiliate and subsidiary companies that supply retail or wholesale electricity or natural gas to customers in North America. If the applicant is a stand-alone entity, then no graphical depiction is required, and the applicant may respond by stating that it is a stand-alone entity with no affiliate or subsidiary companies.

File(s) attached

C-9. Financial arrangements

Provide copies of the applicant's financial arrangements to satisfy collateral requirements to conduct retail electric/natural gas business activities (e.g., parental guarantees, letters of credit, contractual arrangements, etc., as described below).

Renewal applicants may provide a current statement from an Ohio local distribution utility (LDU) that shows that the applicant meets the LDU's collateral requirements. The statement or letter must be on the utility's letterhead and dated within a 30-day period of the date the applicant files its renewal application.

First-time applicants or applicants whose certificate has expired must meet the requirements of C-9 in one of the following ways:

1. The applicant itself states that it is investment grade rated by Moody's Investors Service, Standard & Poor's Financial Services, or Fitch Ratings and provides evidence of rating from the rating agencies. If you provided a credit rating in C-4, reference the credit rating in the statement.
2. The applicant's parent company is investment grade rated (by Moody's, Standard & Poor's, or Fitch) and guarantees the financial obligations of the applicant to the LDU(s). Provide a copy of the most recent credit opinion from Moody's, Standard & Poor's or Fitch.
3. The applicant's parent company is not investment grade rated by Moody's, Standard & Poor's or Fitch but has substantial financial wherewithal **in the opinion of the Staff reviewer** to guarantee the financial obligations of the applicant to the LDU(s). The parent company's financials and a copy of the parental guarantee must be included in the application if the applicant is relying on this option.
4. The applicant can provide evidence of posting a letter of credit with the LDU(s) listed as the beneficiary, in an amount sufficient to satisfy the collateral requirements of the LDU(s).

File(s) attached



Section D: Applicant Technical Capacity

D-1. Operations

Power Marketers/Generators: Describe the operational nature of the applicant's business, specifying whether operations will include the generation of power for retail sales, the scheduling of retail power for transmission and delivery, the provision of retail ancillary services, as well as other services used to arrange for the purchase and delivery of electricity to retail customers.

File(s) attached

D-2. Operations Expertise & Key Technical Personnel

Given the operational nature of the applicant's business, provide evidence of the applicant's experience and technical expertise in performing such operations. Include the names, titles, e-mail addresses, and background of key personnel involved in the operations of the applicant's business.

File(s) attached

D-3. FERC Power Marketer and License Number

Provide a statement disclosing the applicants FERC Power Marketer License Number (Power Marketers Only).

ER11-4602-000



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Application Attachments

Exhibit B-2 "Experience & Plans"

The applicant, IDT Energy, Inc. ("IDT Energy"), has been an active retail energy supplier since 2005, and currently serves tens of thousands of electric and natural gas meters in six states and the District of Columbia. IDT Energy leverages the considerable experience of its executive leadership team and its dedicated back-office operations staff as it develops its brand.

IDT Energy plans to continue marketing its products to Ohio customers through a variety of channels including direct mail, internet advertising, and the use of in-house and outside telemarketing and door-to-door marketing teams. Outside marketing vendors are cautiously selected after a substantial vetting process. The individual sales agents hired by the vendors for door-to-door marketing are subjected to criminal background checks. All sales agents are required to be properly trained before they are permitted to participate in any marketing campaigns on behalf of the applicant. Lists for telemarketing campaigns are appropriately scrubbed against the "do-not-call" registry. Marketing activities of all outside vendors are monitored by an in-house Quality Assurance team and an inspector in the field.

Misrepresentations or deceptive communications of IDT Energy's products and offers, or any similar violations of the Commission's rules, are not tolerated.

The enrollment of Ohio customers is done in accordance with the rules set forth in 4901:1-21-06. Door-to-door sales are validated by third-party verifications made after the sales agent leaves the premises of the customer. Telephonic enrollments are also validated by third-party verifications and the written terms and conditions are sent to the customer thereafter. IDT Energy's website is set up to accept internet enrollments as well.

With respect to customer billing, IDT Energy does not bill its customers directly. Rather, customers are billed by their local utility companies, pursuant to Commission-approved tariffs, for both the utility's delivery charges and IDT Energy's supply charges. EDI communications between IDT Energy and the utilities are handled by outside, experienced EDI providers.

With respect to customer inquiries and complaints, IDT Energy has competent staff based in its satellite facility in Jamestown, New York. There are currently more than thirty representatives on staff, and they take calls from 9:00 am to 5:00 pm five days per week. There are representatives on staff who are fluent in Spanish. Every effort is made to resolve all customer complaints in the most expeditious and amicable manner.

Exhibit B-1 “Jurisdictions of Operations”

IDT Energy, Inc.

District of Columbia, Illinois, Maryland, New Jersey, New York, Ohio, Pennsylvania

Residents Energy, LLC

Connecticut, Delaware, Illinois, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania

Town Square Energy East, LLC

Maryland, New Jersey, Ohio, Pennsylvania

Town Square Energy, LLC

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Texas

Diversegy, LLC

New Jersey, Pennsylvania, Massachusetts, Maine, Maryland, Illinois, Ohio, Delaware, District of Columbia, New Hampshire, Rhode Island, Virginia, Texas

IDT Energy Network, LLC

District of Columbia

Southern Federal Power, LLC

Texas

Mirabito Natural Gas, LLC

Florida

Disclosure of Liabilities and Investigations

IDT Energy, Inc. (“IDTE”) and its affiliates have been, or are currently, involved in the following matters:

People of the State of Illinois vs. IDT Energy, Inc. – Docket No. 2018 CH 14380

On November 19, 2018, the Office of the Attorney General of the State of Illinois filed a complaint against IDTE alleging violations of the Consumer Fraud and Deceptive Business Practices Act, 815 ILCS 505/1 *et seq.* and the Illinois Telephone Solicitations Act, 815 ILCS 413/1 *et seq.* Although IDTE denied any wrongdoing in connection with those allegations, the parties negotiated a settlement that was memorialized in a Consent Decree entered in the Circuit Court of Cook County on June 18, 2019.

The Consent Decree called for IDTE to refrain from marketing to residential electric customers in Illinois until December 1, 2020, to refund a total of \$3,000,000.00 to its current and former residential customers in Illinois, to make a voluntary contribution of \$50,000.00 to the Attorney General Court Ordered and Voluntary Compliance Payment Projects Fund, and to provide quarterly compliance reports to the Attorney General’s office for three years following the resumption of marketing in Illinois.

In the Matter of IDT ENERGY, INC. – NJ BPU Docket No. EO17080888U

In October 2015, the New Jersey Board of Public Utilities and the New Jersey Department of Law and Public Safety, Division of Consumer Affairs, commenced an investigation into IDTE’s activities in New Jersey. Although no formal complaint was ever filed, in May 2018, IDTE entered into a consent order with the investigating authorities, without any admission of wrongdoing. IDTE agreed to make certain modifications to its business practices and to make the following payments: \$1,225,722.21 in restitution payments to its New Jersey customers, \$100,000 in civil penalties and \$38,775 in reimbursement of the State’s attorneys’ fees and costs.

Illinois Commerce Commission vs. IDT Energy, Inc. – Docket No. 21-0788

On November 4, 2021, the Illinois Commerce Commission issued an Order Initiating Proceeding seeking to impose a penalty of \$19,500 against IDTE for failure to file several compliance reports in 2020 and 2021. IDTE filed all of the delinquent reports within 30 days. The parties agreed to settle the matter for a one-time payment of \$6,000.

Pennsylvania Public Utility Commission (“PaPUC”) Bureau of Investigation & Enforcement (I&E) vs. Residents Energy, LLC - Docket No. M-2017-2511372

In September 2015, a customer filed an informal complaint with the PaPUC alleging that his account was “slammed” by a sales agent working for a third-party contractor hired by Residents Energy, LLC, and affiliate of IDTE. After conducting an internal investigation, Residents Energy instructed the third-party contractor to prohibit the agent from participating in any future marketing

activities on its behalf and issued a refund to the effected customer. Rather than file a formal complaint against Residents Energy for the alleged slamming violation, I&E entered into a settlement agreement with Residents Energy calling for Residents Energy to pay a civil penalty of \$6,000.00, make an additional refund to the customer, and file quarterly reports with the Bureau of Technical Utility Services, for one year, regarding any customer complaints filed against it. The settlement agreement was approved by the PaPUC in an order issued on July 12, 2018.

People of the State of Illinois vs. Residents Energy, LLC – Docket No. 2019 CH 14720

On October 25, 2019, the Office of the Attorney General of the State of Illinois (“OAG”) issued a *Subpoena Duces Tecum* to Residents Energy, containing a Request for Documents and Interrogatories pertaining to Residents Energy’s services in Illinois. Residents Energy produced materials in response to the subpoena, but the OAG has petitioned the court to compel further production.

PURA Docket No. 19-08-21 – Investigation into Residents Energy, LLC

On March 26, 2021, the Office of Education, Outreach and Enforcement of the Connecticut Public Utilities Regulatory Authority (“PURA”) issued a Notice of Violation and Assessment of Civil Penalty against Residents Energy alleging, amongst other things, that Residents Energy had conducted door-to-door marketing in Connecticut at a time when it was prohibited to do so because of the pandemic. Residents Energy contested the allegations. The parties, including the Office of Consumer Counsel, entered into settlement negotiations which resulted in the execution of a settlement agreement that was approved by PURA on June 22, 2021. The settlement agreement called for Residents Energy to make a voluntary payment of \$300,000 to a social services organization named Operation Fuel, and to voluntarily withdraw from the Connecticut electric supplier market for a period of 36 months.

Illinois Commerce Commission vs. Residents Energy, LLC – Docket No. 21-0794

On November 4, 2021, the Illinois Commerce Commission issued an Order Initiating Proceeding seeking to impose a penalty of \$12,000 against Residents Energy for failure to file several compliance reports in 2020 and 2021. Residents Energy filed all the delinquent reports within 30 days. The parties agreed to settle the matter for a one-time payment of \$6,000.

In the Matter of TOWN SQUARE ENERGY EAST, LLC – PUCO Case No. 18-1785-EL-UNC

Staff of the Public Utility Commission of Ohio (“PUCO”) opened an investigation into Town Square Energy East, LLC (“TSEE”), an affiliate of IDTE, in connection with its “table-top” marketing practices. After a brief investigation, TSEE and the PUCO Staff entered into a settlement agreement which was approved by the PUCO Commissioners on February 27, 2019. Under the terms of the agreement, TSEE paid a forfeiture of \$150,000 to the State of Ohio. In addition, TSEE agreed to work with the PUCO and take steps to ensure full compliance with PUCO rules and orders, including updating customers, providing the PUCO with updated information, and submitting quarterly reports for a one-year period.

PURA Docket No. 10-03-11RE03 – Investigation into Town Square Energy, LLC

On September 19, 2018, the Connecticut Public Utilities Regulatory Authority (“PURA”) commenced an investigation into Town Square Energy, LLC (“TSE”), an affiliate of IDTE, in light of customer complaints alleging misleading and deceptive sales practices by TSE’s sales representatives. The Office of Consumer Counsel joined in the investigation. The parties, and the Office of the Attorney General, entered into settlement discussions which ultimately resulted in the execution of an Assurance of Voluntary Compliance (“AVC”). The AVC, which was approved by the Commissioner of the Department of Consumer Protection on July 28, 2021, called for TSE to, (i) voluntarily cease all in-person marketing in Connecticut for a period of 15 months, (ii) make a voluntary payment of \$400,000 to a Connecticut social services organization named Operation Fuel, and (iii) file quarterly reports, for a period of two years, either certifying that no violations of law, regulation or policy had been committed by TSE or listing all such violations committed.

MPUC Docket No. 2017-00144 – Town Square Energy, LLC

On August 4, 2020, the Maine Public Utility Commission (“MPUC”) issued an Order to Show Cause to TSE in response to customer complaints about TSE’s door-to-door marketing activities in Maine. TSE responded to the Order to Show Cause in a timely manner. The parties then entered into settlement negotiations and executed a Stipulation of Settlement on August 12, 2021. The Stipulation was approved in an Order issued on September 22, 2021. The Stipulation called for TSE to voluntarily refrain from door-to-door marketing in Maine for a period of twenty-four months commencing as of July 1, 2021 and to refrain from telemarketing to residential customers in Maine for a period of six months.

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

X Annual report pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2021,

or

☐ Transition report pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934.

Commission File Number:1-35327

Genie Energy Ltd.

(Exact name of registrant as specified in its charter)

Delaware

45-2069276

(State or other jurisdiction of incorporation or organization)

(I.R.S. Employer Identification No.)

520 Broad Street, Newark, New Jersey 07102
(Address of principal executive offices, zip code)

(973) 438-3500
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol	Name of each exchange on which registered
Class B common stock, par value \$0.1 per share	GNE	New York Stock Exchange
Series 2012-A Preferred stock, par value \$0.01 per share	GNE-PRA	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 X

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

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 X No ☐

Indicate by check mark whether the registrant has submitted electronically, if any, 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 X No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐

Accelerated filer X

Non-accelerated filer ☐

Smaller reporting company X

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. X

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

The aggregate market value of the voting and non-voting stock held by non-affiliates of the registrant, based on the closing price on June 30, 2021 (the last business day of the registrant's most recently completed second fiscal quarter) of the Class B common stock of \$6.32 per share, as reported on the New York Stock Exchange, was approximately \$119.2 million.

As of March 11, 2022, the registrant had outstanding 24,635,170 shares of Class B common stock and 1,574,326 shares of Class A common stock. Excluded from these numbers are 2,006,471 shares of Class B common stock held in treasury by Genie Energy Ltd.

DOCUMENTS INCORPORATED BY REFERENCE

The definitive proxy statement relating to the registrant's Annual Meeting of Stockholders, to be held May 11, 2022, is incorporated by reference into Part III of this Form 10-K to the extent described therein.

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Genie Energy Ltd.

Annual Report on Form 10-K

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Part I

As used in this Annual Report, unless the context otherwise requires, the terms "the Company," "Genie," "we," "us," and "our" refer to Genie Energy Ltd., a Delaware corporation, and its subsidiaries, collectively.

Item 1. Business.

BUSINESS OVERVIEW

Genie Energy Ltd. is a global provider of energy services. We manage our business and reports results through three segments. Genie Retail Energy ("GRE"), which supplies electricity and natural gas to residential and small business customers in certain portions deregulated markets within the United States. Genie Retail Energy International ("GRE International"), which supplies electricity to residential and small business customers in Scandinavia. Genie Renewables, which includes the following four lines of businesses. Genie Solar Energy ("Genie Solar"), which designs and build local solar installation for commercial size customers, CityCom Solar, which recruits customers to purchase electricity generated by community solar fields, Prism Solar Technologies ("Prism"), which designs and manufactures niche solar panels for wholesale distribution and Diversegy LLC ("Diversegy"), an energy broker for commercial customers.

The Company owns 99.5% of its subsidiary, Genie Energy International Corporation ("GEIC"), which owns 100% of Genie Retail Energy, Inc., 100% of Genie Retail Energy International LLC, and 95.5% of Genie Energy Services, LLC that holds our interest in the entities comprising the Genie Renewables segment. In March 2021, the Company renamed the Genie Energy Services ("GES") segment to Genie Renewables.

GRE owns and operates retail energy providers ("REPs"), including IDT Energy, Inc. ("IDT Energy"), Residents Energy, LLC ("Residents Energy"), Town Square Energy, LLC and Town Square Energy East, LLC ("collectively, "TSE"), Southern Federal Power ("SFP") and Mirabito Natural Gas, ("Mirabito"). GRE's REP businesses resell electricity and natural gas to residential and small business customers. The majority of GRE's REPs' customers are located in the Eastern and Midwestern United States and Texas. Mirabito supplies natural gas to commercial customers in Florida.

GRE International holds the Company's interest in REPs that serve retail customers in Scandinavia. It holds a 90.8% controlling interest in Lumo Energia Oyj ("Lumo Finland"), a REP serving residential customers in Finland and 97.7% of Lumo Energi AB ("Lumo Sweden"), which serves retail customers in Sweden. GRE International previously held a 98.8% interest in Genie Japan that was sold in May 2021. GREI holds a 100% ownership of Orbit Energy Limited ("Orbit"), a REP operating in the United Kingdom ("U.K."). On November 29, 2021, Orbit Energy Limited ("Orbit") was declared insolvent and its customers were transferred to the "supplier of last resort." Effective December 1, 2021, the administration of Orbit has been transferred to third-party Administrators. The Company accounted for the transaction as discontinued operations and the accounts of Orbit were deconsolidated effective December 1, 2021.

Genie Renewables consists of our 100% interest in Genie Solar, a rooftop solar systemsales and general contracting company, our 93.5% interest in CityCom Solar, a marketer of community solar energy solutions, our 60.0% controlling interest in Prism, a solar solutions company that is engaged in U.S based manufacturing of solar panels, solar installation design and solar energy project management and 100% interest in Diversegy, an energy broker for customers.

CORONAVIRUS DISEASE(COVID-19)

Starting in the first quarter of 2020, the world and the United States experienced the unprecedented impacts of the coronavirus disease 2019 (COVID-19) pandemic.

For the years ended December 31, 2021 and 2020, the impacts of COVID-19 were evident in several key aspect of our business operations and the corresponding financial impact has been mixed. Our customers are predominantly residential, so we benefited from the increased demand for electricity as many customers are working from and spending more time in their homes. On the other hand, like other retail energy providers, the Company suspended its face-to-face customer acquisition programs in March 2020 as public health measures were implemented to combat COVID-19, resulting in a decrease in gross meter acquisitions. The reduction in gross meter acquisitions decreased customer acquisition expenses in 2021 and 2020 and limited growth in domestic meters served. Churn in 2021 and 2020 decreased, as our competitors also suspended their face-face marketing programs. COVID-19 public health restrictions relaxed in some of GRE's domestic market in 2021, facilitating a partial reactivation of the previously curtailed customer acquisition channels.

REPORTABLE SEGMENTS

We have three reportable business segments: GRE, GRE International and Genie Renewables. Our reportable segments are distinguished by types of service, customers and customer geography. Financial information by segment and geographic areas is presented in "Note 18 — Business Segment Information" in the Notes to our Consolidated Financial Statements in this Annual Report.

GENERAL BUSINESS INFORMATION

Our main offices are located at 520 Broad Street, Newark, New Jersey 07102. Our telephone number is (973) 438-3500 and our web site is www.genie.com.

We make available free of charge through the investor relations page of our web site (<http://genie.com/investors/sec-filings/>) our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to these reports, and all beneficial ownership reports on Forms 3, 4 and 5 filed by directors, officers and beneficial owners of more than 10% of our equity as soon as reasonably practicable after such material is electronically filed with the Securities and Exchange Commission. We have adopted a Code of Business Conduct and Ethics for all of our employees, including our principal executive officer and principal financial officer. Copies of our Code of Business Conduct and Ethics are available on our web site.

Our web site (<https://genie.com>) and the information contained therein or incorporated therein are not incorporated into this Annual Report on Form 10-K or our other filings with the Securities and Exchange Commission.

KEY EVENTS IN OUR HISTORY

In November 2004, IDT Corporation, or IDT, our former corporate parent, launched a retail energy provider business in New York State under the brand name IDT Energy.

In October 2011, we were spun-off by IDT and became an independent public company listed on the New York Stock Exchange.

In November 2016, GRE purchased Retail Energy Holdings, LLC, which operated REPs under the brand name Town Square Energy.

In August 2017, GRE acquired Mirabito Natural Gas, a commercial supplier located in Florida. The acquisition expanded GRE's serviceable markets into Florida.

In October 2018, Genie acquired a 60.0% interest in Prism, a solar solutions company that is engaged in U.S.-based manufacturing of solar panels, solar installation design and project management.

In January 2019, GRE International acquired an 80.0% interest in Lumo Finland, a provider of electricity to residential customers in Finland with approximately 32,000 residential customers in Finland. In January 2020, GRE International increased its interest in Lumo Finland to 92.5%.

In second quarter of 2020, our Lumo Sweden subsidiary began enrolling customers.

RECENT DEVELOPMENTS

In January and February of 2021, the Company experienced unprecedented price volatility in the Japanese and Texas wholesale energy markets resulting in significant unanticipated operating losses. The Company subsequently suspended payment of a dividend on its Class A common stock and Class B common stock.

In May 2021, the Company completed the sale of its interest in Genie Japan.

In November 2021, the Company exited the energy supply business in the U.K. as part of its continuing strategic realignment.

In February 2022, the Company reinstated the quarterly dividends on its Class B common stock and authorized a buyback program for the Company's preferred stock.

DIVIDENDS

We pay a quarterly dividend on our preferred stock. As announced on March 11, 2021, we suspended our dividends on our Class A and Class B common stock to rebuild our cash position in light of the losses incurred from the effects of Winter Storm Uri as discussed above. However, in February 2022, the Company reinstated the quarterly dividends on our Class A and Class B Common stock.

The aggregate dividend paid in the year ended December 31, 2021 on our Preferred Stock was \$1.5 million, as follows:

- On February 16, 2021, we paid a quarterly Base Dividend of \$0.1594 per share on our Preferred Stock for the fourth quarter of 2020 to stockholders of record at the close of business on February 8, 2021 of our Preferred Stock.
- On May 17, 2021, we paid a quarterly Base Dividend of \$0.1594 per share on the Preferred Stock for the first a quarter of 2021 to stockholders of record at the close of business on April 27, 2021 of our Preferred Stock.
- On August 16, 2021, we paid a quarterly Base Dividend of \$0.1594 per share on the Preferred Stock for the second quarter of 2021 to stockholders of record at the close of business on August 9, 2021 of our Preferred Stock.
- On November 15, 2021, we paid a quarterly Base Dividend of \$0.1594 per share on the Preferred Stock for the third quarter of 2021 to stockholders of record as of the close of business on November 8, 2021.

On December 31, 2021, the Company accrued Additional Dividends of \$0.0848 per share on its Preferred Stock, equal to an aggregate of \$0.2 million. The accrual was made in light of the performance of GRE through December 31, 2021.

On February 15, 2022, we paid a quarterly Base Dividend of \$0.1594 per share on the Preferred Stock for the fourth quarter of 2021 to stockholders of record at the close of business on February 7, 2022 in the aggregate amount of \$0.4 million.

On March 1, 2022, we paid a quarterly dividend of \$0.075 per share on our Class A common stock and Class B Common Stock for the fourth quarter of 2021 to stockholders of record at the close of business on February 22, 2022 with the aggregate amount of \$2.0 million.

BUSINESS

Genie Retail Energy

Overview

GRE is comprised of REPs and related businesses. GRE's REP businesses purchase electricity and/or natural gas on the wholesale markets and resell these commodities to their residential and business customers in deregulated markets in the United States. The positive difference between the net sales price of electricity and natural gas sold to its customers and the cost of their electricity and natural gas supplies and related costs are the REP businesses' gross profits.

GRE's U.S. REP businesses operate in certain utility territories within the deregulated retail energy markets of sixteen states in the United States: Connecticut, Delaware, Georgia, Illinois, Maryland, Michigan, Maine, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Florida, Rhode Island and Texas, as well as in Washington, D.C. As part of our ongoing business development efforts, we evaluate opportunities in other deregulated jurisdictions to accelerate the growth of our customer base and to reduce operational and regulatory risk associated with geographical concentration.

GRE's REP businesses operate under several brand names including IDT Energy, Residents Energy, Town Square Energy, Southern Federal Power and Mirabito. GRE's diverse offerings, in both the electricity and natural gas markets included either variable rate or fixed rate offerings or both. Throughout their markets, GRE's REPs offer green electricity and natural gas. Green electricity supply is matched with renewable energy certificates, or RECs that reflect the generation of electricity from renewable sources. Green natural gas supply is matched with carbon offsets certificates generated mostly from greenhouse emission reduction projects.

Historically, GRE has expanded its REP businesses through organic growth of its REPs adding new customers through customer acquisition programs at a rate faster than customers lost through attrition or churn – as well as through acquisitions of other REPs and books of business. New customers are generally acquired through a combination of marketing and sales channels including door-to-door solicitation, telemarketing, online and digital marketing, direct mail, and by competitive bidding for exclusive contracts awarded by certain municipalities, where authorized by state laws. These municipal aggregation contracts award participating residents' electricity supply to a single supplier at a fixed price that is typically established through a competitive bidding process.

GRE evaluates its customers base both in terms of the numbers of commodity meters served and the number of Residential Customer Equivalents ("RCEs") represented by these meters. An RCE is a unit of measure denoting the typical annual commodity consumption of a single-family residential customer. One RCE represents 1,000 therms of natural gas or 10,000 kWh of electricity.

Customer churn is a significant factor in the REP business. GRE's REPs monthly churn rates average between four and seven percent per month. Customer churn tends to decrease when commodity prices fall, when weather-driven consumption decreases, when the price to REP customers decreases relative to competitors including the incumbent utility provider, or when the REPs incentivize customer tenure. Customer churn tends to increase when commodity prices rise, when weather driven consumption increases or spikes, or when the price to REP customers increases relative to the prices charged by competitors including incumbent utility providers. Newly acquired customers typically have higher rates of churn than longer-tenured customers.

GRE's revenue comprises approximately 85.7% and 85.3% of our total consolidated revenue in 2021 and 2020, respectively. In 2021, GRE generated revenue of \$311.8 million comprised of \$273.0 million from sales of electricity and \$38.8 million from sales of natural gas, as compared with revenue of \$304.5 million in 2020, comprised of \$270.9 million from the sales of electricity, \$33.6 million from the sales of natural gas and a minimal amount of other revenue. GRE's electricity sales as a percentage of total sales have increased in recent years.

GRE's REP revenue is seasonal. Approximately 44.5% and 47.7% of our natural gas revenues in 2021 and 2020, respectively, were generated during the first quarter, when the demand for heating peaks. Although the demand for electricity is not as seasonal as natural gas, approximately 30.3% and 31.8% of total revenues from electricity sales in 2021 and 2020, respectively, were generated in the third quarter when the demand for cooling peaks.

Unusual weather patterns can significantly impact GRE's financial results. For example, a polar vortex resulted in unusually sustained cold weather in the first quarter of 2014. This increased demand was characterized by extraordinarily large spikes in the wholesale prices GRE paid for its electricity and natural gas supplies. As a result, GRE's REP experience abnormally high rates of churn and the Company refunded a significant amount to its variable rate customers to cushion the impacts on their monthly bills.

As discussed above, in February 2021, the Company experienced unprecedented price volatility in Texas markets due to weather conditions which adversely affected our consolidated results of operations.

Potential global climate change may produce, among other possible conditions, unusual variations in temperature and weather patterns, resulting in unusual weather conditions, more intense, frequent and extreme weather events and other natural disasters. Some climatologists believe that these extreme weather events will become more common and more extreme which will have a greater impact on our operations.

As of December 31, 2021, GRE serviced 285,000 meters (210,000 electric and 75,000 natural gas), compared to 370,000 meters (305,000 electric and 65,000 natural gas) as of December 31, 2020.

REP Industry Overview

REPs operate in deregulated retail energy markets in the US. REPs purchase electricity and natural gas on the wholesale markets and resell these commodities to their customers including homeowners, renters and small to mid-sized commercial and governmental operations and institutions. Generally, incumbent local utilities continue to handle electricity and natural gas distribution, billing, and collections. The utilities remit the proceeds collected for the commodity supply portion of their bills less certain fees to the REPs.

REPs generally have no significant fixed assets and low levels of capital expenditure. Their cost of revenue is incurred to purchase electricity and natural gas in their respective wholesale markets and other factors. Selling, general and administrative expenses are primarily related to customer acquisition, customer retention, billing and purchase of receivables, or POR, fees paid to the utilities, and program management.

As of December 31, 2021, there were thirty U.S. states in which there is some level of energy deregulation. We currently market in all the states where residential deregulation covers both electricity and natural gas, and in some states, where residential deregulation covers only one commodity. We are in the process of applying for licenses or setting up operations in certain such states and are constantly evaluating market opportunities in others.

Some competitors in certain REP markets have engaged in unfair business practices in order to recruit new customers. These practices can create an unfavorable impression about our industry with consumers, regulators or political bodies. Further, such practices can lead to regulatory action that negatively impact us and the industry.

Customers; Marketing

The services of GRE's U.S. REPs - IDT Energy, Residents Energy, TSE, SFP and Mirabito - are made available to customers under several offerings with distinct terms and conditions. The offerings include variable rate programs whose prices change month-to-month, fixed contracts whose unit price remains the same for the agreed upon term and renewable contracts. A significant portion of our customer base is enrolled in variable rate products, which enable us to recover our wholesale costs for electricity and natural gas by adjusting the rates we charge to our customers. The frequency and degree of these rate adjustments are determined by GRE. Variable rate products are available to all customers in all states served by GRE's REPs except for Connecticut.

As of December 31, 2021, customers on variable rate products constituted approximately 74.6% of our electric load. The balance comprised customers on fixed rate agreements.

GRE's REPs offer renewable or green energy supply options in all their markets. Renewable electricity supply is 100% matched with renewable energy certificates, or RECs, that reflect the generation of electricity from sources such as hydro-electric wind, solar and biomass.

The electricity and natural gas we sell through all of our offerings are metered and delivered to customers by the local utilities. The utilities also provide billing and collection services for the majority of our customers. For a small number of customers, we perform our own billing and collection.

In many states, GRE's REPs' receivables are purchased by the utilities in their territories for a percentage of their face value. Over the course of 2021, the associated cost was approximately 1.0% of GRE's revenue in exchange, the utility accepts a first priority lien against the customer receivable without recourse to the REP. Programs operating within this framework are preferred to as purchase of receivables, or POR, programs, and they mitigate our credit risk. At December 31, 2021, 80.8% of GRE's net accounts receivables were under a POR program.

Certain utilities in Connecticut, Ohio, New York, Pennsylvania, Illinois, Washington, D.C., Massachusetts and Maryland offer POR programs, without recourse. These programs permit customers with past-due balances to remain in the POR and consolidated bill programs. However, utilities in New Jersey generally do not permit customers with past-due balances beyond 120 days to enroll or remain in their POR programs. After a certain amount of time (determined based on the specific commodity), the REP becomes responsible for the billing and collection of the commodity portion of the future invoices for its delinquent customers. Certain utilities in Delaware, Illinois, New Hampshire, Ohio and Rhode Island do not offer POR, but they do offer consolidated billing. In Florida and Texas, there are no POR programs and the customers are billed directly.

GRE targets markets in which we can procure energy in an efficient and transparent manner. We seek to purchase wholesale energy where there is a real-time market that reflects a fair commodity price for all participants. This allows GRE to reflect a true market cost base and adjust its rates to its variable rate customers taking into account prevailing market rates.

We regularly monitor deregulated or deregulating markets in states where we do not yet operate to determine whether and under what conditions we could operate profitably. We may initiate the licensing process in a selected region to facilitate entry into that region contingent upon favorable deregulatory developments.

Certain of GRE's REPs are party to an Amended and Restated Preferred Supplier Agreement with BP Energy Company, or BP, through November 30, 2023. Under the agreement, the REPs purchase electricity and natural gas at market rate plus a fee. The obligations to BP are secured by a first security interest in deposits or receivables from utilities in connection with their purchase of the REP's customer's receivables, and in any cash deposits or letters of credit posted in connection with any collateral accounts with BP. The ability to purchase electricity and natural gas under this agreement is subject to satisfaction of certain conditions including the maintenance of certain covenants. At December 31, 2021, the Company was in compliance with such covenants.

GRE is required to meet certain minimum green energy supply criteria in many of the markets in which it operates. We meet those thresholds by acquiring renewable energy certificates, or REC's. In addition, GRE offers green or other renewable energy products to its customers in all of the territories in which we operate. GRE acquires green renewable energy conversion rights or attributes and REC's to satisfy the load requirements for these customers.

GRE does not own electrical power generation, transmission, or distribution facilities, or natural gas production, pipeline or distribution facilities. For their natural gas supply, GRE's REPs currently contract with Dominion Transmission, Inc., National Fuel Supply, Williams Gas Pipeline and Texas Eastern Transmission and others for natural gas pipeline, storage and transportation services. For electricity supply, they, utilize the New York Independent System Operator, Inc., or NYISO, and PJM Interconnection, LLC, or PJM, for electric transmission and distribution. NYISO operates the high-voltage electric transmission network in New York State, and administers and monitors New York's wholesale electricity markets. PJM is a regional transmission organization that coordinates the movement of wholesale electricity in all or parts of thirteen states (including New Jersey, Pennsylvania, Maryland and Illinois) and the District of Columbia. In Texas, SFP acquires power through the Electric Reliability Council of Texas (ERCOT).

For risk management purposes, GRE's REPs utilize forward physical delivery contracts for a portion of their purchases of electricity and natural gas, which are defined as commodity derivative contracts. In addition, GRE's REPs enter into put and call options as hedges against unfavorable fluctuations in market prices of electricity and natural gas.

The ISOs perform real-time load balancing for each of the electrical power grids in which GRE REPs operate. Similarly, load balancing is performed by the utilities or local distribution company, or LDC, for each of the natural gas markets in which GRE operates. Load balancing ensures that the amount of electricity and natural gas that GRE's REPs purchase is equal to the amount necessary to service its customers' demands at any specific point in time. GRE's REPs are charged or credited for balancing the electricity and natural gas purchased and sold for their account by their suppliers and the LDCs. GRE's REPs manage the differences between the actual electricity and natural gas demands of their customers and their bulk or block purchases by buying and selling in the spot market, and through monthly cash settlements and/or adjustments to future deliveries in accordance with the load balancing performed by utilities, LDCs, and/or ISOs.

Competition

As an operator of REPs, GRE often competes with the local utility companies in each of the markets in which it provides services and with many other licensed REPs. In some markets, competitor REPs are affiliated with local utilities. GRE also competes with several large vertically integrated energy companies as well as smaller independent operators. Competition with the utilities and REPs impacts GRE's gross margins, customer acquisition rates and exposes GRE to customer churn.

REPs and utilities offering fixed rate products or guaranteed pricing often are unable to change their sell rates offered to customers in response to underlying commodity price volatility. In a downward moving commodity cost environment, variable rate REPs typically become more competitive as they benefit from the lag that utilities experience in reducing their sell rate to reflect the lower commodity costs, and they may benefit from decreases in margin pressure, improvements in the customer acquisition environment, and lower rates of churn. In a rising commodity cost environment, REPs that offer variable rate products, and reflect real-time commodity costs, will typically become less competitive with fixed rate providers, experience increased margin pressure, a more challenging customer acquisition environment and higher rates of customer churn.

Increasing our market share depends in part on our ability to persuade more customers to switch from other providers to one of our REPs at a higher rate than our customers churn to other providers. Moreover, local utilities and some REPs may have certain advantages such as name recognition, financial strength and long-standing relationships with customers. Persuading potential customers to switch to GRE requires significant marketing and sales operations.

Regulation

REPs such as ours must be licensed in each state and utility service territory in which they operate. Each is subject to the rules and regulations governing the operations of REPs in each jurisdiction.

Although the rates charged by GRE's REPs are not regulated in the same way as the rates of utility companies, the manner in which the REPs market to potential customers, and the relationships between the REPs and their customers, are heavily regulated. GRE's REPs must also comply with various quarterly and/or annual reporting requirements in order to maintain their eligibility to provide service. In certain jurisdictions the REPs are required to publish product offers with the applicable regulatory commissions, or in the public domain, generally on a website established for such purpose. In addition to the regulations that govern the relationships between GRE's REPs and their customers, GRE's REPs also maintain specific Terms & Conditions or Terms of Service for each product in each jurisdiction that the parties agree to be bound by.

The Company is party to legal proceedings that arise in the ordinary course of business including those with utility commissions or other government regulatory or law enforcement agencies.

As of December 31, 2021, GRE's REPs operate in Washington D.C., New York, Pennsylvania, New Jersey, Maryland, Illinois, Ohio, Michigan, New Hampshire, Rhode Island, Connecticut, Florida, Massachusetts, Delaware, Maine, Texas and Georgia. The federal government and related public service/utility commissions, among others, establish the rules and regulations for our REP operations

Like all operators of REPs, GRE is affected by the actions of governmental agencies, mostly on the state level, by the respective state Public Service/Utility Commissions, and other organizations (such as NYISO, ERCOT and PJM) and indirectly by the Federal Energy Regulatory Commission, or FERC. Regulations applicable to electricity and natural gas have undergone substantial changes over the past several years as a result of restructuring initiatives at both the state and federal levels. We may be subject to new laws, orders or regulations or the revision or interpretation of existing laws, orders or regulations.

New York Public Service Commission Orders

Effective April 16, 2021, the PSC issued orders adopting changes to the New York retail energy market ("2021 Orders"). The 2021 Orders limits the types of services energy retailer marketers may offer new customers or renewals, in terms of pricing for non-renewable commodities, and renewable product offerings. Although the Company's products and services are fully compatible with the 2021 Orders, such compliance may adversely impact customer acquisition and renewal revenue and profitability. As of December 31, 2021, New York represented 22.4% of GRE's total meters served and 18.8% of the total residential customer equivalents ("RCEs") of GRE's customer base. For the years ended December 31, 2021 and 2020, New York gross revenues were \$52.9 million and \$56.7 million, respectively.

A RCE represents a natural gas customer with annual consumption of 100 mmbtu or an electricity customer with annual consumption of 10 MWh. Because different customers have different rates of energy consumption, RCEs are an industry standard metric for evaluating the consumption profile of a given retail customer base.

State of Connecticut Public Utilities Regulatory Authority

Town Square Energy

On September 19, 2018, the State of Connecticut Public Utilities Regulatory Authority ("PURA") commenced an investigation into Town Square following customer complaints of allegedly misleading and deceptive sales practices on the part of Town Square. The Connecticut Office of Consumer Counsel had joined in the investigation. Although Town Square denies any basis for those complaints and any wrongdoing on its part, it cooperated with the investigation and responded to subpoenas for discovery. On June 17, 2020, the PURA notified Town Square that it was advancing its investigation by assigning Prosecutorial staff for the purpose of investigating Town Square's compliance with licensed electric supplier billing, marketing, and licensing requirements, and, if appropriate, facilitating settlement discussions among the parties that contains, but is not limited to, an appropriate civil penalty, extensive retraining of the supplier's third-party agents, and retention of all sales calls with continued auditing.

In July 2021, the parties settled the dispute. Pursuant to the terms of the settlement agreement, Town Square paid \$0.4 million. Town Square has also, and has agreed to voluntarily refrain, from in-person marketing activities in Connecticut for the period of 15 months. As of December 31, 2021, Town Square's Connecticut customer base represented 4.8% of GRE's total meters served and 5.6% of the total RCEs of GRE's customer base. For the year ended December 31, 2021, Town Square's gross revenues from sales in Connecticut was \$29.0 million.

Residents Energy

In August 2020, Residents Energy began marketing retail energy services in Connecticut. For the year ended December 31, 2021, Residents Energy's gross revenues from sales in Connecticut were \$0.2 million. During the fourth quarter of 2020, the enforcement division of PURA contacted Residents Energy concerning customer complaints received in connection with alleged door-to-door marketing activities in violation of various rules and regulations. On March 12, 2021, the enforcement division filed a motion against Resident Energy with the adjudicating body of PURA, seeking the assessment of \$1.5 million in penalties, along with a suspension of license, auditing of marketing practices upon reinstatement and an invitation for settlement discussions.

In September 2021, the parties settled the dispute. Pursuant to the terms of the settlement agreement, Residents Energy paid \$0.3 million and volunteered to withdraw from the market in Connecticut for a period of 36 months.

Employees

As of March 4, 2022, GRE employed 131 full time employees, 53 of whom are located in the Jamestown, New York office, 52 of whom are located in our New Jersey office, 21 of whom are located in our Arizona office and 5 are located in Texas with SFP.

Environment

In March 2021, the Biden Administration announced a framework for the "Build Back Better" agenda. The proposed framework included policies to address climate change across the federal government through the tax code, an energy efficiency and clean energy standard, research and development, among other areas of focus.

In April 2021, President Biden announced that the United States' Nationally Defined Contribution to the international Paris Climate Agreement will be an economy-wide reduction in greenhouse gas emissions ("GHG") emissions of 50-52% by 2030, relative to 2005 levels. In advance of the November 2021 Conference of the Parties 26 meeting in Glasgow, Scotland, the Biden Administration released details on its strategy to achieve those targets as part of the "Build Back Better" agenda.

In addition to climate-related initiatives at the federal level, some states have adopted provisions designed to regulate GHG emissions for some industry sectors. The adoption and implementation of any foreign laws or regulations imposing obligations on, or limiting GHG emissions from, our equipment and operations could adversely affect pricing or demand for our offerings. We may not be able to pass on increases in costs to customers. In addition, changes in regulatory policies that result in a reduction in the demand for hydrocarbon products and carbon-emitting fuel sources that are deemed to contribute to climate change, or restrict the use of such products or fuel sources, may reduce demand for our offerings or impact the energy supply markets.

GRE International

GRE International is comprised of REPs operating in Finland, through our 90.8% interest in Lumo Finland and in Sweden through our 87.7% interest in Lumo Sweden. GRE International's REP businesses purchase electricity on the wholesale markets and resell these commodities to their residential customers through both variable rate and fixed rate programs.

As discussed above, in January 2021, the Company experienced unprecedented price volatility in the Japanese market due to weather conditions which adversely affected our consolidated results of operations. In May 2021, we completed the sale of Genie Japan.

GRE International's REP businesses in Scandinavia operate under the Lumo Energia brand name.

As of December 31, 2021, GRE International's REPs, served 67,000 meters, a decrease from 88,000 meters as of December 31, 2020. The decrease was mostly due to the sale of Genie Japan in second quarter of 2021. As of December 31, 2021, GRE International served 40,000 RCEs, a decrease from 57,000 RCEs as of December 31, 2020. The decrease in RCEs primarily resulted from the sale of Genie Japan and the decision to slow down marketing in Sweden.

Nordic Electricity Market

Lumo Finland and Lumo Sweden (together, Lumo) serve the Nordic electricity market.

The Nordic electricity system utilizes a mixture of generation sources, including hydro, nuclear biomass and wind power. The Nordic region has a large share of electricity heated houses, resulting in a consumption profile that is higher than in the rest of the European Union ("EU"). Electricity consumption is highly dependent on weather factors, with lower electricity demand in the summer and increased consumption in the wintertime.

Lumo generally has no significant fixed assets and low levels of capital expenditure. Lumo's cost of revenue is incurred through the purchase of electricity in their wholesale markets. Selling, general and administrative expenses are primarily related to customers acquisitions, customer retention, billing and collections.

In Finland, green electricity is covered by GoO-certificates which REPs can acquire directly from producers or other relevant market participants that operate within the European Economic Area (EEA). Electricity that is not covered by GoOs is from mixed sources, mainly energy from fossil sources. Finnish REPs are required to disclose the mix of electricity sold in the preceding year. Sweden has its own nationally supported certificate scheme called "elcert" whereby accredited generation assets receive one "elcert" per MWh produced. Demand for these certificates is created by a legal obligation placed on REPs and obligated consumers to obtain certificates sufficient to cover a given share of the power that they sell or use, respectively.

Lumo Finland

Lumo Finland was founded in 2015 and began servicing customers in 2016. Lumo Finland operates in the Finnish electricity market. The Company acquired an 80.0% controlling interest of Lumo Finland in January 2019 and has since increased its ownership to 90.8%. Lumo Finland operates in all of Finland (excl. Ålands-islands) and sells electricity primarily to private consumers and small businesses. In addition to retail electricity, Lumo Finland also markets solar & EV-charging solutions. Lumo's principal electricity products are Fixed, Variable and Premium rate plans.

Lumo Finland's revenue is seasonal. Approximately 65.7% of total revenues in 2021 were generated in the winter (27.6% in first quarter of 2021 and 38.1% in the fourth quarter of 2021) when the demand for heating is high. Approximately 63.3% of total revenues in 2020 were generated in the winter (27.5% in the first quarter of 2020 and 35.8% in the fourth quarter of 2020).

In Finland, Electronic Data Interchange ("EDI") is being replaced by a centralized DataHub in first quarter of 2022 through which information exchange between market participants is expected to be nearly real time. Lumo Finland expects that the implementation of DataHub may enable it to offer new products and services that provide customers options to take advantage of smart energy management.

Lumo Sweden

Lumo Sweden is a Swedish REP founded in October 2019 and commenced commercial operations in April 2020. Its customers are spread across Sweden, and are primarily residential with some being small businesses. Since the start of commercial operations, Lumo Sweden has focused on growing its customer base, improving brand recognition and increasing digital sales.

The Swedish electricity market is divided into four different price regions based on geographic location. The capital Stockholm region is the biggest market for Lumo Sweden. Historically, the price for supply in the northern price areas has been lower compared to the other price regions due to the presence of a number of hydroelectric power plants and lower overall demand. The price in the south, however, has been the higher due to a higher demand with lower local supply, mostly solar and wind. Traditionally market prices are higher in the winter season due to increased demand and lower amounts of wind. In recent years, price volatility has increased in the summer months due to significant increases on wind output and changes in climate (i.e. drought). In Sweden, EDI is also expected to be replaced by a centralized DataHub but timing of the rollout uncertain.

Marketing

Lumo acquires customers both in Finland and Sweden primarily through branded and affiliated websites as opposed to traditional customer acquisition methods. Lumo's marketing efforts focus on digital channels such as search engine marketing, social media, display and email marketing and are designed to drive traffic to Lumo's branded websites. Lumo's branded site offers customers variable rate and fixed rate products. Remarketing for customers who have already visited the website is done through display advertising on both social media and search engines.

Lumo's variable rate in Finland is tied to the Finnish Area Price index while in Sweden the variable rate is tied to the Swedish Area Price Index. Both indexes are operated by NordPool AS. Currently, Lumo offers two types of variable rates: the first is based on monthly average prices and the other is based on the hourly price. A fixed margin per kWh is added on top of the variable rate.

Lumo competes and acquires customers using special initial discounts that are meant to introduce the consumer to Lumo. Lumo is mainly a consumer brand and thus is not dependent on one or a few customers.

The customers are also offered multiple billing and payment methods in order to make payments convenient. The customer can also access their consumption through an online portal where they can access their invoices, payments, contract and other documents, as well as change their product and add upgrades (VAS). The majority of Lumo customers have commitments from 0-6 months.

Acquisition and Management of Electric Supply

The Nordic electricity market consists of various marketplaces that are "time windows" for physical trading in electricity: the day-ahead market, the intra-day market and the balancing market. In the Nordic countries, the vast majority of trading is done on the day-ahead market (spot market), and the "system price" (which is the common Nordic price for all hours of the following 24-hour period) is crucial for price formation within other time windows including the intra-day and balancing markets and the financial market for long-term contracts.

The intra-day market is primarily a correction market, where participants have the opportunity to trade into balance, including adjusting any earlier trading. The intra-day market closes one hour before the delivery hour. The balancing market is trading in automatic and manual reserves used by the Nordic transmission system operators ("TSOs") in order to maintain power balance during the hour of operation. Nord Pool Spot is responsible for the day-ahead market and the intra-day market, while the TSOs are responsible for the balancing market.

For risk management purposes, Lumo typically makes forward purchases of power to protect against unfavorable fluctuations in market prices of electricity. The purchases are usually done 3 to 12 months ahead of delivery and are based on expected volumes.

Competition

There are dozens of registered REPs in Finland and Sweden, including those operated by energy producers, affiliates of local grid companies and independent contractors. In recent years, the REP industry has experienced consolidation resulting in larger REPs. Most of the traditional REPs are either wholly-owned by the local municipality or the local municipality has an ownership interest in the REP. These REPs are generally defensive businesses that do not attract customers outside their local geographical area.

A significant portion of Finland's residential customer base continue to purchase its supply from their local grid company's affiliate REPs despite the proliferation of competitive suppliers. Most new REPs seek to build market share with aggressive pricing. The main focus of Lumo is to gain new customers, upgrading these customers to better margin products while controlling churn and balancing growth and profitability.

Customer churn is a significant factor in the REP business. Lumo REPs monthly churn rates average approximately four percent per month. Customer churn tends to decrease when commodity prices fall, when weather-driven consumption decreases, when the price to REP customers decreases relative to competitors (including the incumbent utility provider), or when the REPs incentivize customer tenure. Customer churn tends to increase when commodity prices rise, when weather-driven consumption increases or spikes, or when the price to REP customers increases relative to the prices charged by competitors (including incumbent utility providers). Newly acquired customers typically have higher rates of churn than longer-tenured customers.

Lumo in Finland is starting to be recognized as a prominent consumer brand, while in Sweden Lumo is still an emerging brand.

Regulation

Each REP in Finland or Sweden must be registered with each countries' Energy Authority in order to be able to operate. Although REPs enjoy certain freedom with respect to their operations (i.e. marketing and pricing), they must comply with various regulations and laws, including Finnish or Swedish Energy authority rules and regulations governing electricity supply pricing, marketing, types of offerings and contracts, as well as general guidelines set forth in the Finnish or Swedish Electricity Market Law. In Sweden, energy retailers are prohibited from bundling their products with other services and are limited to energy-related products and services.

In the EU, there is a commitment to cut carbon dioxide (CO₂) emissions by at least 40% by 2030 and EU member states have implemented a range of subsidies and incentives to achieve the EU's climate change goals. Further, emissions are regulated via a number of means, including the European Union Emissions Trading System (the "EU ETS"). The EU ETS is a trading system across the EU for industrial emissions and is expected to become progressively more stringent over time, including by reducing the number of allowances to emit GHGs.

The adoption and implementation of any foreign laws or regulations imposing obligations on, or limiting GHG emissions from, our equipment and operations could adversely affect pricing or demand for our offerings. We may not be able to pass on resulting increases in costs to customers. In addition, changes in regulatory policies that result in a reduction in the demand for hydrocarbon products and carbon-emitting fuel sources that are deemed to contribute to climate change, or restrict the use of such products or fuel sources, may reduce demand for our offerings or impact the energy supply markets.

Employees

As of March 4, 2022, GRE International employed 26 employees located in Finland.

Genie Renewables

Genie Renewables is comprised of businesses that market and provide energy solutions. Genie Renewables currently consists of (i) Genie Solar, (ii) CityCom Solar, (iii) our controlling interest in Prism, and (iv) Diversegy.

Solar Industry Overview

Genie Solar, CityCom Solar and Prism are all engaged in different business areas within the solar industry.

Solar energy is one of the fastest growing forms of renewable energy with numerous economic and environmental benefits that make it an attractive complement to and/or substitute for traditional forms of energy generation. In recent years, the price of solar power systems, and accordingly the cost of producing electricity from such systems, has dropped to levels that are competitive with or even below the wholesale price of electricity in many markets. Worldwide solar markets continue to develop, aided by the above factors as well as demand elasticity resulting from declining industry average selling prices, both at the module and system level, which make solar power more affordable.

Multiple markets within the United States, exemplify favorable characteristics for a solar market, including (i) sizeable electricity demand, particularly around growing population centers and industrial areas; (ii) strong demand for renewable energy generation; and (iii) abundant solar resources. In those areas and applications in which these factors are more pronounced, our PV solar energy solutions compete favorably on an economic basis with traditional forms of energy generation.

Regulation

Federal government support for renewable energy

The U.S. federal government provides an uncapped investment tax credit, or "Federal ITC," that originally allowed a taxpayer to claim a credit of 30% of qualified expenditures for a residential or commercial solar generation facility. The Tax Act did not make any changes to the existing laws surrounding tax credits for renewable energy. The Federal ITC is currently at 26% for a solar generation facility. A permanent 10% Federal ITC is available for non-residential solar generation facility construction that begins on or after January 1, 2022.

U.S. state government support for renewable energy

Many states offer a personal and/or corporate investment or production tax credit for renewable energy facilities, which is additive to the Federal ITC. Further, more than half of the states, and many local jurisdictions, have established property tax incentives for renewable energy facilities that include exemptions, exclusions, abatements and credits. Certain of our renewable energy facilities in the U.S. have been financed with a tax equity financing structure, whereby the tax equity investor is a member holding equity in the limited liability company that directly or indirectly owns the solar generation facility or wind power plant and receives the benefits of various tax credits.

There are 41 states that have a regulatory policy known as net metering. Net metering typically allows our customers to interconnect their on-site solar generation facilities to the utility grid and offset their utility electricity purchases by receiving a bill credit at the utility's retail rate for energy generated by their solar generation facility in excess of electric load that is exported to the grid. Some states require utilities to provide net metering to their customers until the total generating capacity of net metered systems exceeds a set percentage of the utilities' aggregate customer peak demand.

Many states also have adopted procurement requirements for renewable energy production. Thirty states, Washington, D.C., and two territories have active renewable or clean energy requirements, while an additional 3 states and 1 territory have set voluntary renewable energy goals. Renewable portfolio standard ("RPS") legislation has seen two opposing trends in recent years. On one hand, many states with RPS targets are expanding or renewing those goals. Since 2018, 15 states, 2 territories, and Washington, D.C., have passed legislation to increase or expand their renewable or clean energy targets. On the other hand, eleven states and one territory have allowed their RPS targets to expire.

Genie Solar Energy

Genie Solar is a project developer for commercial, industrial, and community-scale solar projects. Genie Solar markets directly to commercial and industrial clients who benefit by either achieving sustainability goals, lowering the cost of energy and accruing financial benefits from federal, state, and local incentives for investing in renewable energy. In the community solar space, Genie Solar sources landowners and works with utilities and local government to construct a project that will provide local energy to the local community. Genie Solar acquires the customers and manages the project which includes managing the interconnection and permitting process, procuring the materials, and overseeing the labor involved in installing the solar system. In addition, Genie Solar arranges for third-party financing or provides in-house financing when the customer requires it.

Genie Solar differentiates itself in the market by targeting small to medium-sized businesses which have less competition and cost of doing business. It is providing in-house financing to these projects to fill a gap in the marketplace, allowing more businesses and non-profits to go solar. Genie Solar offers a custom software solution that allows property operators to have detailed insight into electricity consumption and production which further reduces expenses.

Many of the current customers and future pipeline of projects are building multiple installations across their portfolio of projects. Genie Solar has increased its product offering by selling its first battery plus solar solution for a business in upstate New York to both reduce demand charges and provide backup power in the event of a power outage.

Currently, Genie Solar focuses its marketing efforts in the Northeastern and Mid-Atlantic regions of the United States, but has the ability to serve customers across the country and is actively building its pipeline of projects.

Genie Solar markets panels from Prism to both differentiate itself and drive value to its customers by having an increase in supply chain control, ethical manufacturing locations, and intimate insight into the manufacturing process. Genie Solar has also developed strategic relationships with other vendors to have a reliable supply chain and preferred pricing.

CityCom — Community Solar

CityCom operates primarily as a provider of service to the community solar industry. Community solar is a program that exists in various states that provides incentives to solar investors to build large solar fields for the purpose of complementing and replacing non-renewable sourced generation. In order for developers to qualify for the state-based incentives, they are required to sell the power generated to customers in the utility service territory in which the solar field is constructed. CityCom was created in order to help developers acquire customers and bill those customers for the service. CityCom employs a variety of sales channels to achieve its sales goals, mostly leveraging the sales channels that GRE has successfully executed for years. CityCom gets paid through a combination of upfront commissions and residual fees for its services.

Prism Solar Technologies

The Company acquired a 60.0% controlling interest in Prism in October 2018. On April 12, 2019, Prism restructured its ownership. The Company now holds 60.0% interest in Plus EnerG which owns 100% of Prism. In the second quarter of 2020, Prism renegotiated a contract with a customer which resulted in impairment of customer relationship of \$0.8 million included in the consolidated statements of operation. Prism also provided a full impairment of its remaining goodwill of \$0.4 million in the fourth quarter of 2020.

Prism is a solar module manufacturing company that specializes in the manufacturing of bifacial solar modules. In the U.S., Prism's solar panels are used in residential, commercial, and industrial applications. Residential applications include solar swings, skylights, canopies and sun decks. Prism's solar panels are used in the construction of parking canopies, electric vehicle car ports, parking structures, vertically mounted on buildings and many other custom applications.

Prism bifacial modules are engineered and designed in the U.S. utilizing manufacturing facilities in the U. S. and abroad. Prism uses high efficiency P-type PERC bifacial cells. This technology results in a reduction in the average cost per kilowatt hour. Elements of the technology that Prism uses are protected under patent application. The glass-on-glass design of the solar panels increases the durability and lifetime value of the solar panels. Unlike traditional solar modules, where photo-voltaic ("PV") cells can only use the sunlight that strikes the front of the module, Prism's bifacial modules generate energy on both sides, capturing a substantial amount of light scattered from clouds and surrounding surfaces. In traditional modules this additional light is not converted into electricity. Prism's solutions are especially valuable when Prism's modules are mounted over highly reflective backgrounds, such as white roof, snow, sand, or other light-colored surfaces.

Diversegy

Diversegy is a commercial energy advisory firm helping clients to reduce costs, mitigate risk, and improve their bottom lines with customized energy solutions. Diversegy works with customers to lower their energy costs, through hedging strategies, and sourcing cheaper supply rates, while leveraging our broad-based knowledge and vast network within the industry.

Through our vast network of partners Diversegy also offers LED retrofits, on- and off-site generation with solar as well as a full suite of utility bill auditing services.

In 2021, Diversegy accounted for 0.5% and 23.8% of our consolidated revenue and Genie Renewables segment's revenue, respectively. Diversegy operates as an energy broker and advisor to industrial, commercial and municipal customers across deregulated energy markets in the U.S., while also offering ancillary energy services throughout deregulated as well as regulated states. Many of our customers are enrolled in multi-year fixed-rate contracts with our partner suppliers, while some we take a more managed approach with ongoing hedging and purchasing strategies. The supplier is fully responsible for risk management, billing and collections. Diversegy receives commissions from the supplier for the referral either as an upfront payment or as a residual over the life of the customers' contract.

Historically, Diversegy marketed its services through an in-house sales force, as well as a small network of independent third-party brokers and agents. Looking at 2022 and beyond, we plan on increasing our in-house sales team, with additional experienced sales reps, while also putting a large focus on recruiting independent sales agents and brokers who have existing books of business. We are leveraging custom marketing and social media campaigns, with a focus on our proprietary pricing software ("ELIAS") to engage new partners.

Other areas of focus will be on recruiting affinity groups, associations and specific market verticals for cross-sell opportunities. Diversegy is in a unique position to capture a large portion of the market, with our custom energy software, vast industry knowledge, and best-in-class agent and customer support.

Customers and Marketing

The services of Genie Renewables are made available to customers via multiple channels and under several offerings. The majority of our customer base consists of medium to large commercial customers who are looking to be more efficient with their energy consumption. Our sales channels and marketing activities include a direct sales force, commission-only referral agents, telemarketing, digital marketing and radio advertising.

Sources of Material and Manufacturing

We have designed our manufacturing processes to produce high quality products that meet our customers' requirements at competitive costs.

At Genie Solar Energy and Prism, customers have the choice of buying their solar systems either by paying for the system themselves or by financing it with third parties. Genie Renewables is responsible for sales, manufacturing, project management of the installation, and collection of payment from the customers.

Competition

In the solar energy space, the market is competitive and continually evolving. In the last year, we faced increased competition, resulting in price reductions in the market and reduced margins, which may continue and could lead to loss of market share. Our solar power products and systems compete with many competitors in the solar power market, including, but not limited to Canadian Solar Inc., Hanwha QCELLS Corporation, JA Solar Holdings Co., LG Corporation, Jinko Solar, Panasonic Corporation, Sharp Corporation, SunRun, Inc., Tesla, Inc., Trina Solar Ltd., Vivint, Inc., LONGi Solar, REC Group, Hyundai Heavy Industries Co. Ltd., Yingli Green Energy Holding Co. Ltd. and First Solar, Inc.

We also face competition from resellers that have developed related offerings that compete with our product and service offerings, or have entered into strategic relationships with other existing solar power system providers. We compete for limited government funding for research and development contracts, customer tax rebates and other programs that promote the use of solar, and other renewable forms of energy with other renewable energy providers and customers.

At Diversegy, the energy brokerage market is highly competitive with a number of different competition types.

Employees

As of March 4, 2022, Genie Renewables employed 15 full time employees, all of whom are located in our New Jersey office.

Climate Change

As indicated by the Intergovernmental Panel on Climate Change, emissions of GHG, including carbon dioxide, are very likely changing the world's climate. Climate change could affect customer demand for the Company's product offerings. It might also cause physical damage to the energy production ecosystem that the Company's REPs rely on to procure electricity and natural gas for their customers. Additionally, climate change could affect the availability of risk management products and services that the Company REPs rely on to manage its risk position.

In September 2016, the U.S. joined in adopting the agreement reached on December 12, 2015, at the United Nations Framework Convention on Climate Change meetings in Paris to reduce GHGs. The Paris Agreement's non-binding obligations to limit global warming to below two degrees Celsius became effective on November 4, 2016. Genie cannot currently estimate the financial impact of climate change policies, although potential legislative or regulatory programs restricting CO2 emissions, or litigation alleging damages from GHG emissions, could require material capital and other expenditures or result in changes to its operations.

In December 2009, the U.S. Environmental Protection Agency (EPA) released its final "Endangerment and Cause or Contribute Findings for GHGs under the Clean Air Act (CAA)," concluding that concentrations of several key GHGs constitute an "endangerment" and may be regulated as "air pollutants" under the CAA and mandated measurement and reporting of GHG emissions from certain sources, including electric generating units (EGU). Subsequently, the EPA released its final Clean Power Plan (CPP) regulations in August 2015 to reduce CO2 emissions from existing fossil fuel-fired EGUs and finalized state regulations imposing CO2 emission limits for new, modified, and reconstructed fossil fuel-fired EGUs. Numerous states and private parties filed appeals and motions to stay the CPP with the D.C. Circuit in October 2015. On February 9, 2016, the U.S. Supreme Court stayed the rule during the pendency of the challenges to the Washington D.C. Circuit and U.S. Supreme Court. On March 28, 2017, an executive order, entitled "Promoting Energy Independence and Economic Growth," instructed the EPA to review the CPP and related rules addressing GHG emissions and suspend, revise or rescind the rules if appropriate. On June 19, 2019, the EPA repealed the CPP and replaced it with the affordable clean energy (ACE) rule that established guidelines for states to develop standards of performance to address GHG emissions from existing coal-fired generation. On January 19, 2021, the Washington D.C. Circuit vacated and remanded the ACE rule declaring that the EPA was "arbitrary and capricious" in its rule making and, as such, the ACE rule is no longer in effect and all actions thus far taken by states to implement the federally mandated rule are now null and void. The D.C. Circuit decision is subject to legal challenge. Depending on the outcomes of further appeals and how any final rules are ultimately implemented, the future cost of compliance may be material.

The cost to the Company to comply with any legislation, regulations or initiatives limiting GHG or emissions or otherwise seeking to limit the impact of climate change could be substantial. Moreover, regulations imposing obligations on, or limiting GHG emissions from, our equipment and operations could adversely affect pricing or demand for our offerings. We may not be able to pass on increases in costs to customers. In addition, changes in regulatory policies that result in a reduction in the demand for hydrocarbon products and carbon-emitting fuel sources that are deemed to contribute to climate change, or restrict the use of such products or fuel sources, may reduce demand for our offerings or impact the energy supply markets.

Employees and Human Capital Resources

Attracting and retaining qualified personnel familiar with our businesses who head our different businesses units is critical to our success. As of March 4, 2022, we had 186 employees, 160 located in United States and 26 located in Finland.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and new employees, advisors and consultants. To accomplish that, our compensation practices are designed to attract and retain qualified and motivated personnel and align their interests with the goals of the Company and with the best interests of our stockholders. Our compensation philosophy is to provide compensation to attract the individuals necessary for our current needs and growth initiatives, and provide them with the proper incentives to motivate those individuals to achieve our long-term plans, which includes among other things, equity and cash incentive plans that attract, retain and reward personnel through the granting of stock-based and cash-based compensation awards.

Intellectual Property

We rely on a combination of patents, copyrights, trademarks, domain name registrations and trade secret laws in the United States and other jurisdictions and contractual restrictions to protect our intellectual property rights and our brand names. All of our employees sign confidentiality agreements. These agreements provide that the employee may not use or disclose our confidential information except as expressly permitted in connection with the performance of his or her duties for us, or in other limited circumstances. These agreements also state that, to the extent rights in any invention conceived of by the employee while employed by us do not vest in us automatically by operation of law, the employee is required to assign his or her rights to us.

Item 1A. Risk Factors.

RISK FACTORS

Our business, operating results or financial condition could be materially adversely affected by any of the following risks as well as the other risks highlighted elsewhere in this document, particularly the discussions about regulation, competition and intellectual property. The trading price of our Class B common stock and Series 2012-A Preferred Stock could decline due to any of these risks.

Risks Related to Genie Retail Energy and GRE International

The REP business is highly competitive, and we may be forced to reduce prices or incur additional costs.

GRE's REP businesses face substantial competition both from the traditional incumbent utilities as well as from other REPs, including REP affiliates of the incumbent utilities in specific territories. As a result, we may be forced to reduce prices, incur increased costs or lose market share and cannot always pass along increases in commodity costs to customers. We compete on the basis of provision of services, customer service and price. Present or future competitors may have greater financial, technical or other resources which could put us at a disadvantage. Additionally, our experience has shown that utilities do not change their rates offered to customers immediately in response to increased prices for the underlying commodities.

Conversely, in a downward moving commodity cost environment, GRE's REPs variable rate plans may benefit from the lag that utilities experience in reducing their sell rate to reflect the lower cost base in the commodity markets, and may reflect commodity costs decreases in their offerings and rates.

Increasing our market share depends in part on our ability to persuade more customers to switch to GRE's services than those that chum from us to other providers or back to the local utility. Moreover, local utilities and some REPs may have certain advantages such as name recognition, financial strength and long-standing relationships with customers. Persuading potential customers to switch to GRE's REPs requires significant marketing and sales operations. As we enter new international markets, we will face additional competitive environment. If GRE is not successful in convincing customers to switch both domestically and internationally, our REP businesses, results of operations and financial condition will all be adversely affected.

Our current strategy is based on current regulatory conditions and assumptions, which could change or prove to be incorrect.

From time to time, various states may propose or modify legislation regulations which could adversely affect our marketing practices and ability to acquire and serve customers. The Company and the REP industry as a whole is working with government representatives, legislators, and advocacy interest groups to lobby for legislation and regulation that most effectively protects customer interests while preserving the competitive structure of deregulated markets. We also seek to expand and diversify into new markets with regulatory structures that are more favorable to the competitive retail supply of energy.

For example, on April 16, 2021, the New York Public Service Commission ("PSC") issued an order limiting the types of services energy retailer marketers may offer new customers or renewals, in terms of pricing for non-renewable commodities and renewable product offerings (the "2021 Orders"). Although the Company is working to ensure that its products and services are fully compatible with the 2021 Orders, such compliance may adversely impact customer acquisition and renewal revenue and profitability. The Company is evaluating its options, both by itself and in tandem with other industry participants, to challenge or petition for additional clarity and changes to the 2021 Orders. As of December 31, 2021, New York represented 22.4% of GRE's total meters served and 18.8% of the total residential customer equivalents ("RCEs") of GRE's customer base. For the years ended December 31, 2021 and 2020, gross revenue from New York were \$52.9 million and \$56.7 million, respectively.

Any legislative or regulatory changes that negatively impacts the sale of fossil fuels or electricity derived therefrom would adversely affect the results of our operations and financial conditions.

Unusual weather conditions, which may become more commonplace, may have significant direct and indirect impacts on GRE's and GREI's business and results of operations.

Potential global climate change may produce, among other possible conditions, unusual variations in temperature and weather patterns, resulting in unusual weather conditions, more intense, frequent and extreme weather events and other natural disasters.

For example, a confluence of issues in January and February 2014 associated with the winter season's polar vortex resulted in extraordinarily large spikes in the prices of wholesale electricity and natural gas in markets where GRE and other retail providers purchase their supply. Repeats of the circumstances or similar circumstances could similarly harm margins and profitability in the future, and we could find it necessary to take similar or other actions that would have a negative impact on our financial condition and results of operations.

Because our variable pricing plan resulted in increased prices charged to customers, we experienced an increase in customer churn as utilities and fixed price REPs appeared to have more attractive pricing, although those increased churn levels have peaked. A failure to mitigate an increase in churn could result in decreases in meters served and revenues.

The retail electricity price increases discussed above resulted in large numbers of customers filing informal and formal complaints to state utility commissions, state attorneys general and state legislators. IDT Energy was served with several thousand formal and informal customer complaints to state utility commission and state attorneys general related to the winter retail price increases.

In January 2021, weather volatility and the lack of adequate gas reserves drove the prices on the JEPX to \$2,390 per megawatt hour for an extended period of time. Although our supply commitment for our customers in Japan was reasonably hedged for expected winter weather conditions, the extreme usage spike exposed us to further unexpected cost increases. The event adversely impacted our first quarter of 2021 consolidated result of operations by approximately \$2.5 million.

In mid-February of 2021, the State of Texas experienced unprecedented cold weather and snow. With the grid overtaxed and rolling blackouts being enforced, by order of ERCOT, real-time commodity prices during the crisis escalated astronomically. Although our supply commitment for our customers in Texas was reasonably hedged for expected winter weather conditions, the extreme usage spike exposed us to further unexpected cost increases. Despite our cost increases related to the unprecedented price volatility in real-time electricity prices, we maintained customer rates under current agreements with customers. The impact on our consolidated profitability for the year ended December 31, 2021 was approximately \$10.6 million.

In certain markets, we contractually commit to provide customers with a fixed price, irrespective of our cost of supply in the wholesale energy markets. Even under variable contracts, we seek to manage customer price expectations by using reasonable efforts to avoid or mitigate potential pass-throughs related to unforeseeable weather events (even where such pass-throughs are contractually permissible). Although we use our best efforts to reasonably hedge our commodity positions to absorb weather-related cost spikes, we cannot always anticipate unforeseeable extreme weather events, and we may be forced to absorb these cost increases in order to serve our customers.

GRE's business is subject to physical, market and economic risks relating to potential effects of climate change, and policies at the national, regional and state levels to regulate GHG emissions and mitigate climate change could adversely impact our results of operations, financial condition and cash flows.

Fluctuations in weather and other environmental conditions, including temperature and precipitation levels, may affect consumer demand for electricity or natural gas. In addition, the potential physical effects of climate change, such as increased frequency and severity of storms, floods and other climatic events, could disrupt GRE's operations and supply chain, and cause it to incur significant costs in preparing for or responding to these effects. These or other changes in climate could lead to increased operating costs or capital expenses. GRE's customers may also experience the potential physical impacts of climate change and may incur significant costs in preparing for or responding to these efforts, including increasing the mix and resiliency of their energy solutions and supply.

Hazards customary to the power production industry include the potential for unusual weather conditions, which could affect pricing and availability for electricity and natural gas. The contribution of climate change to the frequency or intensity of weather-related events could affect our operations and financial results and condition.

The physical risks associated with climate change may have an adverse impact on our business operations, financial condition and cash flows

Physical risks of climate change, such as more frequent or more extreme weather events, changes in temperature and precipitation patterns, and other related phenomena, could affect some, or all, of our operations. Severe weather or other natural disasters could be destructive to the suppliers from which we purchased our electricity and natural gas supply. An extreme weather event within our REPs service areas can also cause disruption in service to customers due to downed wires and poles or damage to other equipment. For all of these reasons, these physical risks could have an adverse financial impact on our business operations, financial condition and cash flows. Climate change poses other financial risks as well. To the extent weather conditions are affected by climate change, customers' energy use could increase or decrease depending on the duration and magnitude of the changes. Increased energy use due to weather changes may require us to purchase additional power and natural gas. Additionally, decreased energy use due to weather changes may affect our financial condition through decreased rates, revenues, margins or earnings.

Fixed Rate Products or Guaranteed Pricing Programs could result in losses or decreased profits if GRE fails to estimate future commodity prices and commodity consumption accurately.

REPs and utilities offering fixed rate products or guaranteed pricing often are unable to change their sell rates offered to customers in response to volatility in the prices of the underlying commodities or changes in the regulatory environment. Sudden spikes in commodity prices, particularly when coupled with rapid, unexpected increases in consumptions, expose us to the risk that we will incur significant unforeseen costs in performing fixed rate contracts. During the year ended December 31, 2021, GRE's meters enrolled in offerings with fixed rate characteristics constituted approximately 47.4% and 6.2% of GRE's electric and natural gas load, respectively. Fixed rate products are becoming a greater part of our offering, and such products may be mandated by regulators.

However, it is difficult to predict future commodity costs. Any shortfalls resulting from the risks associated with fixed rate programs will reduce our working capital and profitability. Our inability to accurately estimate the cost of providing services under these programs could have an adverse effect on our profitability and cash flows. We employ an active and robust hedging program. Within this exercise there are inherent assumptions about consumption and pricing. There is risk that volatility with take place outside of the range of potential outcomes contemplated by the program. In these instances, the hedge will not be sufficient to control for risk and losses may occur.

Commodity price volatility could have an adverse effect on our cost of revenues and our results of operations.

Volatility in the markets for certain commodities can have an adverse impact on our costs for the purchase of the electricity and natural gas that GRE sells to its customers as what occurred in Texas and Japan during January and February of 2021. Similar or increased unprecedented volatility events can have a material adverse impact on our financial condition because of our fixed or guaranteed price products, we cannot, and in our variable price products, due to customer or competitive factors, we may not always be able or choose to, pass along increases in costs to our customers. This would have an adverse impact on our margins and results of operations. Alternatively, volatility in pricing for GRE's electricity and natural gas related to the cost of the underlying commodities can lead to increased customer churn. In times of high commodity costs, our variable pricing model and commodity purchasing approach can lead to competitive disadvantages as we must pass along all or some portion of our increased costs to our customers.

The Russian invasion of Ukraine is recent and the implications on the global economy and energy supplies are uncertain but may prove to negatively impact our operations

The short and long-term implications of Russia's invasion of Ukraine are difficult to predict at this time. The imposition of sanctions and counter sanctions may have an adverse effect on energy and economic markets generally and could result in an even greater impact related to global supply and pricing of electricity and natural gas.

To the extent the war in Ukraine may adversely affect our business as discussed above, it may also have the effect of heightening many of the other risks described in this Item 1A such as those relating to cyber security, supply chain, inflationary and other volatility in commodity, and the condition of the markets including as related to our ability to access additional capital, any of which could negatively affect our business. Because of the highly uncertain and dynamic nature of these events, it is not currently possible to estimate the impact of the Russian - Ukraine war on our business.

Our business, results of operation and financial conditions could be adversely affected by the coronavirus COVID-19 pandemic and the restrictions put in place in connection therewith.

We have responded to the global outbreak of COVID-19 by taking steps to mitigate the potential risks to us posed by its spread and the impact of the restrictions put in place by governments to protect the population. We continue to execute our business continuity plan and have implemented a comprehensive set of actions for the health and safety of our customers, employees and business partners. We have implemented work from home policies where appropriate.

We continue to implement strong physical and cyber-security measures to ensure our systems remain functional to both serve our operational needs with a remote workforce and to provide uninterrupted service to our customers. We face challenges due to the need to operate with the remote workforce and are addressing those challenges so as to minimize the impact on our ability to operate.

For the year ended December 31, 2021, the impacts of COVID-19 on our operations and financial results were mixed. Our consolidated revenues increased in 2021 compared to 2020. Our domestic meters served and RCE decreased at December 31, 2021 compared to December 31, 2020.

We benefited from the increased demand for electricity by residential customers due to more people working from their homes. On the other hand, like other retail providers, we suspended our face-to-face customer acquisition programs in March 2020 as public health measures were implemented to combat COVID-19, resulting in a decrease in gross meter acquisitions and a slight reduction in the U.S. domestic meters served. The reduction in gross meter acquisitions decreased our customer acquisition expenses in 2021 and 2020. Churn for in 2021 and 2020 decreased as our competitors suspended their face to face marketing programs.

If the COVID-19 pandemic continues for a prolonged period, or impact the territories we serve more significantly than it has today, our business, operations and financial condition could be impacted in more significant ways. The continued spread of COVID-19 and efforts to contain the virus could have the following impacts, in addition to exacerbating the impacts described above:

- Adversely impact our strategic business plans and growth strategy;
- Result in increases in purchase of receivable, or POR fees and allowance for credit bad debt expense as a result of delayed or non-payment from our customers, both of which could be magnified by federal or state government legislation that requires us to extend suspensions of disconnections for non-payment;
- Reduce the availability and productivity of our employees and third-party resources;
- Cause us to experience an increase in costs as a result of our emergency measures;
- Cause a deterioration of the credit quality of our counterparties, including power purchase agreement counterparties, contractors or retail customers, that could result in credit losses
- Cause impairment of long-lived assets; and
- Cause a deterioration in our financial metrics or the business environment that adversely impacts our credit ratings.

The situation remains fluid and it is difficult to predict with certainty the potential impact of COVID-19 on our business, results of operations, financial condition and cash flows.

GRE's growth depends in part on its ability to enter new markets.

New markets, both domestic and international, are evaluated based on many factors, which include the regulatory environment, as well as GRE's REP businesses' ability to procure energy in an efficient and transparent manner. We seek to purchase wholesale energy where there is a real time market that reflects a fair price for the commodity for all participants. Once new markets are determined to be suitable for GRE's REP businesses, we expend substantial efforts to obtain necessary licenses and will incur significant customer acquisition costs and there can be no assurance that we will be successful in new markets. Furthermore, and as discussed in the Risk Factor entitled "*The Company's business is subject to the risks of international operations*" there are regulatory differences between the markets that we currently operate in and new markets, including, but not limited to, exposure to credit risk, additional churn caused by tariff requirements, rate-setting requirements and incremental billing costs. A failure to identify, become licensed in, and enter new territories may have a material negative impact on our growth, financial condition and results of operations.

The Company is subject to laws and regulations worldwide, changes to which could increase the Company's costs and individually or in the aggregate adversely affect the Company's business.

As the Company is expanding its operations geographically, including operations in international jurisdictions, the Company is subject to laws and regulations affecting its domestic and international operations in a number of areas. These U.S. and foreign laws and regulations affect the Company's activities including, but not limited to, our pricing structure and marketing activities.

Compliance with these laws, regulations and similar requirements may be onerous and expensive, and they may be inconsistent from jurisdiction to jurisdiction, further increasing the cost of compliance and doing business. Any such costs, which may rise in the future as a result of changes in these laws and regulations or in their interpretation, could individually or in the aggregate make the Company's products and services less attractive to the Company's customers, delay the introduction of new products in one or more regions, or cause the Company to change or limit its business practices. The Company has implemented policies and procedures designed to ensure compliance with applicable laws and regulations, but there can be no assurance that the Company's employees, contractors, or agents will not violate such laws and regulations or the Company's policies and procedures.

The Company's business is subject to the risks of international operations.

As the Company grows its international operations, it may derive a significant portion of its revenue and earnings from such operations. Compliance with applicable U.S. and foreign laws and regulations, such as import and export requirements, anti-corruption laws, tax laws, foreign exchange controls and cash repatriation restrictions, data privacy requirements, environmental laws, labor laws and anti-competition regulations, increases the costs of doing business in foreign jurisdictions. Although the Company has implemented policies and procedures to comply with these laws and regulations, a violation by the Company's employees, contractors, or agents could nevertheless occur. In some cases, compliance with the laws and regulations of one country could violate the laws and regulations of another country. Violations of these laws and regulations could materially adversely affect the Company's brand, international growth efforts and business.

The Company also could be significantly affected by other risks associated with international activities including, but not limited to, learning new markets, adopting to different cultural norms and practices, economic and labor conditions, increased duties, taxes and other costs and political instability. The Company is also exposed to credit and collectability risk on its trade receivables with customers in certain international markets. There can be no assurance the Company can effectively limit its credit risk and avoid losses.

Demand for REP services and consumption by customers are significantly related to weather conditions.

Typically, colder winters and hotter summers create higher demand and consumption for natural gas and electricity, respectively. Milder than normal winters and/or summers may reduce the demand for our energy services, thus negatively impacting our financial results.

GRE is subject to litigation that may limit its operations.

In connection with the 2013-2014 events described in the Risk Factor above entitled "Unusual weather conditions which may become more commonplace, may have significant direct and indirect impacts on GRE's and GREI's business and results of operations," IDT Energy was also sued in separate putative class action suits in New York, New Jersey and Pennsylvania, partially related to the price increases during the winter of 2014. From time to time, IDT Energy is also subject to inquiries, investigation or action from public utility commissions or other governmental regulatory or law enforcement agencies related to compliance of its practices with statutory or regulatory schemes. These matters are more fully discussed in Note 16 of the Notes to Consolidated Financial Statements included in this Annual Report on Form 10-K, including that IDT Energy entered into a settlement in connection with the three putative class actions, and with multiple regulators and governmental bodies terminating litigation with no admission of liability or finding of wrongdoing by IDT Energy.

IDT Energy does not believe that it was at fault or acted in any way improperly with respect to the events of winter 2014 or in connection with any other practices that are subject to investigation or litigation. Although we have taken action to insulate us and our customers from future similar events, we cannot assure that those actions will be effective and we will not be subject to litigation in the future.

Such class action lawsuits or other claims against us could have a material adverse impact on our financial condition, competitive position or results of operations.

Regulatory conditions can affect the amount of taxes and fees we need to pay and our pricing advantages.

We are subject to audits in various jurisdictions for various taxes, including income tax, utility excise tax and sales and use tax. Aggressive stances taken recently by regulators increase the likelihood of our having to pay additional taxes and fees in connection with these audits. In the future, we may seek to pass such charges along to our customers, which could have an adverse impact on our pricing advantages.

Transition risks associated with climate change, including those related to regulatory mandates could negatively impact our financial results

Where federal or state legislation mandates the use of renewable fuel sources, such as wind and solar and such legislation does not also provide for adequate cost recovery, it could result in significant changes in our business, including material increases in REC and power purchase costs. Such mandatory renewable portfolio requirements may have an adverse effect on our financial condition and results of operations.

A number of regulatory and legislative bodies have introduced requirements and/or incentives to reduce peak demand and energy consumption. Such conservation programs could result in customer consumption reduction and adversely impact our financial results in different ways.

In the past, we have been adversely impacted by reduced electric usage due in part to energy conservation efforts such as the use of efficient lighting products such as CFLs, halogens and LEDs. We are unable to determine what impact, if any, conservation will have on our financial condition or results of operations.

We face risks that are beyond our control due to our reliance on third parties both domestically and internationally and our general reliance on the electrical power and transmission infrastructure within the United States.

Our ability to provide energy delivery and commodity services depends on the operations and facilities of third parties, including, among others, BP, NYISO, PJM Shell, Energia Suomi and Astmax. Our reliance on the electrical power generation and transmission infrastructure within the United States makes us vulnerable to large-scale power blackouts. The loss of use or destruction of third party facilities that are used to generate or transmit electricity due to extreme weather conditions, breakdowns, war, acts of terrorism or other occurrences could greatly reduce our potential earnings and cash flows.

The REP business, including our relationship with our suppliers, is dependent on access to capital and liquidity.

Our business involves entering into contracts to purchase large quantities of electricity and natural gas. Because of seasonal fluctuations, we are generally required to purchase electricity or natural gas in advance and finance that purchase until we can recover such amounts from revenues. Certain of GRE's REPs have a Preferred Supplier Agreement with BP pursuant to which we purchase electricity and natural gas at market rate plus a fee. The agreement has been modified and extended since 2009, and is scheduled to terminate on November 30, 2023 subject to renewal by agreement of the parties. In addition to other advantages of this agreement, we are only required to post security with BP. There can be no assurance that we will be able to maintain the required covenants, that BP will be able to maintain their required credit rating, or that the agreement will be renewed upon its expiration. In addition, the security requirements outside of the BP agreement may increase as we enter other markets. Difficulty in obtaining adequate credit and liquidity on commercially reasonable terms may adversely affect our business, prospects and financial conditions.

A revision to certain utility best practices and programs in which we participate and with which we comply could disrupt our operations and adversely affect our results and operations.

Certain retail access "best practices" and programs proposed and/or required by state regulators have been implemented by utilities in most of the service territories in which we operate. One such practice is participation in purchase of receivables programs under which certain utilities purchase customer receivables for approximately 98.0% of their face value in exchange for a first priority lien in the customer receivables without recourse against a REP. This program is a key to our control of bad debt risk in our REP business.

The REP business depends on maintaining the licenses in the states in which we operate and any loss of those licenses would adversely affect our business, prospects and financial conditions.

GRE's REP businesses require licenses from public utility commissions and other regulatory organizations to operate its business. Those agencies may impose various requirements to obtain or maintain licenses. Further, certain non-governmental organizations have been focusing on the REP industry and the treatment of customers by certain REPs. Any negative publicity regarding the REP industry in general, including, but not limited to, legislatures potentially seeking to restrict the activities of REPs and GRE in particular or any increase in customer complaints regarding GRE's REP businesses could negatively affect our relationship with the various commissions and regulatory agencies and could negatively impact our ability to obtain new licenses to expand operations or maintain the licenses currently held. In the aftermath of the polar vortex, several regulatory bodies adopted more aggressive policies toward REPs, including the action against IDT Energy in Pennsylvania described elsewhere in this Annual Report on Form 10-K. Any loss of our REP licenses would cause a negative impact on our results of operations, financial condition and cash flow.

The REP business depends on the continuing efforts of our management team and our personnel with strong industry or operational knowledge and our efforts may be severely disrupted if we lose their services.

Our success depends on key members of our management team, the loss of whom could disrupt our business operation. Our business also requires a capable, well-trained workforce to operate effectively. There can be no assurance that we will be able to retain our qualified personnel, the loss of whom may adversely affect our business, prospects and financial conditions.

We could be harmed by network disruptions, security breaches, or other significant disruptions or failures of our IT infrastructure and related systems or of those we operate for certain of our customers

To be successful, we need to continue to have available, for our and our customers' use, a high capacity, reliable and secure network. We face the risk, as does any company, of a security breach, whether through cyber-attack, malware, computer viruses, sabotage, or other significant disruption of our IT infrastructure and related systems. As such, there is a risk of a security breach or disruption of the system we operated, including possible unauthorized access to our and our customers' proprietary or classified information. We are also subject to breaches of our network resulting in unauthorized utilization of our services or products, which subject us to the costs of providing those products or services, which are likely not recoverable. The secure maintenance and transmission of our and our customers' information is a critical element of our operations. Our information technology and other systems that maintain and transmit customer information, or those of service providers or business partners, may be compromised by a malicious third party penetration of our network security, or that of a third party service provider or business partner, or impacted by advertent or inadvertent actions or inactions by our employees, or those of a third party service provider or business partner. As a result, our or our customers' information may be lost, disclosed, accessed or taken without the customers' consent or our product and service may be used without payment.

Although we make significant efforts to maintain the security and integrity of these types of information and systems, there can be no assurance that our security efforts and measures will be effective or that attempted security breaches or disruptions would not be successful or damaging, especially in light of the growing sophistication of cyber-attacks and intrusions sponsored by state or other interests. We may be unable to anticipate all potential types of attacks or intrusions or to implement adequate security barriers or other preventative measures. Certain of our business units have been the subject of attempted and successful cyber-attacks in the past. We have researched the situations and do not believe any material internal or customer information has been compromised.

Network disruptions, security breaches and other significant failures of the above-described systems could (i) disrupt the proper functioning of our networks and systems and therefore our operations or those of certain of our customers; (ii) result in the unauthorized use of our services or products without payment, (iii) result in the unauthorized access to, and destruction, loss, theft, misappropriation or release of proprietary, confidential, sensitive or otherwise valuable information of ours or our customers, including trade secrets, which others could use to compete against us or for disruptive, destructive or otherwise harmful purposes and outcomes; (iv) require significant management attention or financial resources to remedy the damages that result or to change our systems and processes; (v) subject us to claims for contract breach, damages, credits, fines, penalties, termination or other remedies; or (vi) result in a loss of business, damage our reputation among our customers and the public generally, subject us to additional regulatory scrutiny or expose us to litigation. Any or all of which could have a negative impact on our results of operations, financial condition and cash flows.

Our growth strategy depends, in part, on our acquiring complementary businesses and assets and expanding our existing operations, which we may be unable to do.

Our growth strategy is based, in part, on our ability to acquire businesses and assets that are complementary to our existing operations. We may also seek to acquire other businesses. The success of this acquisition strategy will depend, in part, on our ability to accomplish the following:

- identify suitable businesses or assets to buy;
- complete the purchase of those businesses on terms acceptable to us;
- complete the acquisition in the time frame we expect;
- improve the results of operations of the businesses that we buy and successfully integrate their operations into our own; and
- avoid or overcome any concerns expressed by regulators, including antitrust concerns.

There can be no assurance that we will be successful in pursuing any or all of these steps. Our failure to implement our acquisition strategy could have an adverse effect on other aspects of our business strategy and our business in general. We may not be able to find appropriate acquisition candidates, acquire those candidates that we find or integrate acquired businesses effectively or profitably.

Uncertainty related to our exit in the U.K. market.

We face uncertainty related to our exit from the U.K. market. The Administrators of Orbit are currently engaged in a process to identify and settle creditors' claims. Unknown claims and liabilities could arise during the course of the process. Delays in the settlement of creditors' claims could increase the operations cost of the administration. The Administrators of Orbit are seeking to compel the Company to transfer to them cash that was transferred from Orbit to the Company prior to the declaration of insolvency for Orbit. The Company is challenging those efforts. It is unknown at this time how much of the funds are ultimately going to be required by the Administrators to satisfy liabilities and the costs of administration.

Risks Related to Genie Renewables

Competition in solar markets globally and across the solar value chain is intense, and could remain that way for an extended period of time.

In the aggregate, we believe manufacturers of solar cells and modules have significant installed production capacity, relative to global demand, and the ability for additional capacity expansion. During the past several years, industry average selling prices per watt have declined, at times significantly, both at the module and system levels, as competitors have reduced prices to sell inventories worldwide. There may be additional pressure on global demand and average selling prices in the future resulting from fluctuating demand in certain major solar markets such as China. If our competitors reduce module pricing to levels near or below their manufacturing costs, or are able to operate at minimal or negative operating margins for sustained periods of time, or if demand for PV modules does not grow sufficiently to justify the current production supply, our business, financial condition, and results of operations could be adversely affected.

If PV solar and related technologies are not suitable for widespread adoption at economically attractive rates of return or if sufficient additional demand for solar modules, related technologies, and systems does not develop or takes longer to develop than we anticipate, our net sales and profit may flatten or decline and we may be unable to sustain profitability.

If utility-scale PV solar technology proves unsuitable for widespread adoption at economically attractive rates of return or if additional demand for solar modules and systems fails to develop sufficiently or takes longer to develop than we anticipate, we may be unable to grow our business or generate sufficient net sales to sustain profitability. In addition, demand for solar modules, related technologies, and systems in our targeted markets may develop to a lesser extent than we anticipate. Many factors may affect the viability of widespread adoption of utility-scale PV solar technology in our targeted markets, as well as the demand for solar modules and systems generally.

The reduction, modification or elimination of government incentives could cause our revenue to decline and harm our financial results.

The market for on-grid applications, where solar power is used to supplement a customer's electricity purchased from the utility network or sold to a utility under tariff, depends in large part on the availability and size of government mandates and economic incentives because, at present, the cost of solar power generally exceeds retail electric rates in many locations and wholesale peak power rates in some locations. Incentives and mandates vary by geographic market. The reduction, modification or elimination of grid access, government mandates or economic incentives in one or more of our customer markets would materially and adversely affect the growth of such markets or result in increased price competition, either of which could cause our revenue to decline and materially adversely affect our financial results.

We may be unable to profitably provide new solar offerings or achieve sufficient market penetration with such offerings.

We may expand our portfolio of offerings to include solutions that build upon our core competencies but for which we have not had significant historical experience, including variations in our traditional product offerings or other offerings related to commercial and industrial customers and community solar. We cannot be certain that we will be able to ascertain and allocate the appropriate financial and human resources necessary to grow these business areas. We could invest capital into growing these businesses but fail to address market or customer needs or otherwise not experience a satisfactory level of financial return. Also, in expanding into these areas, we may be competing against companies that previously have not been significant competitors, such as companies that currently have substantially more experience than we do in the residential, commercial and industrial, or other targeted offerings. If we are unable to achieve growth in these areas, our overall growth and financial performance may be limited relative to our competitors and our operating results could be adversely impacted.

An increase in interest rates or tightening of the supply of capital in the global financial markets (including a reduction in total tax equity availability) could make it difficult for customers to finance the cost of a PV solar power system and could reduce the demand for our modules or systems and/or lead to a reduction in the average selling price for such offerings.

Customers may depend on debt and/or equity financing to fund the initial capital expenditure required to develop, build, and/or purchase a PV solar power system. As a result, an increase in interest rates, or a reduction in the supply of project debt financing or tax equity investments (including reductions due to a change in tax related incentives that benefit tax equity investors, such as the reduction of the U.S. corporate income tax rate to 21% under the Tax Act, which could reduce the value of these incentives), could reduce the number of solar projects that receive financing or otherwise make it difficult for our customers or our systems business to secure the financing necessary to develop, build, purchase, or install a PV solar power system on favorable terms, or at all, and thus lower demand for our solar modules, which could limit our growth or reduce our net sales.

Problems with product quality or performance may cause us to incur significant and/or unexpected contractual damages and/or warranty and related expenses, damage our market reputation, and prevent us from maintaining or increasing our market share.

We perform a variety of quality and life tests under different conditions upon which we base our assessments and warranty. However, if our products perform below expectations, we could experience significant warranty and related expenses, damage to our market reputation, and erosion of our market share.

If any of the assumptions used in estimating our warranties prove incorrect, we could be required to accrue additional expenses, which could adversely impact our financial position, operating results, and cash flows. Although we have taken significant precautions to avoid a manufacturing excursion from occurring, any manufacturing excursions, including any commitments made by us to take remediation actions in respect of affected modules beyond the stated remedies in our warranties, could adversely impact our reputation, financial position, operating results, and cash flows.

Any widespread product failures may damage our market reputation, cause our net sales to decline, require us to repair or replace the defective products or provide financial remuneration, and result in us taking voluntary remedial measures beyond those required by our standard warranty terms to enhance customer satisfaction, which could have a material adverse effect on our operating results.

Several of our key raw materials and components are either single-sourced or sourced from a limited number of suppliers, and their failure to perform could cause manufacturing delays and impair our ability to deliver solar modules to customers in the required quality and quantities and at a price that is profitable to us.

Our failure to obtain raw materials and components that meet our quality, quantity, and cost requirements in a timely manner could interrupt or impair our ability to manufacture our solar modules or increase our manufacturing costs. Several of our key raw materials and components are either single-sourced or sourced from a limited number of suppliers. As a result, the failure of any of our suppliers to perform could disrupt our supply chain and adversely impact our operations. In addition, some of our suppliers are smaller companies that may be unable to supply our increasing demand for raw materials and components as we expand our business. We may be unable to identify new suppliers or qualify their products for use on our production lines in a timely manner and on commercially reasonable terms. A constraint on our production may result in our inability to meet our capacity plans and/or our obligations under our customer contracts, which would have an adverse impact on our business. Additionally, reductions in our production volume may put pressure on suppliers, resulting in increased material and component costs.

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory, and economic barriers to the purchase and use of solar power products, which may significantly reduce demand for our products and services.

The market for electric generation products is heavily influenced by federal, state and local government laws, regulations and policies concerning the electric utility industry in the United States and abroad, as well as policies promulgated by electric utilities. These regulations and policies often relate to electricity pricing and technical interconnection of customer-owned electricity generation, and changes that make solar power less competitive with other power sources could deter investment in the research and development of alternative energy sources as well as customer purchases of solar power technology, which could in turn result in a significant reduction in the demand for our solar power products.

Risk Related to Our Financial Condition and Reporting

We had a material weakness in our internal control over financial reporting in previous years and cannot assure you that additional material weaknesses will not be identified in the future.

We reported in our Annual Report on Form 10-K as of December 31, 2020, a material weakness in internal control specifically related to management's review of the income tax provision. During 2021, we implemented certain remediation measures related to the material weakness, however, we concluded that our internal control over financial reporting was ineffective as of December 31, 2021 (see Item 9A Control and Procedures in this Annual Report on Form 10-K).

We also reported in our Annual Report on Form 10-K as of December 31, 2018, a material weakness in internal control related to an application, which the Company uses to process a wide variety of functions for GRE related to customer enrollment, customer programs and price plans, rebate programs, sales commissions, invoicing, and invoice payment information. During 2019, we completed the remediation measures related to the material weakness and concluded that our internal control over financial reporting was effective as of December 31, 2019. Completion of remediation does not provide assurance that our remediation or other controls will continue to operate properly.

While we aim to work diligently to ensure a robust internal control that is devoid of significant deficiencies and material weaknesses, given the complexity of the accounting rules, we may, in the future, identify additional significant deficiencies or material weaknesses in our disclosure controls and procedures and internal control over financial reporting. Any failure to maintain or implement required new or improved controls, or any difficulties we encounter in their implementation, could result in additional significant deficiencies or material weaknesses, cause us to fail to meet our periodic reporting obligations or result in material misstatements in our financial statements. Any such failure could also adversely affect the results of periodic management evaluations and annual auditor attestation reports regarding the effectiveness of our internal control over financial reporting required under Section 404 of the Sarbanes-Oxley Act of 2002 and the rules promulgated under Section 404. The existence of a material weakness could result in errors in our financial statements that could result in a restatement of financial statements, cause us to fail to meet our reporting obligations and cause investors to lose confidence in our reported financial information, leading to a decline in our stock price. See Item 9A Controls and Procedures for a further discussion of our assessment of our internal controls over financial reporting.

Risks Related to Our Capital Structure

Holders of our Class B common stock and Series 2012-A Preferred Stock have significantly less voting power than holders of our Class A common stock.

Holders of our Class B common stock and Series 2012-A Preferred Stock are entitled to one-tenth of a vote per share on all matters on which our stockholders are entitled to vote, while holders of our Class A common stock are entitled to three votes per share. As a result, the ability of holders of our Class B common stock and Series 2012-A Preferred Stock to influence our management is limited.

Holders of our Series 2012-A Preferred Stock are entitled to an annual dividend and such payments may have a negative impact on our cash flow.

Holders of our Series 2012-A Preferred Stock are entitled to receive an annual dividend, payable quarterly in cash. The payment of such dividend could have a negative impact on our cash flow and cash balances. If dividends on any shares of the Series 2012-A Preferred Stock are in arrears for six or more quarters, whether or not consecutive, holders of the Series 2012-A Preferred Stock shall have the right to elect two (2) additional directors to serve on our Board, and this could have a negative impact on the market price of our equity securities.

Eight trusts for the benefit of sons and daughters of Howard S. Jonas, our Chairman of the Board of Directors, hold shares that, in the aggregate, represent more than a majority of the combined voting power of our outstanding capital stock, which may limit the ability of other stockholders to affect our management.

Eight trusts for the benefit of children of Howard S. Jonas, (the "Trusts"), our Chairman of the Board, collectively have voting power over 5,123,374 shares of our common stock, (which is all the issued and outstanding shares of the Class A common stock), which are convertible into shares of our Class B common stock on a 1-for-1 basis, and 3,549,048 shares of our Class B common stock representing approximately 68.0% of the combined voting power of our outstanding capital stock, as of March 11, 2022. In addition, as of March 11, 2022, Howard S. Jonas holds 3,547,561 shares of our Class B common stock. Each of the Trusts has a different, independent trustee.

Howard Jonas serves as our Chairman of the Board, which is not an officer position. However, he is our founder and served as an executive officer, including our Chief Executive Officer, for a very significant time period, and the members of the Board and management often look to him for guidance on major financial, operational and strategic matters.

Howard S. Jonas does not have the right to direct or control the voting of the shares of our common stock that is held by the Trusts, and the independent trustees hold sole voting and dispositive power over the common stock held by the Trusts. However, he is the trustor of the trusts and is the father of each of the beneficiaries of the Trusts and his views may be taken into account by the trustees and others related to the Trusts.

We are not aware of any voting agreement between or among any of the Trusts and/or Howard S. Jonas, but if such a voting agreement or other similar arrangement exists or were to be consummated, if all or several or all of the Trusts were to act in concert, or if we issued additional Class A common stock, certain or all of the Trusts and/or Howard S. Jonas along with holders of the Class A common stock would be able to control matters requiring approval by our stockholders, including the election of all of the directors, amendment of organizational documents and the approval of significant corporate transactions, including any merger, consolidation or sale of all or substantially all of our assets. As a result, the ability of any of our other stockholders to influence our management may be limited. In addition, our dual class structure has an anti-takeover effect, and accordingly, the holders of the shares of Class A common stock have the ability to prevent any change in control transactions that may otherwise be in the best interest of stockholders.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our headquarters are located at 520 Broad St., Newark, New Jersey. Our lease for our office space at 520 Broad Street expires in April 2025 and is for 8,631 square feet and includes two parking spots per thousand square feet of space leased. The annual base rent is \$198,513. We have the right to terminate the lease upon four months' notice and upon early termination Genie will pay a penalty equal to 25% of the portion of the rent due over the course of the remaining term. Upon expiration of the lease, we have the right to renew the lease for another 5 years on substantially the same terms, with a 2% increase in the rental payments.

GRE's Jamestown, New York offices are located at 3315 North Main Street where we lease approximately 12,000 square feet of space. GRE's Arizona office is located in Chandler, Arizona where we lease approximately 3,300 square feet. GRE's Texas office is located in Houston, Texas where we lease approximately 4,200 square feet.

Lumo's Helsinki, Finland offices are located at Teollisuuskatu 21 00510, Helsinki, Finland where we lease approximately 3,143 square feet of space.

Item 3. Legal Proceedings.

Certain legal proceedings in which we are involved are discussed in the Notes to Consolidated Financial Statements — Notes 16, *Legal and Regulatory Proceedings*, in this Annual Report on Form 10-K, which is incorporated by reference.

Item 4. Mine Safety Disclosures.

Not applicable.

Part II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

CLASS B COMMON STOCK

Our Class B common stock trades on the New York Stock Exchange under the symbol "GNE".

On March 11, 2022, there were 270 holders of record of our Class B common stock and 8 holders of record of our Class A common stock. All shares of Class A common stock are beneficially owned by eight trusts or the benefit of children of Howard Jonas, our Chairman of the Board. These numbers do not include the number of persons whose shares are in nominee or in "street name" accounts through brokers. On March 11, 2022, the last sales price reported on the New York Stock Exchange for the Class B common stock was \$6.66 per share.

PREFERRED STOCK

The Series 2012-A Preferred Stock is listed and traded on the NYSE under the symbol "GNEPRA". Trading began on the NYSE on October 24, 2012.

On March 11, 2022, there were 4 holders of record of our Series 2012-A Preferred Stock. These numbers do not include the number of persons whose shares are in nominee or in "street name" accounts through brokers. On March 11, 2022, the last sales price reported on the New York Stock Exchange for the Series 2012-A Preferred Stock was \$8.90 per share.

Additional information regarding dividends required by this item is incorporated by reference from the Management's Discussion and Analysis section in Item 7 to Part II and Note 13 to the Consolidated Financial Statements in Item 8 to Part II of this Annual Report.

The information required by Item 201(d) of Regulation S-K will be contained in our Proxy Statement for our Annual Stockholders Meeting, which we will file with the Securities and Exchange Commission within 120 days after December 31, 2021, and which is incorporated by reference herein.

Performance Graph of Stock

We are a smaller reporting company as defined by Rule 12b-2 of the Securities and Exchange Act of 1934 and are not required to provide the information under this item.

Issuer Purchases of Equity Securities

The following table provides information with respect to purchases by us of our shares during the fourth quarter of the year ended December 31, 2021.

	Total Number of Shares Purchased	Average Price per Share	Total Number of Shares Purchased as part of Publicly Announced Plans or Programs	Maximum Number of Shares that May Yet Be Purchased Under the Plans or Programs ⁽¹⁾
October 1 – 31, 2021	—	\$ —	—	5,308,366
November 1 - 30, 2021	22,485 ⁽²⁾	\$ 4.99	—	5,308,366
December 1 – 31, 2021	—	\$ —	—	5,308,366
Total	<u>22,485</u>	<u>\$ 4.99</u>		

(1) Under our existing stock repurchase program, approved by our Board of Directors on March 11, 2013, we were authorized to repurchase up to an aggregate of 7 million shares of our Class B common stock.

(2) Pertains to 22,485 Class B common stock that were tendered by employees of ours to satisfy the tax withholding obligations in connection with the lapsing of restrictions on awards of restricted stock. Such shares were repurchased by us based on their fair market value on the trading day immediately prior to the vesting date.

Item 6. Selected Financial Data.

We are a smaller reporting company as defined by Rule 12b-2 of the Securities and Exchange Act of 1934 and are not required to provide the information under this item.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

This Annual Report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including statements that contain the words "believes," "anticipates," "expects," "plans," "intends" and similar words and phrases. These forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from the results projected in any forward-looking statement. In addition to the factors specifically noted in the forward-looking statements, other important factors, risks and uncertainties that could result in those differences include, but are not limited to, those discussed under Item 1A to Part I "Risk Factors" in this Annual Report. The forward-looking statements are made as of the date of this Annual Report, and we assume no obligation to update the forward-looking statements, or to update the reasons why actual results could differ from those projected in the forward-looking statements. Investors should consult all of the information set forth in this report and the other information set forth from time to time in our reports filed with the Securities and Exchange Commission pursuant to the Securities Act of 1933 and the Securities Exchange Act of 1934, including our reports on Forms 10-Q and 8-K.

The following discussion should be read in conjunction with the Consolidated Financial Statements and Notes thereto included in Item 8 of this Annual Report.

Overview

We are comprised of Genie Retail Energy ("GRE"), Genie Retail Energy International ("GRE International") and Genie Renewables. In March 2021, the Company modified its management reporting to rename the Genie Energy Services ("GES") segment as "Genie Renewables."

GRE owns and operates retail energy providers ("REPs"), including IDT Energy, Residents Energy, Town Square Energy ("TSE"), Southern Federal and Mirabito Natural Gas. GRE's REPs' businesses resell electricity and natural gas primarily to residential and small business customers, with the majority of the customers in the Midwestern and Eastern United States and Texas.

GRE International holds the Company's interest in REPs that serve retail customers in Scandinavia. It holds 90.8% controlling interest in Lumo Energia Oyj ("Lumo Finland"), a REP serving residential customers in Finland and 97.7% of Lumo Energi AB ("Lumo Sweden"), which serves retail customers in Sweden. GREI previously held 98.8% in Genie Japan that was sold in May 2021. GRE International also holds a 100% ownership of Orbit Energy, a REP operating in the U.K., which was discontinued in November 2021 as discussed below.

Genie Renewables holds Genie Solar Energy, a rooftop solar system sales and general contracting company, a 93.5% interest in CityCom Solar, a marketer of community solar energy solutions, Diversegy LLC ("Diversegy"), an energy broker for commercial, and a 60.0% controlling interest in PrismSolar, a solar solutions company that is engaged in U.S. manufacturing of solar panels, solar installation design and solar energy project management.

Discontinued Operations

In September 2021, we initiated the process of spinning off the operations of GRE International into a separate publicly-traded company. After the initiation of the spin-off process, the natural gas and energy market in the United Kingdom deteriorated which prompted us to suspend the spin-off and start the process of orderly withdrawal from the United Kingdom market. In October 2021, as part of the orderly exit process from the United Kingdom market, Orbit and Shell U.K. Limited ("Shell") agreed to terminate the exclusive supply contract between them. As part of the termination agreement, Orbit was required to unwind all physical forward hedges with Shell which resulted in net cash proceeds after settlement of all related liabilities with Shell. A portion of the net cash proceeds was transferred to us (see Notes 16, *Legal and Regulatory Proceedings*, to our financial statements included elsewhere in this Annual Report on Form 10-K).

Following the termination of the contract with Shell, we filed a petition with the High Court of Justice Business and Property of England and Wales (the "Court") to declare Orbit insolvent based on the Insolvency Act of 1986. On November 29, 2021, the Court declared Orbit insolvent based on the Insolvency Act of 1986, revoked Orbit's license to supply electricity and natural gas in the United Kingdom, ordered that Orbit's current customers be transferred to a "supplier of last resort" and transferred the administration of Orbit to Administrators effective December 1, 2021. All of the customers of Orbit were transferred to a third-party supplier effective December 1, 2021 as ordered by the Court. All assets and liabilities of Orbit, including cash and receivables remain with Orbit, the management and control of which was transferred to Administrators.

We determined that exiting the United Kingdom represented a strategic shift that would have a major effect on our operations and accordingly, presented the results of operations and related cash flows as discontinued operations for all periods presented. The assets and liabilities of the discontinued operations have been presented separately, and are reflected within assets and liabilities from discontinued operations in the accompanying consolidated balance sheets as of December 31, 2021 and 2020.

Coronavirus Disease (COVID 19)

Starting in the first quarter 2020, the world and the United States experienced the unprecedented impacts of the coronavirus disease 2019 (COVID-19) pandemic.

For the year ended December 31, 2020, the impacts of COVID-19 are evident in several key aspects of our business operations and the corresponding financial impact has been mixed. Our consolidated revenues for the year ended December 31, 2021 increased by \$6.8 million or 1.9% compared to 2020.

Our customer base is predominantly residential, so we benefited from the increased demand for electricity when customers are working from their homes. On the other hand, like other retail energy providers, we suspended our face-to-face customer acquisition programs in March 2020 as public health measures were implemented to combat COVID-19, resulting in a decrease in gross meter acquisitions and a decrease in U.S. domestic meters served. The reduction in gross meter acquisitions decreased our customer acquisition expense in the year ended December 31, 2021 and 2020 compared to the period before the pandemic. During the year ended December 31, 2021 and 2020, in part, due to our competitors suspending face to face marketing programs.

We did not experience any significant changes in our workforce composition and were able to implement our business continuity plans with no significant impact to our ability to maintain our operations. We continue to maintain strong physical and cybersecurity measures in order to both serve our operational needs with a remote workforce and to ensure that we continue to provide services to our customers. We face challenges due to the need to operate with a remote workforce and are continuing to address those challenges so as to minimize the impact on our ability to operate.

Beginning in 2021, public health restrictions have begun to ease in some of our markets which allow us to resume face-to-face sales and marketing. Looking ahead, we expect to see a modest rebound in meter acquisition, however, any reversal of the easing of restrictions would impact that expected rebound.

There are many uncertainties regarding the impacts of the COVID-19 pandemic, and we are closely monitoring those impacts of on all aspects of its business, including how it will impact our customers, employees, suppliers, vendors, and business partners. We are currently unable to predict the impact that COVID-19 will have on our financial position and operating results due to the complexities of the impacts and numerous uncertainties that are beyond the Company's control. We expect to continue to assess the evolving impact of COVID-19 on our business and assets and intend to make adjustments accordingly.

Genie Retail Energy

GRE operates REPs that resell electricity and/or natural gas to residential and small business customers in Connecticut, Delaware, Florida, Georgia, Illinois, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Texas, Rhode Island, and Washington, D.C. GRE's revenues represented approximately 85.7% and 85.3% of our consolidated revenues in the years ended December 31, 2021 and 2020, respectively

GRE's cost of revenues consists primarily of natural gas and electricity purchased for resale. Certain of GRE's REPs are party to an Amended and Restated Preferred Supplier Agreement with BP Energy Company, or BP, which is in effect through November 30, 2023. Those REPs ability to purchase electricity and natural gas under this agreement is subject to satisfaction of certain conditions including the maintenance of certain covenants.

As an operator of REPs, GRE does not own electrical power generation, transmission, or distribution facilities, or natural gas production, pipeline or distribution facilities. Instead, GRE's REPs contract with various pipeline and distribution companies for natural gas pipeline, storage and transportation services, and utilizes NYISO, PJM, ISO New England and MISO for electric transmission and distribution. GRE's cost of revenues includes scheduling costs, ISO fees, pipeline costs and utility service charges for the purchase of these services.

For risk management purposes, GRE's REPs utilize put and call options and swaps as hedges against unfavorable fluctuations in market prices of electricity and natural gas and to reduce exposure from price fluctuations. The put and call options and swaps are recorded at fair value as a current asset or liability and any changes in fair value are recorded in cost of revenues. The impact of these options and swaps on cost of revenues is relatively small in comparison to the purchases of gas and electricity for resale.

The electricity transmission and distribution operators perform real-time load balancing for each of the electrical power grids in which GRE's REPs operate. Similarly, the utility or the local distribution company, or LDC, performs load balancing for each of the natural gas markets in which GRE's REPs operate. Load balancing ensures that the amount of electricity and natural gas that GRE's REPs purchase is equal to the amount necessary to service their customers' demands at any specific point in time. GRE's REPs manage the differences between the actual electricity and natural gas demands of its customers and its bulk or block purchases by buying and selling in the spot market, and through monthly cash settlements and/or adjustments to futures deliveries in accordance with the load balancing performed by utilities, LDCs, and electricity transmission and distribution operators. Suppliers and the LDC's charge or credit GRE for balancing the electricity and natural gas purchased and sold for its account.

Local utilities generally meter and deliver electricity and natural gas to GRE's REPs' customers. The local utilities also provide billing and collection services on GRE's REPs behalf for most of customers and certain local utilities offer purchase of receivables, or POR, programs. GRE's REPs receive the proceeds less the utility's fees for purchase of receivables billing and other ancillary services, where applicable.

Volatility in the electricity and natural gas markets affects the wholesale cost of the electricity and natural gas that GRE's REPs sell to customers. GRE's REPs may not always choose to pass along increases in costs to their customers for various reasons including competitive pressures and for overall customer satisfaction. In addition, GRE's REPs offer fixed rate products or guaranteed pricing and may be unable to change their sell rates offered to fixed rate and guaranteed pricing customers in response to volatility in the prices of the underlying commodities. This can adversely affect GRE's gross margins and results of operations. Alternatively, increases in GRE's REPs rates charged to customers may lead to increased customer churn.

GRE's REPs' selling expense consists primarily of sales commissions paid to independent agents and marketing costs, which are the primary costs associated with the acquisition of customers. Selling, general and administrative expense includes compensation, benefits, utility fees for billing and collection, professional fees, rent and other administrative costs.

Seasonality and Weather; Climate Change

The weather and the seasons, among other things, affect GRE's REPs' revenues. Weather conditions have a significant impact on the demand for natural gas used for heating and electricity used for heating and cooling. Typically, colder winters increase demand for natural gas and electricity, and hotter summers increase demand for electricity. Milder winters and/or summers have the opposite effect. Unseasonable temperatures in other periods may also impact demand levels. Potential changes in global climate may produce, among other possible conditions, unusual variations in temperature and weather patterns, resulting in unusual weather conditions, more intense, frequent and extreme weather events and other natural disasters. Some climatologists believe that these extreme weather events will become more common and more extreme which will have a greater impact on our operations. Natural gas revenues typically increase in the first quarter due to increased heating demands and electricity revenues typically increase in the third quarter due to increased air conditioning use. Approximately 44.5% and 47.9% of GRE's natural gas revenues for the relevant years were generated in the first quarter of 2021 and 2020, respectively, when demand for heating was highest. Although the demand for electricity is not as seasonal as natural gas (due, in part, to usage of electricity for both heating and cooling), approximately 30.3% and 31.8% of GRE's electricity revenues for 2021 and 2020, respectively, were generated in the third quarters of those years. GRE's REPs' revenues and operating income are subject to material seasonal variations, and the interim financial results are not necessarily indicative of the estimated financial results for the full year.

In addition to the direct physical impact that climate change may have on our business, financial condition and results of operations because of the effect on pricing, demand for our offerings and/or the energy supply markets, we may also be adversely impacted by other environmental factors, including: (i) technological advances designed to promote energy efficiency and limit environmental impact; (ii) increased competition from alternative energy sources; (iii) regulatory responses aimed at decreasing greenhouse gas emissions; and (iv) litigation or regulatory actions that address the environmental impact of our energy products and services.

Concentration of Customers and Associated Credit Risk

GRE's REPs reduce their customer credit risk by participating in purchase of receivable programs for a majority of their receivables. In addition to providing billing and collection services, some utility companies purchase those REPs' receivables and assume all credit risk without recourse to those REPs for those purchased receivables. GRE's REPs primary credit risk with respect to those purchased receivables is therefore nonpayment by the utility companies. Certain of the utility companies represent significant portions of our consolidated revenues and consolidated gross trade accounts receivable balance during certain periods, and such concentrations increase our risk associated with nonpayment by those utility companies.

The following table summarizes the percentage of consolidated revenues from customers that equal or exceed 10.0% or greater of the Company's consolidated revenues in the period (no other single customer accounted for more than 10.0% of consolidated revenues in these periods):

	Year ended December 31,	
	2021	2020
Customer A	10%	10%

There was no single utility company or customer that accounted for 10% or greater of our consolidated trade accounts receivable at December 31, 2021 and 2020.

Purchase of Receivable

Utility companies offer purchase of receivable, or POR, programs in most of the service territories in which we operate. GRE's REPs reduce their customer credit risk by participating in POR programs for a majority of their receivables. In addition to providing billing and collection services, utility companies purchase those REPs' receivables and assume all credit risk without recourse to those REPs. GRE's REPs' primary credit risk is therefore nonpayment by the utility companies. In the year ended December 31, 2021, the associated cost was approximately 1.0% of GRE's revenue. At December 31, 2021, 80.8% of GRE's net accounts receivables were under a POR program.

Class Action Lawsuits

Although GRE endeavors to maintain best sales and marketing practices, such practices have been the subject of certain class action lawsuits.

On February 18, 2020, named Plaintiff Danelle Davis filed a putative class action complaint against Residents Energy and GRE in United States District of New Jersey alleging violations of the Telephone Consumer Protection Act, 47 U.S.C § 227 et seq. Although Residents Energy and GRE denies any wrongdoing in connection with the complains, the parties settled the matter for a minimal amount which was included in selling, general and administrative expenses in the first quarter of 2021.

See Notes 15, *Legal and Regulatory Proceedings*, in this Annual Report on Form 10-K, which is incorporated by reference.

Agency and Regulatory Proceedings

From time to time, the Company responds to inquiries or requests for information or materials from public utility commissions or other governmental regulatory or law enforcement agencies related to investigations under statutory or regulatory schemes. The Company cannot predict whether any of those matters will lead to claims or enforcement actions or whether the Company and the regulatory parties will enter into settlements before a formal claim is made. See Notes 15, *Legal and Regulatory Proceedings*, in this Annual Report on Form 10-K, which is incorporated by reference, for further detail on agency and regulatory proceedings.

State of Connecticut Public Utilities Regulatory Authority

Town Square Energy

On September 19, 2018, the State of Connecticut Public Utilities Regulatory Authority ("PURA") commenced an investigation into Town Square following customer complaints of allegedly misleading and deceptive sales practices on the part of Town Square. The Connecticut Office of Consumer Counsel subsequently joined in the investigation. Although Town Square denies any basis for those complaints and any wrongdoing on its part, it cooperated with the investigation and responded to subpoenas for discovery. On June 17, 2020, the PURA notified Town Square that it was advancing its investigation by assigning Prosecutorial staff for the purpose of investigating Town Square's compliance with licensed electric supplier billing, marketing, and licensing requirements, and, if appropriate, facilitating settlement discussions among the parties that contains, but is not limited to, an appropriate civil penalty, extensive retraining of the supplier's third-party agents, and retention of all sales calls with continued auditing. In the first quarter of 2021, Town Square accrued \$0.4 million.

In July 2021, the parties settled the dispute. Pursuant to the terms of the settlement agreement, Town Square paid \$0.4 million. Town Square has also, and has agreed to voluntarily refrain, from in-person marketing activities in Connecticut for the period of 15 months. As of December 31, 2021, Town Square's Connecticut customer base represented 4.8% of GRE's total meters served and 5.6% of the total RCEs of GRE's customer base. For the year ended December 31, 2021, Town Square's gross revenues from sales in Connecticut were \$29.0 million.

An RCE represents a natural gas customer with annual consumption of 100 mmbtu or an electricity customer with annual consumption of 10 MWh. Because different customers have different rates of energy consumption, RCEs are an industry standard metric for evaluating the consumption profile of a given retail customer base.

Residents Energy

In August 2020, Residents Energy began marketing retail energy services in Connecticut. For the year ended December 31, 2021, Residents Energy's gross revenues from sales in Connecticut was \$0.2 million. During the fourth quarter of 2020, the enforcement division of PURA contacted Residents Energy concerning customer complaints received in connection with alleged door-to-door marketing activities in violation of various rules and regulations. On March 12, 2021, the enforcement division filed a motion against Resident Energy with the adjudicating body of PURA, seeking the assessment of \$1.5 million in penalties, along with a suspension of license, auditing of marketing practices upon reinstatement and an invitation for settlement discussions. In the first quarter of 2021, Residents Energy accrued \$0.3 million.

In September 2021, the parties settled the dispute. Pursuant to the terms of the settlement agreement, Residents Energy paid \$0.3 million and volunteered to withdraw from the market in Connecticut for a period of 36 months.

CRITICAL ACCOUNTING POLICIES

Our financial statements and accompanying notes are prepared in accordance with accounting principles generally accepted in the United States of America, or U.S. GAAP. The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses as well as the disclosure of contingent assets and liabilities. Critical accounting policies are those that require application of management's most subjective or complex judgments, often as a result of matters that are inherently uncertain and may change in subsequent periods. Our critical accounting policies include those related to the allowance for doubtful accounts, goodwill and income taxes. Management bases its estimates and judgments on historical experience and other factors that are believed to be reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions. See Note 1 to the Consolidated Financial Statements in this Annual Report for a complete discussion of our significant accounting policies.

Revenue Recognition

Revenues from the Sale of Electricity and Natural Gas

Revenue from the single performance obligation to deliver a unit of electricity and/or natural gas is recognized as the customer simultaneously receives and consumes the benefit. Variable quantities in requirements contracts are considered to be options for additional goods and services because the customer has a current contractual right to choose the amount of additional distinct goods to purchase. GRE and Genie Japan (during the period prior to its sale in May 2021) record unbilled revenues for the estimated amount customers will be billed for services rendered from the time meters were last read to the end of the respective accounting period. The unbilled revenue is estimated each month based on available per day usage data, the number of unbilled days in the period and historical trends.

Many utility companies in the U.S. offer purchase of receivable, or POR, programs in most of the service territories in which we operate, and GRE's REPs participate in POR programs for a majority of their receivables. We estimate variable consideration related to our rebate programs using the expected value method and a portfolio approach. Our estimates related to rebate programs are based on the terms of the rebate program, the customer's historical electricity and natural gas consumption, the customer's rate plan, and a churn factor. Taxes that are imposed on our sales and collected from customers are excluded from the transaction price.

We recognize the incremental costs of obtaining a contract with a customer as an asset if it expects the benefit of those costs to be longer than one year. We determined that certain sales commissions to acquire customers meet the requirements to be capitalized. For GRE, we apply a practical expedient to expense costs as incurred for sales commissions to acquire customers as the period would have been one year or less. Incremental customer acquisition cost GRE International entities are capitalized and amortized over a range of eighteen and twenty-four months. These costs and the related amortization are recorded within sales and marketing expenses. Total capitalized customer acquisition costs to obtain a contract were \$1.0 million and \$0.8 million for the years ended December 31, 2021 and 2020, respectively. At December 31, 2021 customer acquisition costs of \$0.5 million and \$0.2 million were included in other current assets and other assets, respectively, on the consolidated balance sheet. At December 31, 2020 customer acquisition costs of \$0.6 million and \$0.2 million were included in other current assets and other assets, respectively, on the consolidated balance sheet. We recognized \$0.8 million of amortization of capitalized customer acquisition cost for each of the years ended December 31, 2021 and 2020. We continuously monitor our customer relationship periods to ensure compliance with the application of the standard.

Revenues from Solar Panels

Our revenues from sales of solar panels are recognized at a point in time following the transfer of control of the solar panels to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For sales contracts that contain multiple performance obligations, such as the shipment or delivery of solar modules, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations.

Allowance for Doubtful Accounts

We maintain an allowance for doubtful accounts for estimated losses that result from the inability or unwillingness of our customers to make required payments. The allowance for doubtful accounts was \$6.4 million at December 31, 2021 and \$4.8 million at December 31, 2020. Our allowance is determined based on known troubled accounts, historical experience and other currently available evidence. Our estimates of recoverability of customer accounts may change due to new developments, changes in assumptions or changes in our strategy, which may impact our allowance for doubtful accounts balance. We continually assess the likelihood of potential amounts or ranges of recoverability and adjust our allowance accordingly, however, actual collections and write-offs of trade accounts receivable may materially differ from our estimates.

Goodwill

Our goodwill balances were \$11.8 million and \$11.9 million at December 31, 2021 and 2020, respectively. Goodwill is not amortized since it is deemed to have an indefinite life. It is reviewed annually (or more frequently under various conditions) for impairment using a fair value approach.

Goodwill is the excess of the acquisition cost of businesses over the fair value of the identifiable net assets acquired. Goodwill and other indefinite lived intangible assets are not amortized. These assets are reviewed annually (or more frequently under various conditions) for impairment using a fair value approach.

The fair value of the reporting unit is estimated using discounted cash flow methodologies, as well as considering third party market value indicators. Calculating the fair value of the reporting units requires significant estimates and assumptions by management. Should the estimates and assumptions regarding the fair value of the reporting units prove to be incorrect, the Company may be required to record impairments to its goodwill in future periods and such impairments could be material.

We perform our annual goodwill impairment test as of October 1. In reviewing goodwill for impairment, we have the option, for any or all of our reporting units that carry goodwill - to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (i.e. greater than 50%) that the estimated fair value of a reporting unit is less than its carrying amount. If we elect to perform a qualitative assessment and determines that an impairment is more likely than not, we then required to perform the quantitative impairment test, otherwise no further analysis is required. We also may elect not to perform the qualitative assessment and, instead, proceed directly to quantitative impairment test. The ultimate outcome of the goodwill impairment review for a reporting unit should be the same whether we choose to perform the qualitative assessment or proceeds directly to the quantitative impairment test. In 2021 and 2020, we elected to perform a qualitative analysis for our GRE and GRE International reporting units as of October 1. The Company determined, after performing a qualitative analysis, that there was no evidence that it is more likely than not that the fair value of any identified reporting unit was less than the carrying amounts, therefore, it was not necessary to perform a quantitative impairment test. We determined, after performing qualitative analysis, that there was no evidence that it is more likely than not that the fair value of any identified reporting unit was less than the carrying amounts, therefore, it was not necessary to perform a quantitative impairment test. In 2020, we performed quantitative impairment analysis for Prism reporting unit. As a result of this test, we concluded that the carrying value Prism reporting unit exceeded its fair value of reporting unit including the allocated goodwill. Therefore, we recognized a goodwill impairment charge of \$0.4 million.

The determination of the fair value of our reporting units is based on an income approach that utilizes discounted cash flows for each reporting unit and other Level 3 inputs as specified in the fair value hierarchy in ASC Topic 820, *Fair Value Measurements and Disclosure*. Under the income approach, we determine fair value based on the present value of the most recent cash flow projections for the reporting unit as of the date of the analysis and calculate a terminal value utilizing a terminal growth rate. The significant assumptions under this approach include, among others: income projections, which are dependent on future sales, new customers, customer behavior, competitor pricing, operating expenses, the discount rate, and the terminal growth rate. The cash flows used to determine fair value are dependent on a number of significant management assumptions such as the expectations of future performance and the expected future economic environment, which are partly based upon our historical experience. The estimates are subject to change given the inherent uncertainty in predicting future results. Additionally, the discount rate and the terminal growth rate are based on judgment of the rates that would be utilized by a hypothetical market participant.

Income Taxes

Our current and deferred income taxes and associated valuation allowance are impacted by events and transactions arising in the normal course of business as well as in connection with special and non-routine items. Assessment of the appropriate amount and classification of income taxes is dependent on several factors, including estimates of the timing and realization of deferred income tax assets, the results of Internal Revenue Service audits of our federal income tax returns, and changes in tax laws or regulations.

The valuation allowance on our deferred income tax assets was \$10.8 million and \$15.7 million at December 31, 2021 and 2020, respectively. We employ a tax strategy that enables us to currently deduct losses from our foreign subsidiaries against our profitable U.S. operations and we assess the realizability of deferred taxes quarterly. Because of our current projections, we concluded that we meet the criteria of more likely than not in order to utilize our deferred federal income tax assets in the foreseeable future and have released the valuation on the assets that we will utilize.

We use a two-step approach for recognizing and measuring tax benefits taken or expected to be taken in a tax return. We determine whether it is more-likely-than-not that, a tax position will be sustained upon examination, including resolution of any related appeals or litigation processes, based on the technical merits of the position. In evaluating whether a tax position has met the more-likely-than-not recognition threshold, we presume that the appropriate taxing authority that has full knowledge of all relevant information will examine the position. Tax positions that meet the more-likely-than-not recognition threshold are measured to determine the amount of tax benefit to recognize in the financial statements. The tax position is measured at the largest amount of benefit that is greater than 50 percent likely of being realized upon ultimate settlement. Differences between tax positions taken in a tax return and amounts recognized in the financial statements will generally result in one or more of the following: an increase in a liability for income taxes payable, a reduction of an income tax refund receivable, a reduction in a deferred tax asset, or an increase in a deferred tax liability. We review and adjust our liability for unrecognized tax benefits based on our best estimate and judgment given the facts, circumstances and information available at each reporting date. To the extent that the outcome of these tax positions is different from the amounts recorded, such differences may affect income tax expense and actual tax payments.

RECENTLY ISSUED ACCOUNTING STANDARDS

Information regarding new accounting pronouncements are included in Note 1 — *Description of Business and Summary of Significant Accounting Policies*, to the Consolidated Financial Statements included in this Annual Report on Form 10-K.

RESULTS OF OPERATIONS

We evaluate the performance of our operating business segments based primarily on income (loss) from operations. Accordingly, the income and expense line items below income (loss) from operations are only included in our discussion of the consolidated results of operations.

Year Ended December 31, 2021 compared to Year Ended December 31, 2020

Genie Retail Energy Segment

(amounts in thousands)	Year ended December 31,		Change	
	2021	2020	\$	%
Revenues:				
Electricity	\$ 273,019	\$ 270,888	\$ 2,131	0.8%
Natural gas	38,812	33,562	5,250	15.6
Total revenues	311,831	304,450	7,381	2.4
Cost of revenues	220,951	216,137	4,814	2.2
Gross profit	90,880	88,313	2,567	2.9
Selling, general and administrative	56,185	51,805	4,380	8.5
Income from operations	\$ 34,695	\$ 36,508	\$ (1,813)	(5.0)

Revenues. GRE's electricity revenues increased modestly in 2021 compared to 2020. The increase in electricity revenues in 2021 compared to 2020 was the result of an increase in the average price charged to customers partially offset by a decrease in electricity consumption. The average rate per kilowatt hour sold increased by 4.7% in 2021 compared to 2020. Electricity consumption by GRE's REPs' customers decreased 3.8% in 2021 compared to 2020. The decrease in electricity consumption reflected a decrease in the average number of meters served, which decreased by 7.7% in 2021 compared to 2020 partially offset by a 4.3% increase in average electricity consumption per meter. The increase in per meter consumption reflects a sustained focus on the acquisition of higher consumption meters, warmer weather during the summer of 2021 compared to the same period in 2020 and increased residential electricity consumption resulting from COVID-19 "stay-at-home" orders in the first half of 2021.

GRE's natural gas revenues increased in 2021 compared to 2020. The increase in natural gas revenues in 2021 compared to 2020 was a result of increases in natural gas consumption, average meters served, average rate per therm sold and average consumption per meter. Natural gas consumption by GRE's REPs' customers increased by 4.8% in 2021 compared to 2020. Average meters served increased by 3.4% in 2021 compared to 2020 and average consumption per meter increased by 1.3%. The average rate per therm sold increased 10.3% in 2021 compared to 2020.

Other revenue in 2020 included commission from selling third-party products to customers.

The customer base for GRE's REPs as measured by meters serviced consistent of the following:

(in thousands)	December 31, 2021	September 30, 2021	June 30, 2021	March 31, 2021	December 31, 2020
Meters at end of quarter:					
Electricity customers	210	289	292	308	305
Natural gas customers	75	72	69	65	65
Total meters	285	361	361	373	370

Gross meter acquisitions in 2021 were 177,000 compared to 212,000 in 2020. The number of meters served on December 31, 2021 decreased by 76,000 meters or 20.5% from December 31, 2020. In 2021, the average monthly churn increased to 5.7% compared to 4.4% in 2020. The decreases in the gross meter acquisitions and a number of meters served and increase in average monthly churn at December 31, 2021 compared to December 31, 2020 was due to termination of a significant aggregation deal in 2021 as well as a "strategic pause" on customer acquisition to protect margins due to unfavorable market conditions in the fourth quarter 2021. GRE REPs also returned some customers to their underlying utility in certain markets to minimize the impact of expected higher prices on our margins.

The average rates of annualized energy consumption, as measured by residential customer equivalents, or RCEs, are presented in the chart below. An RCE represents a natural gas customer with annual consumption of 100 mmbtu or an electricity customer with annual consumption of 10 MWh. Because different customers have different rates of energy consumption, RCEs are an industry standard metric for evaluating the consumption profile of a given retail customer base.

(in thousands)	December 31, 2021	September 30, 2021	June 30, 2021	March 31, 2021	December 31, 2020
RCEs at end of quarter:					
Electricity customers	189	276	272	291	284
Natural gas customers	71	60	58	56	53
Total RCEs	260	336	330	347	337

RCEs decreased 22.8% at December 31, 2021 compared to December 31, 2020 primarily due to the "strategic pause" on customer acquisition and transfer of some customers to their underlying customers as discussed above.

Cost of Revenues and Gross Margin Percentage. GRE's cost of revenues and gross margin percentage were as follows:

(amounts in thousands)	Year ended December 31,		Change	
	2021	2020	\$	%
Cost of revenues:				
Electricity	\$ 198,483	\$ 197,038	\$ 1,445	0.7%
Natural gas	22,468	19,099	3,369	17.6
Total cost of revenues	\$ 220,951	\$ 216,137	\$ 4,814	2.2%

	Year ended December 31,		Change	
	2021	2020		
Gross margin percentage:				
Electricity	27.3%	27.3%		0.0%
Natural gas	42.1%	43.1%		-1.0%
Total gross margin percentage	29.1%	29.0%		0.1%

Cost of revenues for electricity increased modestly in 2021 compared to 2020 primarily because of increases in electricity consumption partially offset by a decrease in the average unit cost of electricity. The average unit cost of electricity increased by 4.7% in 2021 compared to 2020. Electricity consumption by GRE's REPs' customers decreased by 3.8% in 2021 compared to 2020. Gross margin on electricity was flat in 2021 compared to 2020.

Cost of revenues for natural gas increased in 2021 compared to 2020 primarily because of increases in total natural gas consumption and average unit cost of natural gas. Natural gas consumption by GRE's REPs' customers increased by 4.8% in 2021 compared to 2020. The average unit cost of natural gas increased 12.2% in 2021 compared to 2020. Gross margin on natural gas sales decreased in 2021 compared to 2020 because the increase in the average rate charged to customers increased less than the average unit cost of natural gas.

Selling, General and Administrative. The increase in selling, general and administrative expense in 2021 compared to 2020 was primarily due to increases in marketing and customer acquisition costs and employee-related costs partially offset by a decrease in the provision for doubtful accounts and costs related to POR programs. Marketing and customer acquisition expenses increased by \$4.1 million in 2021 compared to 2020 due to the expansion of marketing activities to offset the effect of COVID-19 related public health restrictions to traditional customer acquisition methods. Employee-related expenses slightly increased by \$0.4 million in 2021 compared to 2020 primarily due to an increase in the number of employees. Provision for doubtful accounts and costs related to POR programs decreased by \$1.4 million in 2021 compared to 2020 as a result of an increase in receivables in markets that offers POR programs. As a percentage of GRE's total revenues, selling, general and administrative expenses increased to 18.0% in 2021 from 17.0% in 2020.

GRE International

GRE International holds our stakes in REPs outside of North America. These businesses currently include our controlling stakes in Lumo Finland and Lumo Sweden and Genie Japan (prior to its sale in May 2021). Lumo Sweden began operations in the second quarter of 2020. GRE International also holds our stake in Orbit, which discontinued operations at the end of November 2021.

In January 2021, weather volatility and the lack of adequate gas reserves drove the prices on the Japan Electric Power Exchange to \$2,390 per megawatt hour for an extended period of time. Although our supply commitment for our customers in Japan was hedged reasonably for expected winter weather conditions, the extreme price spike exposed us to further unexpected cost increases. The impact on our 2021 consolidated result of operations was approximately \$2.5 million.

On April 26, 2021, we entered into an Equity Purchase Agreement ("Purchase Agreement") with Hanhwa Q Cells Japan Co., Ltd. ("Hanhwa"), pursuant to which, we agreed to sell our interest in Genie Japan for ¥570.0 million (equivalent to approximately \$5.3 million at April 26, 2021) subject to certain terms and conditions set forth in the Purchase Agreement. On May 11, 2021, upon the terms and subject to the conditions of Purchase Agreement, we completed the divestiture of Genie Japan for an aggregate cash consideration of ¥570.0 million (equivalent to approximately \$5.2 million at May 11, 2021). Hanhwa also assumed the outstanding loans payable of Genie Japan. We paid \$0.6 million of commission to certain former employees of Genie Japan and recognized a pre-tax gain of \$4.2 million from the divestiture. For the period from January 1, 2021 to May 11, 2021, Genie Japan had revenues and cost of revenues of \$3.9 million and \$5.9 million, respectively.

(amounts in thousands)	Year Ended December 31,		Change	
	2021	2020	\$	%
Revenues:				
Electricity	\$ 43,301	\$ 26,628	\$ 16,673	62.6%
Others	1,085	638	447	70.1
Total revenues	44,386	27,266	17,120	62.8
Cost of revenue	33,188	22,738	10,450	46.0
Gross profit	11,198	4,528	6,670	147.3
Selling, general and administrative expenses	6,410	9,625	(3,215)	(33.4)
Income (loss) from operations	\$ 4,788	\$ (5,097)	\$ 9,885	193.9%

Meters served by GRE International's REPs decreased to 67,000 at December 31, 2021 from 88,000 at December 31, 2020 primarily as a result of the sale of Genie Japan. The Company also started the commercial operations of Lumo Sweden and Genie Japan in the second quarter of 2020 and the second quarter of 2019, respectively.

RCEs of GRE International's REPs at December 31, 2021 decreased to 40,000 from 57,000 at December 31, 2020 primarily from the sale of Genie Japan.

Revenue. GRE International's revenues increased in 2021 compared to 2020 primarily due to increases in the electricity consumption and the average price charged to customers partially offset by a decrease due to the sale of Genie Japan. Revenues from Lumo Sweden increased by \$3.0 million in 2021 compared to 2020 primarily due to a full year of operations in 2021. The electricity consumption of Lumo Finland's customers increased by 30.9% in 2021 compared to 2020 and the average price charged to customers increased by 57.8% in 2021 compared to 2020.

Cost of Revenues. GRE International's cost of revenues increased in 2021 compared to 2020 primarily due to increases in the electricity consumption and the average cost of electricity partially offset by a decrease due to the sale of Genie Japan. The increase in the cost of revenues is less than the increase in revenues in 2021 compared to 2020 primarily due to an increase in gain recognized from energy derivative contracts in both Lumo Finland and Lumo Sweden.

Selling, General and Administrative. The decrease in selling, general and administrative expenses in 2021 compared to 2020 was primarily due to the sale of Genie Japan in May 2021 partially offset by an increase in selling, general and administrative expenses of Lumo Sweden primarily due to the full year of operations in 2021.

Genie Renewables

The Genie Renewables (formerly GES) segment is composed of Genie Solar, CityCom Solar, Diversegy and Prism, in which we hold a 60.0% controlling interest.

(amounts in thousands)	Year Ended December 31,		Change	
	2021	2020	\$	%
Revenue	\$ 7,508	\$ 25,214	\$ (17,706)	(70.2)%
Cost of revenue	4,725	23,002	(18,277)	(79.5)
Gross profit	2,783	2,212	571	25.8
Selling, general and administrative expenses	2,531	3,387	(856)	(25.3)
Impairment of assets	—	1,397	(1,397)	(100.0)
Income (Loss) from operations	\$ 252	\$ (2,572)	\$ 2,824	109.8%

Revenue. Genie Renewables' revenues decreased in 2021 compared to 2020 as a result of the discontinuance of a relationship with a customer of Prism in the second quarter of 2020. Revenues from Diversegy include commissions, entry fees and other fees from our energy brokerage and marketing services businesses. Revenues from CityCom Solar include commissions from selling third-party products to customers.

Cost of Revenue. Cost of revenues decreased in 2021 compared to 2020 consistent with the decreases in revenues for the periods. Cost of revenues includes commissions incurred by our energy brokerage and marketing services businesses. Cost of revenue related to Diversegy included commissions incurred by our energy brokerage and marketing services businesses. Gross margin increased significantly due to our focus on higher-margin products and services within Genie Renewables.

Selling, General and Administrative. Selling, general and administrative expenses decreased in 2021 compared to 2020 primarily because of the streamlining of operations of Prism and the sale of the Prism facility in October 2020.

Impairment of Assets. Impairment of assets in 2020 pertains to the impairments of property, plant and equipment and customer relationship of Prism as a result of the disposal of Prism's property in New York and renegotiation of the contract with a key customer.

Corporate

Corporate does not generate any revenues, nor does it incur any cost of revenues. Corporate costs include unallocated compensation, consulting fees, legal fees, business development expense and other corporate-related general and administrative expense.

(amounts in thousands)	Year Ended December 31,		Change	
	2021	2020	\$	%
General and administrative expense and loss from operations	\$ 6,644	\$ 6,967	\$ (323)	(4.6)

The decrease in Corporate general and administrative expense in 2021 compared to 2020 was primarily due to expenses incurred related to the final testing of exploratory well in Golan Heights in 2020 and subsequent suspension of operations in Israel. As a percentage of our consolidated revenues, corporate general and administrative expense decreased from 2.0% in 2020 to 1.8% in 2021.

Consolidated

Selling, General and Administrative. Stock-based compensation expense included in consolidated selling, general and administrative expense was \$2.9 million and \$1.1 million in 2021 and 2020, respectively. At December 31, 2021, aggregate unrecognized compensation cost related to non-vested stock-based compensation was \$5.9 million. The unrecognized compensation cost expected to be recognized over the average service period of 2.2 years.

As a percentage of our consolidated revenues, selling, general and administrative expense decreased from 20.1% in 2020 to 19.7% in 2021.

The following is a discussion of our consolidated income and expense line items below loss from operations.

(amounts in thousands)	Year Ended December 31,		Change	
	2021	2020	\$	%
Income from operations	\$ 33,091	\$ 21,872	\$ 11,219	51.3%
Interest income	34	190	(156)	(82.1)
Interest expense	(427)	(328)	99	30.2
Unrealized loss on marketable equity securities and investments	(4,970)	348	(5,318)	nm
Gain on sale of subsidiary	4,226	—	4,226	nm
Other income, net	707	351	356	101.4
Provision for from income taxes	(8,789)	(7,631)	1,158	15.2
Net income from continuing operations	23,872	14,802	11,584	78.3
Income from discontinued operations, net of tax	3,970	752	3,218	nm
Net income	27,842	15,554	14,802	95.2
Net loss (income) attributable to noncontrolling interests	1,372	(2,399)	3,771	(157.2)
Net income attributable to Genie Energy Ltd.	\$ 29,214	\$ 13,155	\$ 18,573	141.2%

nm— not meaningful

Unrealized loss on marketable equity securities and investments. The unrealized loss on marketable equity securities and investments in 2021 pertains primarily to the fluctuation of the market price of the Company's investments in common stock and warrants to purchase common stock of Rafael Holdings, Inc. ("Rafael") which the Company acquired in December 2020.

Gain on sale of subsidiary. The gain on sale of subsidiary in 2021 pertains to the gain recognized related to the sale of Genie Japan in May 2021.

Other Income, net. Other expense, net in 2021 and 2020 consisted primarily foreign currency transaction gains and losses and equity in net income of equity method investee.

Provision for Income Taxes. The increase in provision for income tax in 2021 compared to 2020 is primarily due to increases in the amount of taxable income in the various taxing jurisdictions.

Net Loss (Income) Attributable to Noncontrolling Interests. Loss attributable to noncontrolling interest in 2021 was mainly due to share of noncontrolling interest loss of Citizens Choice ("CCE"), partially offset by share of noncontrolling interest in the income of Lumo Finland and Sweden. Income attributable to noncontrolling interest in 2020 mainly consisted of noncontrolling interest share in income resulting from write-off of intercompany payable of entities within the Company. The income was offset by the share of noncontrolling interest in the losses mainly from Prism, Lumo Finland and Citizens Choice Energy.

Income from discontinued operations, net of tax. As discussed above, Orbit Energy and Shell agreed to terminate the exclusive supply contract in October 2021 which required us to unwind all physical forward hedges with Shell and resulted in a recognition of significant gain due to high prices of the commodity at the date of termination. The gain from the termination of the contract was partially offset by the losses incurred in 2021 and the estimated cost of administration of Orbit Energy following the insolvency.

Income from discontinued operations, net of tax in 2020 is mainly due to gain on consolidation of Orbit Energy in October 2020 which pertains to the estimated fair value of the noncontrolling interest in Orbit Energy immediately prior to acquisition. The gain was partially offset by losses incurred from operations of Orbit Energy.

LIQUIDITY AND CAPITAL RESOURCES

General

We currently expect that our cash flows from operations in the next twelve months and the \$95.5 million balance of unrestricted cash and cash equivalents that we held at December 31, 2021 will be sufficient to meet our currently anticipated cash requirements for at least the period from January 1, 2022 to March 16, 2023.

At December 31, 2021, we had working capital (current assets less current liabilities) of \$84.1 million.

(amounts in thousands)	Year ended December 31,	
	2021	2020
Cash flows provided by (used in):		
Operating activities	\$ 21,315	\$ 25,028
Investing activities	2,687	(2,483)
Financing activities	(5,675)	(15,194)
Effect of exchange rate changes on cash and cash equivalents	(30)	(268)
Increase in cash and cash equivalents from continuing operations	18,297	7,083
Cash flows provided by (used in) discontinued operations	45,679	(2,453)
Increase in cash and cash equivalents	\$ 63,976	\$ 4,630

Operating Activities

Cash provided by continuing operating activities was \$21.3 million and \$25.0 million in the years ended December 31, 2021 and 2020, respectively. Net income from continuing operations after non-cash adjustments increased cash flows by \$31.0 million for 2021 compared to \$30.0 million in 2020. The increase is primarily the result of favorable results of continuing operations in 2021 compared to the same period in 2020.

Our cash flow from operations varies significantly from quarter to quarter and from year to year, depending on our operating results and the timing of operating cash receipts and payments, specifically trade accounts receivable and trade accounts payable. Changes in working capital decreased cash flows by \$5.5 million for 2021, compared to 2020. Changes in other assets increased cash flows by \$0.8 million for 2021, compared to 2020.

Certain of GRE's REPs are party to an Amended and Restated Preferred Supplier Agreement with BP Energy Company, or BP, which is to be in effect through November 30, 2023. Under the agreement, the REPs purchase electricity and natural gas at market rate plus a fee. The obligations to BP are secured by a first security interest in deposits or receivables from utilities in connection with their purchase of the REP's customer's receivables, and in any cash deposits or letters of credit posted in connection with any collateral accounts with BP. The ability to purchase electricity and natural gas under this agreement is subject to satisfaction of certain conditions including the maintenance of certain covenants. At December 31, 2021, we were in compliance with such covenants. At December 31, 2021, restricted cash—short-term of \$0.5 million and trade accounts receivable of \$47.0 million were pledged to BP as collateral for the payment of trade accounts payable to BP of \$16.7 million at December 31, 2021.

We had purchase commitments of \$131.3 million at December 31, 2021, of which \$85.3 million was for purchases of electricity.

From time to time, we receive inquiries or requests for information or materials from public utility commissions or other governmental regulatory or law enforcement agencies related to investigations under statutory or regulatory schemes, and we respond to those inquiries or requests. We cannot predict whether any of those matters will lead to claims or enforcement actions.

Investing Activities

In December 2020, we invested \$5.0 million in Class B common stock of Rafael Holdings, Inc. ("Rafael"), a publicly-traded company, that is a related party. In connection with the purchase, Rafael issued to us warrants to purchase an additional 43,649 of Rafael's Class B common stock with an exercise price of \$22.91 per share. The warrants had a term expiring on June 6, 2022. We exercised the warrants in full on March 31, 2021 for a total exercise price of \$1.0 million. We do not exercise significant influence over the operating or financial policies of Rafael.

On May 11, 2021, upon the terms and subject to the conditions of the Purchase Agreement, we completed the divestiture of Genie Japan for an aggregate consideration of ¥570.0 million (equivalent to approximately \$5.2 million at May 11, 2021). We paid \$0.6 million of commission to certain former employees of Genie Japan and included \$0.1 million of cash in the assets transferred to the buyer for a net proceed of \$4.5 million.

In March 2020, the Company initiated a plan to sell the property, plant and equipment of Prism. Prism's 4.75% notes payable to Catskill Hudson Bank were collateralized by Prism's land, building and improvements. In the first quarter of 2020, Prism's property, plant and equipment and notes payable were reclassified as assets and liabilities held for sale and reported at lower of fair value less cost to sell. In the first quarter of 2020, the Company recorded a \$0.2 million write-down to the fair value of certain property and equipment.

In October 2020, Prism completed the sale of all assets held for sale with an aggregate proceed \$2.7 million of and recorded a net loss from disposal of \$0.3 million included in the selling, general and administrative expenses in the consolidated statements of operations. In October 2020, Prism settled the 4.75% notes payable to Catskill Bank previously classified as liabilities held for sale with full payment of the principal amount of \$0.9 million.

Our capital expenditures were \$0.1 million and \$0.2 million in 2021 and 2020, respectively. We currently anticipate that our total capital expenditures in the year ending December 31, 2022 will be between \$0.5 million and \$1.0 million.

In connection with the acquisition of Lumo Finland in January 2019, the Company has a conditional continuing call option to purchase a portion or the entire noncontrolling interest from the sellers during the period beginning at the third anniversary of the Lumo Finland Closing Date and ending three years later.

In the fourth quarter of 2021, Orbit transferred to GEIC a net amount of \$49.7 million from the proceeds of the settlement of the contract with Shell which is included in cash and cash equivalents in our consolidated balance sheet as of December 31, 2021. In January 2022, we transferred \$21.5 million to the Administrators of Orbit Energy to fund the settlement of the expected remaining liabilities of Orbit of \$30.8 million which were included in the current liabilities of discontinued operations in the consolidated balance sheet as of December 31, 2021. In February 2022, we deposited \$28.3 million into an attorney trust account which will hold, preserve, and dispense funds to the extent needed in connection with the administration process.

On February 24, 2022, the Administrators filed a petition under Chapter 15 of the U.S. Bankruptcy Code with the Bankruptcy Court of the Southern District of New York seeking (i) recognition of the U.K. Administration proceeding as a foreign main proceeding and the U.K. Administrators as its foreign representatives, and (ii) entrusting distribution of the funds the Company deposited into its attorney's trust fund to the U.K. Administrators. The Company believes that the funds held in its attorney's trust are secure and more than sufficient to pay any remaining creditors of Orbit (with a significant surplus remaining), and that the petition filed by the U.K. Administrators is wasteful and inefficient. The Company is currently evaluating its response to the petition. The Company does not expect any significant loss from this petition, however, the \$28.3 million that was placed in the trust may be restricted until the matter is resolved.

Financing Activities

In each of the years ended December 31, 2021 and 2020, we paid aggregate cash Base Dividends of \$0.6376 per share on our Series 2012-A Preferred Stock. The aggregate preferred stock Base Dividends paid in each of 2021 and 2020 were \$1.5 million. On December 31, 2021, the Company accrued Additional Dividends of \$0.0848 per share on its Preferred Stock, equal to an aggregate of \$0.2 million, in respect of the GRE results of operations through December 31, 2021. See the description of our Series 2021-A Preferred Stock below.

On February 18, 2022, we paid a quarterly Base Dividend of \$0.1594 per share on our Series 2012-A Preferred Stock for the fourth quarter of 2021 to stockholders of record as of the close of business on February 6, 2022.

In March 2021, in light of the losses incurred from the effects of events in Texas and Japan discussed above, the Company suspended the payment of quarterly dividends on its common stock.

On February 9, 2022, the Board of Directors reversed its earlier suspension of quarterly dividends and declared a quarterly dividend of \$0.075 per share on our Class A common stock and Class B Common Stock. The dividend will be paid on or about March 1, 2022 to stockholders of record as of the close of business on February 22, 2022.

In 2020, we paid aggregate dividends per share of \$0.33 to stockholders of our Class A common stock and Class B common stock. The aggregate dividends paid in 2020 was \$8.7 million.

In 2020, we received minimal proceeds from the exercise of stock options for which we issued 4,133 shares of our Class B common stock. There were no stock options exercised in 2021.

On March 11, 2013, our Board of Directors approved a program for the repurchase of up to an aggregate of 7.0 million shares of our Class B common stock. In 2021, we acquired 230,000 Class B common stock under the stock repurchase program for an aggregate amount of 1.4 million. In 2020, we acquired 233,602 Class B common stock under the repurchase program for an aggregate amount of \$1.7 million. At December 31, 2021, 5.9 million shares remained available for repurchase under the stock repurchase program.

On March 21, 2020, the Board of Directors of the Company approved a program to redeem up to \$4.0 million worth of the Company's Preferred Stock in accordance with the Certificate of Designations for the preferred stock. There were no redemptions under this program in 2021 or 2020.

On February 9, 2022, the Board of Directors of the Company authorized a program to repurchase up to \$1.0 million per quarter of the Company's Preferred Stock at the liquidation preference of \$8.50 per share beginning in the second quarter of 2022.

On November 28, 2019, Genie Japan entered into a Loan Agreement with Tokyo Star Bank for a ¥100.0 million (equivalent to \$0.9 million) short-term credit facility. Genie Japan provided a letter of credit issued by JPMorgan Chase amounting to ¥100.0 million (equivalent to \$0.9 million) as collateral. The outstanding principal amount incurred interest at Tokyo Star Bank's short-term prime rate plus 0.25% per annum. Interest was payable monthly and all outstanding principal and any accrued and unpaid interest matured on May 13, 2020. Genie Japan settled the Loan agreement and paid the outstanding balance of ¥100.0 million (equivalent to \$0.9 million) on May 13, 2020.

On May 13, 2020, Genie Japan entered into a new Loan Agreement with Tokyo Star Bank for a ¥150.0 million (equivalent to \$1.4 million) short-term credit facility ("May 2020 Loan"). Genie Japan provided a letter of credit issued by JPMorgan Chase in the amount of ¥150.0 million (equivalent to \$1.4 million) as collateral. The outstanding principal amount incurs interest at 3.0% per annum. Interest is payable monthly and all outstanding principal and any accrued and unpaid interest matured on November 13, 2020. On November 13, 2020, Genie Japan and Tokyo Star Bank amended the May 2020 Loan to extend the maturity date to March 13, 2021. At September 30, 2020, \$1.4 million was outstanding under the May 2020 Loan. At December 31, 2020, the effective interest rate was 3.0%.

On December 13, 2018, we entered into a Credit Agreement with JPMorgan Chase Bank ("Credit Agreement"). On December 23, 2021, the Company entered into the third amendment of its existing Credit Agreement to extend the maturity date of December 31, 2022. The Company continues to have an aggregate principal amount of \$5.0 million credit line facility ("Credit Line"). The Company pays a commitment fee of 0.1% per annum on unused portion of the Credit Line as specified in the Credit Agreement. The borrowed amounts will be in the form of letters of credit which will bear interest of 1.0% per annum. The Company will also pay a fee for each letter of credit that is issued equal to the greater of \$500 or 1.0% of the original maximum available amount of the letter of credit. We agreed to deposit cash in a money market account at JPMorgan Chase Bank as collateral for the line of credit equal to \$5.1 million. As of December 31, 2021, there is no issued letter of credit from the Credit Line. At December 31, 2021, the cash collateral of \$5.6 million was included in restricted cash—short-term in the consolidated balance sheet.

On April 4, 2017, GRE, IDT Energy, and other GRE subsidiaries entered into a Credit Agreement with Vantage Commodities Financial Services II, LLC ("Vantage"), for a \$20.0 million revolving loan facility. The borrowers consist of our subsidiaries that operate REP businesses, and those subsidiaries' obligations are guaranteed by GRE. The borrowers have provided as collateral a security interest in their receivables, bank accounts, customer agreements, certain other material agreements and related commercial and intangible rights. The outstanding principal amount incurs interest at LIBOR plus 4.5% per annum. Interest was payable monthly and all outstanding principal and any accrued and unpaid interest matured on April 3, 2020. In April 2020, the revolving line of credit expired and we paid outstanding balance of \$3.5 million.

On December 11, 2019, Prism refinanced the 5.95% notes payable to Catskill Hudson Bank that were due in November 2019. The outstanding balance of notes payable of \$0.9 million December 11, 2019 was payable in monthly equal installments for period of ten years. The outstanding principal amount incurred fixed interest at 4.75% per annum. The notes payable were secured by Prism's commercial property in Highland, New York. In March 2020, the outstanding balance of the notes payable was transferred to liabilities held for sale. On October 16, 2020, Prism settled the notes payable to Catskill Bank previously classified as liabilities held for sale with full payment of the principal amount of \$0.8 million.

In 2021, we paid \$1.4 million to repurchase 230,000 shares of our Class B common stock, and, in 2020, we paid \$1.7 million to repurchase 266,602 shares of our Class B common stock tendered by our employees to satisfy tax withholding obligations in connection with the lapsing of restrictions on awards of restricted stock. Such shares were repurchased by us based on their fair market value on the trading day immediately prior to the vesting date.

Series 2012-A Preferred Stock

At December 31, 2021, there were 2.3 million shares of our Series 2012-A Preferred Stock issued and outstanding with an aggregate liquidation preference of \$19.7 million. Each share of our Series 2012-A Preferred Stock has a liquidation preference of \$8.50 (the "Liquidation Preference"), and is entitled to receive an annual dividend per share equal to the sum of (i) \$0.6375 (the "Base Dividend") plus (ii) seven and one-half percent (7.5%) of the quotient obtained by dividing (A) the amount by which the EBITDA for a fiscal year of our retail energy provider business exceeds \$32 million by (B) 8,750,000 (the "Additional Dividend"), payable in cash. EBITDA consists of income (loss) from operations exclusive of depreciation and amortization and other operating gains (losses).

The Series 2012-A Preferred Stock is redeemable, in whole or in part, at our option following October 11, 2017 at 101% of the Liquidation Preference plus accrued and unpaid dividends, and 100% of the Liquidation Preference plus accrued and unpaid dividends following October 11, 2018.

During any period when we have failed to pay a dividend on the Series 2012-A Preferred Stock and until all unpaid dividends have been paid in full, we are prohibited from paying dividends or distributions on our Class B or Class A common stock.

The Base Dividend is payable (if declared by our Board of Directors, and accrued, if not declared) quarterly on each February 15, May 15, August 15 and November 15, and to the extent that there is any Additional Dividend payable with respect to a fiscal year, it will be paid to holders of Series 2012-A Preferred Stock with the May dividend. With respect to the payment of dividends and amounts upon liquidation, dissolution or winding up, the Series 2012-A Preferred Stock is equal in rank to all other equity securities we issue, the terms of which specifically provide that such equity securities rank on a parity with the Series 2012-A Preferred Stock with respect to dividend rights or rights upon our liquidation, dissolution or winding up; senior to our common stock; and junior to all of our existing and future indebtedness.

Each share of Series 2012-A Preferred Stock has the same voting rights as a share of Class B common stock, except on certain matters that only impact our common stock, as well as additional voting rights on specific matters or upon the occurrence of certain events.

Cash flows from discontinued operations

Cash provided by discontinued operations was \$45.7 million in 2021 compared to net cash used in discontinued operations of \$2.5 million in 2020. Net income from discontinued operations after non-cash adjustments increased cash flows by \$40.5 million for 2021 compared to a decrease of \$1.5 million in 2020. The increase is primarily from gain from the unwinding of the contract of Orbit Energy with Shell as discussed above. Changes in assets and liabilities of discontinued operations increased cash flows by \$5.2 million in 2021, compared to a decrease of \$0.4 million in 2020.

Cash flows used in investing activities of discontinued operations were \$0.5 million in 2020. There was no cash used in investing activities in discontinued operations in 2021.

CONTRACTUAL OBLIGATIONS AND OTHER COMMERCIAL COMMITMENTS

The following table quantifies our future contractual obligations and other commercial commitments at December 31, 2021:

Payments Due by Period

(amounts in millions)	Total	Less than 1 year	1 – 3 years	4 – 5 years	After 5 years
Purchase obligations	\$ 103,554	\$ 57,583	\$ 45,971	\$ —	\$ —
Renewable energy credits purchase obligations	40,477	24,662	14,809	1,006	—
Operating leases	2,235	334	597	472	832
Other liabilities ⁽¹⁾⁽²⁾⁽³⁾	30	30	—	—	—
TOTAL CONTRACTUAL OBLIGATIONS	\$ 146,296	\$ 82,609	\$ 61,377	\$ 1,478	\$ 832

- (1) The above table does not include amounts related to call option and a put option related to the noncontrolling interest in connection with the acquisition of Lumo Finland due to the uncertainty of the amount and/or timing of any such payments.
- (2) The above table does not include the financing made available to New Atid of up to \$0.4 million due to the uncertainty of the amount and/or timing of any financing to be provided.
- (3) The above table does not include an aggregate of \$13.5 million in performance bonds at December 31, 2021 due to the uncertainty of the amount and/or timing of any payments.

OFF-BALANCE SHEET ARRANGEMENTS

We do not have any "off-balance sheet arrangements," as defined in relevant SEC regulations that are reasonably likely to have a current or future effect on our financial condition, results of operations, liquidity, capital expenditures or capital resources, other than the following. GRE has performance bonds issued through a third party for the benefit of certain utility companies and for various states in order to comply with the states' financial requirements for retail energy providers. At December 31, 2021, the Company had outstanding aggregate performance bonds of \$13.7 million and \$2.3 million of unused letters of credit.

ENVIRONMENTAL MATTERS

For information concerning climate change, see "Climate change" in Item I.

Item 7A. Quantitative and Qualitative Disclosures about Market Risks.

We are a smaller reporting company as defined by Rule 12b-2 of the Securities Exchange Act of 1934 and are not required to provide the information under this item.

Our primary market risk exposure is the price applicable to our natural gas and electricity purchases and sales. The sales price of our natural gas and electricity is primarily driven by the prevailing market price. Hypothetically, for our GRE segment, if our gross profit per unit in 2021 had remained the same as in 2020, due to changes in the price of natural gas and electricity, our gross profit from electricity sales would have decreased by \$3.3 million in 2021 and our gross profit from natural gas sales would have decreased by \$1.2 million in 2021.

Hypothetically, for our GRE International segment, if our gross profit per unit in 2021 had remained the same as in 2020, our gross profit from electricity sales would have decreased by \$6.0 million in 2021.

The energy markets have historically been very volatile, and we can reasonably expect that electricity and natural gas prices will be subject to fluctuations in the future. In an effort to reduce the effects of the volatility of the cost of electricity and natural gas on our operations, we have adopted a policy of hedging electricity and natural gas prices from time to time, at relatively lower volumes, primarily through the use of put and call options and swaps. While the use of these hedging arrangements limits the downside risk of adverse price movements, it also limits future gains from favorable movements. We do not apply hedge accounting to these swaps or options, therefore the mark-to-market change in fair value is recognized in cost of revenue in our consolidated statements of operations. See Note 4 – *Derivative Instruments*, for details of the hedging activities.

Item 8. Financial Statements and Supplementary Data.

Our Consolidated Financial Statements and supplementary data and the report of the independent registered public accounting firm thereon set forth starting on page F-1 herein are incorporated herein by reference.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.**Evaluation of Disclosure Controls and Procedures**

The Company, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, conducted an evaluation of the effectiveness of the design and operation of the Company's "disclosure controls and procedures" (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), as of December 31, 2021. Based on our evaluation, our principal executive officer and principal financial officer concluded that the Company's disclosure controls and procedures were ineffective as of December 31, 2021 due to the material weakness described below.

Management's Annual Report on Internal Control Over Financial Reporting

We, the management of Genie Energy Ltd. and subsidiaries (the "Company"), are responsible for establishing and maintaining adequate internal control over financial reporting of the Company.

The Company's internal control over financial reporting is defined in Rule 13a-15(f) and 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, the Company's principal executive and principal financial officers and effected by the Company's board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Company's financial statements for external purposes in accordance with generally accepted accounting principles in the United States and includes those policies and procedures that:

1. Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of assets of the Company;
2. Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and
3. Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

Management has assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2021. In making this assessment, the Company's management used the criteria established in *Internal Control — Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO").

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of our internal control over financial reporting, as prescribed above, as of December 31, 2021. Based on our evaluation, our principal executive officer and principal financial officer concluded that the review of our income tax provision was not designed and maintained at an appropriate level of precision to prevent or detect a material misstatement on a timely basis. Accordingly, management has determined that this control deficiency constitutes a material weakness.

As disclosed in Part II Item 9A Controls and Procedures in our Annual Report on Form 10-K for the year ended December 31, 2020, we identified a material weakness in internal control related to the review of our income tax provision. The review of tax provision was not designed and maintained at an appropriate level of precision to prevent or detect a material misstatement on a timely basis. This material weakness continues to exist as of December 31, 2021.

During 2021, management implemented the following remediation plan that included: (i) engaged a third-party tax consultant with specific expertise in international taxation and business acquisitions, and; (ii) perform a formal detailed review of tax implications for all business acquisitions as part of the management review and diligence process.

During the fourth quarter of 2021, we completed our testing of the operating effectiveness of the implemented controls and found them to be ineffective. As a result, we have concluded the material weakness has not been remediated as of December 31, 2021.

Notwithstanding the material weakness discussed above, our management has concluded that the consolidated financial statements included in this Annual Report on Form 10-K fairly present in all material respects our financial condition, results of operations and cash flows for the periods presented in conformity with generally accepted accounting principles.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2021 has been audited by BDO USA LLP, an independent registered public accounting firm, as stated in their report which appears herein.

Changes in Internal Control over Financial Reporting

Except for the changes in connection with our implementation of the remediation discussed above, there have been no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) or 15d-15(f) of the Exchange Act) that occurred during the fourth quarter period that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Management Action Plan and Progress to Date

In response to the material weakness identified above, we have taken certain actions and will continue to take further steps to strengthen our control processes and procedures in order to remediate such material weaknesses. We will continue to evaluate the effectiveness of our internal controls and procedures on an ongoing basis and will take further action as appropriate. Management has formed multiple aspects of an overall remediation plan, which will be implemented in 2022.

The preliminary plan includes:

- Enhancing internal tax personnel;
- Enhancing the scope of service performed by the third-party tax consultant with specific expertise in international taxation and business acquisitions; and
- Performing a formal more rigid detailed review of tax implications as part of the management review.

Item 9B. Other Information.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspection.

Not applicable.

Part III

Item 10. Directors, Executive Officers and Corporate Governance.

The following is a list of our directors and executive officers along with the specific information required by Rule 14a-3 of the Securities Exchange Act of 1934:

Executive Officers

Michael Stein — Chief Executive Officer

Avi Goldin — Chief Financial Officer

Directors

Howard S. Jonas — Chairman of the Board of the Company

Joyce Mason — Corporate Secretary of the Company

W. Wesley Perry — Owner and operator of S.E.S. Investments, Ltd., an oil and gas investment company

Alan B. Rosenthal — Founder and managing partner of ABR Capital Financial Group LLC, an investment fund

Allan Sass — Former President and Chief Executive Officer of Occidental Oil Shale Corporation, a subsidiary of Occidental Petroleum

Ex-Officio Director

James A. Courter

The remaining information required by this Item will be contained in our Proxy Statement for our Annual Stockholders Meeting, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2021, and which is incorporated by reference herein.

Corporate Governance

We have included as exhibits to this Annual Report on Form 10-K certificates of our Chief Executive Officer and Chief Financial Officer certifying the quality of our public disclosure.

We make available free of charge through the investor relations page of our web site (www.idt.net/ir) our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and all amendments to those reports, and all beneficial ownership reports on Forms 3, 4 and 5 filed by directors, officers and beneficial owners of more than 10% of our equity, as soon as reasonably practicable after such reports are electronically filed with the Securities and Exchange Commission. We have adopted codes of business conduct and ethics for all of our employees, including our principal executive officer, principal financial officer and principal accounting officer. Copies of the codes of business conduct and ethics are available on our web site.

Our web site and the information contained therein or incorporated therein are not intended to be incorporated into this Annual Report on Form 10-K or our other filings with the SEC.

Item 11. Executive Compensation.

The information required by this Item will be contained in our Proxy Statement for our Annual Stockholders Meeting, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2021, and which is incorporated by reference herein.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this Item will be contained in our Proxy Statement for our Annual Stockholders Meeting, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2021, and which is incorporated by reference herein.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item will be contained in our Proxy Statement for our Annual Stockholders Meeting, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2021, and which is incorporated by reference herein.

Item 14. Principal Accounting Fees and Services.

The information required by this Item will be contained in our Proxy Statement for our Annual Stockholders Meeting, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2021, and which is incorporated by reference herein.

Part IV

Item 15. Exhibits, Financial Statement Schedules.

(a) The following documents are filed as part of this Report:

1. Reports of Independent Registered Public Accounting Firm on Internal Control Over Financial Reporting

Reports of Independent Registered Public Accounting Firms on Consolidated Financial Statements

2. Financial Statement Schedules.

All schedules have been omitted since they are either included in the Notes to Consolidated Financial Statements or not required or not applicable.

3. The exhibits listed in paragraph (b) of this item. Exhibit Numbers 10.01, 10.02 and 10.03 are management contracts or compensatory plans or arrangements.

(b) Exhibits.

Exhibit Number	Description of Exhibits
3.01 ⁽¹⁾	Amended and Restated Certificate of Incorporation of the Registrant.
3.02 ⁽²⁾	Amended and Restated Certificate of Designation of Series 2012-A Preferred Stock of the Registrant.
3.03 ⁽³⁾	Fourth Amended and Restated By-Laws of the Registrant.
4.02*	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934
10.01 ⁽⁴⁾	Third Amended and Restated Employment Agreement, effective as of January 1, 2021, between the Registrant and Avi Goldin.
10.02 ⁽⁵⁾	2021 Stock Option and Incentive Plan of Genie Energy Ltd.
10.03 ⁽¹⁾	Preferred Supplier Agreement between IDT Energy, Inc. and BP Energy Company, dated June 29, 2009, as amended.
21.01*	Subsidiaries of the Registrant.
23.01*	Consent of BDO USA, LLP
23.02*	Consent of Zwick CPA, PLLC (Formerly known as Zwick & Banyai, PLLC)
31.01*	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.02*	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.01*	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.02*	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

Exhibit Number	Description of Exhibits
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* filed herewith.

- (1) Incorporated by reference to Form 10-12G/A, filed October 7, 2011.
- (2) Incorporated by reference to Exhibit 99(A)(1)(A) to Schedule TO, filed May 22, 2014.
- (3) Incorporated by reference to Form 8-K filed March 19, 2021.
- (4) Incorporated by reference to Form 8-K, filed November 6, 2020.
- (5) Incorporated by reference to the Schedule 14A, filed April 28, 2021.

Item 16. Form 10-K Summary

None.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

GENIE ENERGY LTD.

By: /s/ Michael Stein
Chief Executive Officer

Date: March 16, 2022

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature	Titles	Date
<u>/s/ Howard S. Jonas</u> Howard S. Jonas	Chairman of the Board	March 16, 2022
<u>/s/ Michael Stein</u> Michael Stein	Chief Executive Officer (Principal Executive Officer)	March 16, 2022
<u>/s/ Avi Goldin</u> Avi Goldin	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 16, 2022
<u>/s/ Joyce Mason</u> Joyce Mason	Director	March 16, 2022
<u>/s/ W. Wesley Perry</u> W. Wesley Perry	Director	March 16, 2022
<u>/s/ Alan B. Rosenthal</u> Alan B. Rosenthal	Director	March 16, 2022
<u>/s/ Allan Sass</u> Allan Sass	Director	March 16, 2022

**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM
ON INTERNAL CONTROL OVER FINANCIAL REPORTING**

To the Board of Directors and Stockholders of
Genie Energy Ltd.
Newark, New Jersey

Opinion on Internal Control over Financial Reporting

We have audited Genie Energy Ltd.'s (the "Company's") internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, based on our audit and the report of the other auditors, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on the COSO criteria.

We do not express an opinion or any other form of assurance on management's statements referring to any corrective actions taken by the Company after the date of management's assessment.

We did not examine the effectiveness of internal control over financial reporting of Genie Retail Energy International, LLC and subsidiaries, a wholly-owned subsidiary, which statements reflect total assets of \$34.7 million at December 31, 2021 and total revenues of \$44.4 million for the year then ended. Genie Retail Energy International, LLC and subsidiaries' internal control over financial reporting was audited by other auditors whose report has been furnished to us, and our opinion, insofar as it relates to the effectiveness of Genie Retail Energy International, LLC and subsidiaries' internal control over financial reporting, is based solely on the report of the other auditors.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for the years then ended, and the related notes and our report dated March 16, 2022, expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying "Item 9A. Controls and Procedures". Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit and the report of the other auditors provide a reasonable basis for our opinion.

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 the Company's annual or interim financial statements will not be prevented or detected on a timely basis. A material weakness regarding management's failure to design and maintain controls over accounting for income taxes has been identified and described in management's assessment. This material weakness was considered in determining the nature, timing, and extent of audit tests applied in our audit of the 2021 financial statements, and this report does not affect our report dated March 16, 2022 on those financial statements.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ BDO USA, LLP

Woodbridge, New Jersey
March 16, 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders of
Genie Retail Energy International, LLC
Newark, New Jersey

Opinion on Internal Control over Financial Reporting

We have audited Genie Retail Energy International LLC's ("GREI"), a subsidiary of Genie Energy Ltd., internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, based on our audit GREI maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of GREI as of December 31, 2021, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for the years then ended, and the related notes and our report dated March 16, 2022, expressed an unqualified opinion thereon. We did not issue a report on internal control over financial reporting for the year ended December 31, 2020.

Basis of Opinion

GREI's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying "Item 9A. Controls and Procedures". Our responsibility is to express an opinion on GREI's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to GREI in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 the company's annual or interim financial statements will not be prevented or detected on a timely basis. A material weakness regarding management's failure to design and maintain controls over accounting for income taxes has been identified and described in management's assessment. This material weakness was considered in determining the nature, timing, and extent of audit tests applied in our audit of the 2021 financial statements, and this report does not affect our report dated March 16, 2022 on those financial statements.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Zwick CPA, PLLC
(Formerly known as Zwick and Banyai, PLLC)

Southfield, Michigan
March 16, 2022

GENIE ENERGY LTD.

Index to Consolidated Financial Statements

<u>Report of Independent Registered Public Accounting Firm—BDO USA, LLP; New York, New York; PCAOB Identification Number 243</u>	F-2
<u>Report of Independent Registered Public Accounting Firm—Zwick CPA, PLLC, (Formerly known as Zwick & Banyai, PLLC); Southfield, Michigan; PCAOB Identification Number 549</u>	F-4
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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of
Genie Energy Ltd.
Newark, New Jersey

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Genie Energy Ltd. (the "Company") as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for the years then ended, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, based on our audits and the report of the other auditors, discussed below, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated March 16, 2022 expressed an adverse opinion thereon.

We did not audit the financial statements of Genie Retail Energy International, LLC and subsidiaries, a wholly-owned subsidiary, as of and for the year ended December 31, 2021, which statements reflect total assets of \$34.7 million at December 31, 2021 and total revenues of \$44.4 million for the year then ended. Those statements were audited by other auditors whose report has been furnished to us, and our opinion, insofar as it relates to the amounts included for Genie Retail Energy International, LLC and subsidiaries, is based solely on the report of the other auditors.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits and the report of the other auditors provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which it relates.

Unbilled Revenue

As described in Note 1 to the consolidated financial statements, the Company recognizes revenue from units of electricity and natural gas delivered, but not invoiced ("unbilled revenue") based on estimated amounts customers will be billed for services rendered from the time meters were last read to the end of the reporting period.

We identified unbilled revenue as a critical audit matter. Our principal considerations included management’s significant estimates and inputs, including available per day usage data, the number of unbilled days in the period adjusted for seasonality-based cooling and heating degree-days and historical trends. Because changes in those estimates could have a material effect on the amount of unbilled revenue, auditing these significant estimates and inputs involved a high degree of auditor judgment and effort in performing audit procedures.

The primary procedures we performed to address this critical audit matter included:

- Testing the design and operating effectiveness of certain controls related to management’s process to estimate and record unbilled revenue.
- Assessing management’s inputs in the estimate such as per day, year over year usage data, the number of unbilled days in the period and seasonality adjustments for reasonableness by comparing to historical and third-party information.
- Evaluating the reasonableness of the unbilled revenue during the year by comparing the estimated unbilled revenue from sale of units of electricity and natural gas to revenue billed in the subsequent period. In cases where estimated revenue by product was significantly higher or lower than expected, we obtained further explanations and corroborating supporting documentation to evaluate the impact to the unbilled revenue.

/s/ BDO USA LLP

We have served as the Company’s auditor since 2019.

BDO USA, LLP
Woodbridge, New Jersey
March 16, 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of
Genie Retail Energy International, LLC
Newark, New Jersey

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Genie Retail Energy International, LLC ("GREI") as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for each of the years then ended, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, based on our audits the consolidated financial statements present fairly, in all material respects, the financial position of GREI at December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Discontinued Operations and Divestiture - United Kingdom Operation

As noted in Footnote 2, GREI's subsidiary ceased operations on December 1, 2021 and transferred its management to Administrators, but left the subsidiary with all of its assets and liabilities including cash and receivables.

Basis of Opinion

These consolidated financial statements are the responsibility of GREI's management. Our responsibility is to express an opinion on GREI's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to GREI in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

"Critical audit matters are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved an especially challenging, subjective, or complex judgments. We concluded there are no critical audit matters."

/s/ Zwick CPA, PLLC
(Formerly known as Zwick and Banyai, PLLC)

We have served as the Company's auditor since 2021.

Southfield, Michigan
March 16, 2022

GENIE ENERGY LTD.

CONSOLIDATED BALANCE SHEETS

(in thousands, except per share amounts)	December 31	
	2021	2020
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	\$ 95,492	\$ 31,902
Restricted cash—short-term	6,657	6,271
Marketable equity securities	1,336	5,089
Trade accounts receivable, net of allowance for doubtful accounts of \$6,365 and \$4,819 at December 31, 2021 and 2020, respectively	52,357	48,370
Inventory	17,720	16,930
Prepaid expenses	4,994	4,453
Other current assets	21,789	3,166
Other current assets of discontinued operations	—	17,639
TOTAL CURRENT ASSETS	200,345	133,820
Property and equipment, net	297	247
Goodwill	11,755	11,879
Other intangibles, net	3,648	4,689
Deferred income tax assets, net	4,259	5,099
Other assets	9,161	7,480
Noncurrent assets of discontinued operations	—	24,125
TOTAL ASSETS	\$ 229,465	\$ 187,339
LIABILITIES AND EQUITY		
CURRENT LIABILITIES:		
Loans payable	\$ —	\$ 1,453
Trade accounts payable	33,554	26,928
Accrued expenses	39,523	35,015
Income taxes payable	9,792	1,893
Due to IDT Corporation	532	257
Other current liabilities	2,125	2,891
Current liabilities of discontinued operations	30,766	29,036
TOTAL CURRENT LIABILITIES	116,292	97,473
Other liabilities	2,384	2,002
Noncurrent liabilities of discontinued operations	—	1,785
TOTAL LIABILITIES	118,676	101,260
Commitments and contingencies (Note 15 and Note 16)		
EQUITY:		
Genie Energy Ltd. stockholders' equity:		
Preferred stock, \$0.01 par value; authorized shares – 10,000:		
Series 2012-A, designated shares – 8,750; at liquidation preference, consisting of 2,322 shares issued and outstanding at December 31, 2021 and 2020	19,743	19,743
Class A common stock, \$0.01 par value; authorized shares – 35,000; 1,574 shares issued and outstanding at December 31, 2021 and 2020	16	16
Class B common stock, \$0.01 par value; authorized shares – 200,000; 26,620 and 25,966 shares issued and 24,615 and 24,646 shares outstanding at December 31, 2021 and 2020, respectively	266	260
Additional paid-in capital	143,249	140,746
Treasury stock, at cost, consisting of 2,005 and 1,320 shares of Class B common at December 31, 2021 and 2020, respectively	(14,034)	(9,839)
Accumulated other comprehensive income	3,160	3,827
Accumulated deficit	(29,115)	(56,658)
Total Genie Energy Ltd. stockholders' equity	123,285	98,095
Noncontrolling interests	(12,496)	(12,016)
TOTAL EQUITY	110,789	86,079
TOTAL LIABILITIES AND EQUITY	\$ 229,465	\$ 187,339

See accompanying notes to consolidated financial statements.

GENIE ENERGY LTD.

CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except per share data)	Year ended December 31,	
	2021	2020
REVENUES:		
Electricity	\$ 316,320	\$ 297,516
Natural gas	38,812	33,561
Other	8,593	25,853
Total revenues	363,725	356,930
Cost of revenues	258,864	261,877
GROSS PROFIT	104,861	95,053
OPERATING EXPENSES AND LOSSES:		
Selling, general and administrative ⁽ⁱ⁾	71,770	71,784
Impairment of assets	—	1,397
Income from operations	33,091	21,872
Interest income	34	190
Interest expense	(427)	(328)
Unrealized (loss) gain on marketable equity securities and investments	(4,970)	348
Gain on sale of subsidiary	4,226	—
Other income, net	707	351
Income before income taxes	32,661	22,433
Provision for income taxes	(8,789)	(7,631)
NET INCOME FROM CONTINUING OPERATIONS	23,872	14,802
Income from discontinued operations, net of tax	3,970	752
NET INCOME	27,842	15,554
Net loss (income) attributable to noncontrolling interests	1,372	(2,399)
NET INCOME ATTRIBUTABLE TO GENIE ENERGY LTD.	29,214	13,155
Dividends on preferred stock	(1,678)	(1,481)
NET INCOME ATTRIBUTABLE TO GENIE ENERGY LTD. COMMON STOCKHOLDERS	\$ 27,536	\$ 11,674
Amounts attributable to Genie Energy Ltd. common stockholders		
Income from continuing operations	\$ 23,566	\$ 10,922
Income from discontinued operations	3,970	752
Net income attributable to Genie Energy Ltd.	\$ 27,536	\$ 11,674
Earnings per share attributed to Genie Energy Ltd. common stockholders		
Basic		
Income from continuing operations	\$ 0.91	\$ 0.42
Income from discontinued operations	0.15	0.03
Net income attributable to Genie Energy Ltd. common stockholders	\$ 1.06	\$ 0.45
Diluted		
Income from continuing operations	\$ 0.90	\$ 0.41
Income from discontinued operations	0.15	0.03
Net income attributable to Genie Energy Ltd. common stockholders	\$ 1.05	\$ 0.44
Weighted-average number of shares used in the calculation of earnings per share		
Basic	25,879	26,109
Diluted	26,316	26,813
Dividends declared per common share	\$ —	\$ 0.33
(i) Stock-based compensation included in selling, general and administrative expenses	\$ 2,930	\$ 1,134

See accompanying notes to consolidated financial statements.

GENIE ENERGY LTD.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in thousands)	Year ended December 31,	
	2021	2020
NET INCOME	\$ 27,842	\$ 15,554
Other comprehensive (loss) income:		
Foreign currency translation adjustments	(290)	792
COMPREHENSIVE INCOME	27,552	16,346
Comprehensive income (loss) attributable to noncontrolling interests	1,177	(1,877)
COMPREHENSIVE INCOME ATTRIBUTABLE TO GENIE ENERGY LTD.	\$ 28,729	\$ 14,469

See accompanying notes to consolidated financial statements.

GENIE ENERGY LTD.
CONSOLIDATED STATEMENTS OF EQUITY (in thousands)

Genie Energy Ltd. Stockholders

Genie Energy Ltd. Stockholders												
	Preferred		Class A		Class B		Additional	Treasury	Accumulated	Accumulated	Noncontrolling	Total
	Stock		Common Stock		Common Stock		Paid-In		Other			
	Shares	Amount	Shares	Amount	Shares	Amount	Capital		Income			
BALANCE AT DECEMBER 31, 2019	2,322	\$ 19,743	1,574	\$ 16	25,785	\$ 258	\$ 139,615	\$ (7,675)	\$ 2,519	\$ (59,671)	\$ (13,875)	\$ 80,930
Dividends on preferred stock	—	—	—	—	—	—	—	—	—	(1,481)	—	(1,481)
Dividends on common stock (\$0.33 per share)	—	—	—	—	—	—	—	—	—	(8,661)	—	(8,661)
Deconsolidation of subsidiaries	—	—	—	—	—	—	—	—	(6)	—	(92)	(98)
Restricted Class B common stock purchased from employees	—	—	—	—	—	—	—	(460)	—	—	—	(460)
Stock-based compensation	—	—	—	—	22	2	1,132	—	—	—	—	1,134
Exercise of stock options	—	—	—	—	4	—	28	—	—	—	—	28

GENIE ENERGY LTD.

CONSOLIDATED STATEMENTS OF EQUITY (in thousands) — (Continued)

Genie Energy Ltd. Stockholders												
	Preferred Stock		Class A Common Stock		Class B Common Stock		Additional Paid-In	Treasury	Accumulated Other Comprehensive	Accumulated	Noncontrolling	Total
	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Stock	Income	Deficit	Interests	Equity
Repurchase of Class B common stock from stock repurchase program	—	—	—	—	—	—	—	(1,704)	—	—	—	(1,704)
Purchase of equity of subsidiary	—	—	—	—	—	—	(29)	—	—	—	74	45
Other comprehensive loss	—	—	—	—	—	—	—	—	1,314	—	(522)	792
Net income for the year ended December 31, 2020	—	—	—	—	—	—	—	—	—	13,155	2,399	15,554
BALANCE AT DECEMBER 31, 2020	2,322	19,743	1,574	16	25,811	260	140,746	(9,839)	3,827	(56,658)	(12,016)	86,079
Dividends on preferred stock	—	—	—	—	—	—	—	—	—	(1,671)	—	(1,671)
Issuance of Class B common stock to Howard Jonas	—	—	—	—	20	—	162	—	—	—	—	162
Stock-based compensation	—	—	—	—	538	4	2,926	—	—	—	—	2,930
Restricted Class B common stock purchased from employees	—	—	—	—	—	—	—	(348)	—	—	—	(348)
Repurchase of Class B common stock from stock repurchase program	—	—	—	—	—	—	—	(3,847)	—	—	—	(3,847)
Sale of subsidiary	—	—	—	—	—	—	—	—	(182)	—	114	(68)
Purchase of equity of subsidiaries	—	—	—	—	264	2	(585)	—	—	—	583	—
Other comprehensive loss	—	—	—	—	—	—	—	—	(485)	—	195	(290)
Net income for the year ended December 31, 2021	—	—	—	—	—	—	—	—	—	29,214	(1,372)	27,842
BALANCE AT DECEMBER 31, 2021	2,322	\$ 19,743	1,574	\$ 16	26,633	\$ 266	\$ 143,249	\$ (14,034)	\$ 3,160	\$ (29,115)	\$ (12,496)	\$ 110,789

See accompanying notes to consolidated financial statements.

GENIE ENERGY LTD.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)	Year ended December 31,	
	2021	2020
OPERATING ACTIVITIES		
Net income	\$ 27,842	\$ 15,554
Net income from discontinued operations, net of tax	3,970	752
Net income from continuing operations	23,872	14,802
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	1,282	2,962
Deferred income taxes	840	7,055
Provision for doubtful accounts receivable	1,750	2,844
Impairment of assets	—	1,397
Stock-based compensation	2,930	1,134
Equity in the net income of equity method investees	(438)	(59)
Loss on sale of assets, net	—	262
Unrealized loss (gain) on marketable equity securities and investment	4,970	(348)
Gain on sale of subsidiary	(4,226)	—
Gain on deconsolidation of subsidiaries	—	(98)
Change in assets and liabilities, net of effect of acquisition:		
Trade accounts receivable	(7,473)	(2,281)
Inventory	(790)	(298)
Prepaid expenses	(932)	1,894
Other current assets and other assets	(20,358)	(4,011)
Trade accounts payable, accrued expenses and other current liabilities	11,713	(405)
Due to IDT Corporation	275	(124)
Income taxes payable	7,900	302
Net cash provided by operating activities of continuing operations	21,315	25,028
Net cash provided by (used in) discontinued operations	45,679	(1,909)
Net cash provided by operating activities	66,994	23,119
INVESTING ACTIVITIES		
Capital expenditures	(126)	(167)
Purchase of marketable equity security and investment	(1,000)	(5,000)
Proceeds from the sale of subsidiary, net of cash disposed	4,550	—
Purchase of short-term equity investments	(750)	—
Repayment of notes receivables	13	12
Proceeds from sale of assets	—	2,672
Net cash provided by (used in) investing activities of continuing operations	2,687	(2,483)
Net cash used in investing activities of discontinued operations	—	(544)
Net cash provided by (used in) investing activities	2,687	(3,027)
FINANCING ACTIVITIES		
Dividends paid	(1,480)	(10,142)
Purchases of Class B common stock	(3,847)	(1,704)
Repurchases of Class B common stock from employees	(348)	(460)
Repayment of notes payable	—	(867)
Proceeds from exercise of stock options	—	28
Proceeds from revolving line of credit	—	1,000
Repayment of revolving line of credit	—	(3,514)
Proceeds from loan	—	1,395
Repayment of loan payable	—	(930)
Net cash used in financing activities of continuing operations	(5,675)	(15,194)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(30)	(268)
Net increase in cash, cash equivalents and restricted cash	63,976	4,630
Cash, cash equivalents and restricted cash (including discontinued operations) at beginning of year	38,173	38,554
Cash, cash equivalents and restricted cash (including discontinued operations) at end of year	102,149	43,184
Less: Cash of discontinued operations at end of year	—	(5,011)
Cash and cash equivalents and restricted cash (excluding discontinued operations) at end of year	\$ 102,149	\$ 38,173
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION		
Cash payments made for interest	\$ 433	\$ 333
Cash payments made for income taxes	\$ 49	\$ 741

See accompanying notes to consolidated financial statements.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1 — Description of Business and Summary of Significant Accounting Policies

Description of Business

Genie Energy Ltd. ("Genie"), a Delaware corporation, was incorporated in January 2011. Genie owns 99.5% of Genie Energy International Corporation ("GEIC"), which owns 100% of Genie Retail Energy ("GRE"), 100% of Genie Energy International LLC ("GRE International" or "GREI"), and 95.5% of Genie Renewables. In March 2021, the Company modified its management reporting to rename the Genie energy Services ("GES") segment to the Genie Renewables segment. The "Company" in these financial statements refers to Genie, GRE, GRE International and Genie Renewables and their respective subsidiaries, on a consolidated basis.

GRE, owns and operates retail energy providers ("REPs"), including IDT Energy, Inc. ("IDT Energy"), Residents Energy, LLC ("Residents Energy"), Town Square Energy, LLC and Town Square Energy East, LLC (collectively, "TSE"), Southern Federal Power LLC ("Southern Power") and Mirabito Natural Gas ("Mirabito"). GRE's REPs' businesses resell electricity and natural gas to residential and small business customers primarily in the Eastern and Midwestern United States and Texas.

GRE International holds the Company's 90.8% controlling interest in Lumo Energia Oyj ("Lumo Finland"), a REP serving residential customers in Finland and its 97.7% interest in Lumo Energi AB ("Lumo Sweden"), which was formed in 2019 to serve retail energy customers in Sweden. GRE International also held the Company's 98.8% interest in venture in Japan, which the Company sold on May 11, 2021. GRE International also holds 100% controlling interest in Orbit Energy, a REP operating in the United Kingdom ("U.K."), which was discontinued in November 2021 as discussed below.

Genie Renewables holds Genie Solar Energy ("Genie Solar"), a rooftop solar system sales and general contracting company and a 93.5% interest in CityCom Solar, a marketer of community solar energy solution, Diversegy LLC ("Diversegy"), a broker for commercial customers, and GRE's 60.0% interest in Prism Solar Technology, Inc. ("Prism"), a solar solutions company that is engaged in U.S.-based manufacturing of solar panels, solar installation design and solar energy project management.

Discontinued Operations in United Kingdom

In third quarter of 2021, the natural gas and energy market in the United Kingdom deteriorated which prompted the Company to start the process of orderly withdrawal from the United Kingdom market. In October 2021, as part of the orderly exit process from the United Kingdom market, Orbit and Shell U.K. Limited ("Shell") agreed to terminate the exclusive supply contract between them. As part of the termination agreement, Orbit was required to unwind all physical forward hedges with Shell which resulted in net cash proceeds after settlement of all related liabilities with Shell.

Following the termination of the contract with Shell, Orbit filed a petition with the High Court of Justice Business and Property of England and Wales (the "Court") to declare Orbit insolvent based on the Insolvency Act of 1986. On November 29, 2021, the Court declared Orbit insolvent, revoked Orbit's license to supply electricity and natural gas in the United Kingdom, ordered the current customers to be transferred to "supplier of last resort" and transferred the administration of Orbit to Administrators effective December 1, 2021. All of the customers of Orbit were transferred to a third-party supplier effective December 1, 2021 as ordered by the Court. All assets and liabilities of Orbit, including cash and receivables remain with Orbit, in which Genie retains 100% interest, however, the management and control of Orbit was transferred to the Administrators.

The Company determined that the discontinued operations in the United Kingdom represented a strategic shift that will have a major effect on the Company's operations and financial statements. Since the appointment of the Administrators, the Company has accounted for these businesses as discontinued operations and accordingly, has presented the results of operations and related cash flows as discontinued operations. The results of operations and related cash flows are presented as discontinued operations for all periods presented. Any remaining assets and liabilities of the discontinued operations have been presented separately, and are reflected within assets and liabilities from discontinued operations in the accompanying consolidated balance sheets as of December 31, 2021 and 2020. Since, the Company lost control of the management of Orbit in favor of the Administrators, the accounts of Orbit were deconsolidated effective December 1, 2021.

Energy Price Volatility in Japan and Texas

In January 2021, weather volatility and the lack of adequate gas reserves significantly increased the price of energy at Japan Electric Power Exchange ("JEPX") for an extended period of time. The spike in demand associated with this situation, exposed Genie Japan to unexpected cost increases. Genie Japan incurred approximately \$2.5 million in additional costs related to the price increases, which were included in the cost of revenue in the first quarter of 2021.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

In February of 2021, the State of Texas experienced unprecedented cold weather and snow, which was named Winter Storm Uri. With the grid overtaxed due to demand and weather-related reduced supply and rolling blackouts being enforced, by order of the Electricity Reliability Council of Texas ("ERCOT"), real-time commodity prices during the crisis escalated significantly. Although GRE's commitment for their customers in Texas was hedged for foreseen winter weather conditions, the market conditions exposed the Company to significant unexpected cost increases. In the year ended December 31, 2021, GRE recognized approximately \$13.0 million in additional costs related to the situation, which were included in the cost of revenue in the consolidated statements of operation.

In June 2021, the state legislature of the State of Texas passed House Bill 4492 ("HB 4492") which includes certain provisions for financing certain costs associated with electric markets caused by Winter Storm Uri. Pursuant to HB 4492, two categories of charges associated with Winter Storm Uri are to be securitized and the proceeds of the securitization will be provided to the load serving entities who originally incurred the charges. Under HB 4492, the Company is entitled to recover a portion of the costs incurred from the effect of Winter Storm Uri with a calculated range of \$1.5 million to \$2.6 million. In the second quarter of 2021, the Company recorded a reduction in cost of revenues of \$1.5 million.

In September 2021, the Public Utility Commission of Texas ("PUC") approved the Debt Obligation Order to grant ERCOT's application for a debt financing mechanism to pay for certain costs associated with Winter Storm Uri. Under the Debt Obligation Order, the amount that the Company is entitled to recover increased to approximately \$3.4 million. In the third quarter of 2021, the Company recorded an additional reduction in the cost of revenues of \$1.9 million for an aggregate amount of \$3.4 million for the year ended December 31, 2021.

Seasonality and Weather

The weather and the seasons, among other things, affect GRE's revenues. Weather conditions have a significant impact on the demand for natural gas used for heating and electricity used for heating and cooling. Typically, colder winters increase demand for natural gas and electricity, and hotter summers increase demand for electricity. Milder winters and/or summers have the opposite effect. Unseasonal temperatures in other periods may also impact demand levels. Natural gas revenues typically increase in the first quarter due to increased heating demands and electricity revenues typically increase in the third quarter due to increased air conditioning use. Approximately 44.5% and 47.7% of GRE's natural gas revenues for the relevant years were generated in the first quarters of 2021 and 2020, respectively, when demand for heating was highest. Although the demand for electricity is not as seasonal as natural gas (due, in part, to usage of electricity for both heating and cooling), approximately 30.3% and 31.8% of GRE's electricity revenues for the relevant years were generated in the third quarters of 2021 and 2020, respectively. GRE's REPs' revenues and operating income are subject to material seasonal variations, and the interim financial results are not necessarily indicative of the estimated financial results for the full year.

Basis of Consolidation

The method of accounting applied to long-term investments, whether consolidated, equity or cost, involves an evaluation of the significant terms of each investment that explicitly grant or suggest evidence of control or influence over the operations of the investee and also includes the identification of any variable interests in which the Company is the primary beneficiary. The consolidated financial statements include the Company's controlled subsidiaries and the variable interest entity in which the Company is the primary beneficiary (see Note 14). All significant intercompany accounts and transactions between the consolidated entities are eliminated.

Equity Method Investments

Investments in businesses that the Company does not control, but in which the Company has the ability to exercise significant influence over operating and financial matters, are accounted for using the equity method. The Company periodically evaluates its equity method investments for impairment due to declines considered to be other than temporary. If the Company determines that a decline in fair value is other than temporary, then a charge to earnings is recorded, and a new basis in the investment is established.

Use of Estimates

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Significant estimates affecting amounts reported or disclosed in the consolidated financial statements include revenues, marketable equity securities and other investments, accounts receivables, allowances for doubtful accounts receivable, net realizable value of inventories, valuation of intangible assets, depreciation and amortization periods for long-lived assets, valuation allowances recorded against deferred tax assets, the valuation of stock-based compensation, valuation of derivative instruments, valuation of debt instruments and loss contingencies. These estimates are based on historical experience and on various other assumptions that are believed to be reasonable under the current circumstances. Actual results may differ from those estimates.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Revenue Recognition

Revenues from the Sale of Electricity and Natural Gas

Revenue from the single performance obligation to deliver a unit of electricity and/or natural gas is recognized as the customer simultaneously receives and consumes the benefit. Variable quantities in requirements contracts are considered to be options for additional goods and services because the customer has a current contractual right to choose the amount of additional distinct goods to purchase. GRE and Genie Japan (prior to its sale in May 2021) record unbilled revenues for the estimated amount customers will be billed for services rendered from the time meters were last read to the end of the respective accounting period. The unbilled revenue is estimated each month based on available per day usage data, the number of unbilled days in the period and historical trends.

Many utility companies in the U.S. offer purchase of receivable, or POR, programs in most of the service territories in which GRE operates, and GRE's REPs participate in POR programs for a majority of their receivables. The Company estimates variable consideration related to its rebate programs using the expected value method and a portfolio approach. The Company's estimates related to rebate programs are based on the terms of the rebate program, the customer's historical electricity and natural gas consumption, the customer's rate plan, and a churn factor. Taxes that are imposed on the Company's sales and collected from customers are excluded from the transaction price.

The Company recognizes the incremental costs of obtaining a contract with a customer as an asset if it expects the benefit of those costs to be longer than one year. The Company determined that certain sales commissions to acquire customers meet the requirements to be capitalized. For GRE, the Company applies a practical expedient to expense costs as incurred for sales commissions to acquire customers as the period would have been one year or less. Incremental customer acquisition costs of certain GRE International entities are capitalized and amortized over the range of between eighteen and twenty-four months. These costs and the related amortization are recorded within sales and marketing expenses. Total capitalized customer acquisition costs to obtain a contract were \$1.0 million and \$0.8 million for the years ended December 31, 2021 and 2020, respectively. At December 31, 2021 customer acquisition costs of \$0.5 million and \$0.2 million were included in other current assets and other assets, respectively, on the consolidated balance sheet. At December 31, 2020 customer acquisition costs of \$0.6 million and \$0.2 million were included in other current assets and other assets, respectively, on the consolidated balance sheet. The Company recognized \$0.8 million of amortization of capitalized customer acquisition cost for each of the years ended December 31, 2021 and 2020.

Revenues from Sale of Solar Panels

Revenues from sales of solar panels are recognized at a point in time following the transfer of control of the solar panels to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For sales contracts that contain multiple performance obligations, such as the shipment or delivery of solar modules, the Company allocates the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations. Revenues from sale of solar panels are included in other revenues in the consolidated statements of operations.

Revenues from sales of solar panels are included under the Other Revenues in the consolidated statements of operations.

The following table shows the Company's revenues disaggregated by pricing plans offered to customers:

	Electricity	Natural Gas	Other	Total
	(in thousands)			
For the year ended December 31, 2021				
Fixed rate	\$ 142,249	\$ 5,379	\$ —	\$ 147,628
Variable rate	174,071	33,433	—	207,504
Other	—	—	8,593	8,593
Total	<u>\$ 316,320</u>	<u>\$ 38,812</u>	<u>\$ 8,593</u>	<u>\$ 363,725</u>
For the year ended December 31, 2020				
Fixed rate	\$ 131,307	\$ 4,517	\$ —	\$ 135,824
Variable rate	166,209	29,044	—	195,253
Other	—	—	25,853	25,853
Total	<u>\$ 297,516</u>	<u>\$ 33,561</u>	<u>\$ 25,853</u>	<u>\$ 356,930</u>

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The following table shows the Company's revenues disaggregated by non-commercial and commercial channels:

	Electricity	Natural Gas	Other	Total
	(in thousands)			
For the year ended December 31, 2021				
Non-Commercial Channel	\$ 246,289	\$ 30,567	\$ —	\$ 276,856
Commercial Channel	70,031	8,245	—	78,276
Other	—	—	8,593	8,593
Total	\$ 316,320	\$ 38,812	\$ 8,593	\$ 363,725
For the year ended December 31, 2020				
Non-Commercial Channel	\$ 248,525	\$ 28,182	\$ —	\$ 276,707
Commercial Channel	48,991	5,379	—	54,370
Other	—	—	25,853	25,853
Total	\$ 297,516	\$ 33,561	\$ 25,853	\$ 356,930

Cash, Cash Equivalents and Restricted Cash

The Company considers all highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported in the consolidated balance sheet that equals the total of the same amounts reported in the consolidated statement of cash flows:

	December 31,	
	2021	2020
	(in thousands)	
Cash and cash equivalents	\$ 95,492	\$ 31,902
Restricted cash—short-term	6,657	6,271
Total cash, cash equivalents, and restricted cash	<u>\$ 102,149</u>	<u>\$ 38,173</u>

Restricted cash—short-term includes amounts set aside in accordance with the Amended and Restated Preferred Supplier Agreement with BP Energy Company ("BP") (see *Note* 16) and Credit Agreement with JPMorgan Chase (see *Note* 10).

Included in the cash and cash equivalents as of December 31, 2021 is cash received from Orbit Energy (see *Note* 2)

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Marketable Equity Securities and Other Investment

Marketable equity securities that are traded in the public market are carried at fair value using the quoted price at the end of each reporting period. Investments in warrants to purchase additional equity securities are carried at their fair value using Black-Scholes valuation model. Changes in the fair value are recorded as unrealized gains or losses on investments in the consolidated statements of operations.

Trade Accounts Receivable, Net

Trade accounts receivable, net is reported in the balance sheet as gross outstanding amounts adjusted for doubtful accounts.

Inventories

Inventory consists of natural gas, renewable energy credits and solar panels.

Natural Gas

Natural gas inventory is stored at various third parties' underground storage facilities and is stated at lower of cost or net realizable value. The Company's natural gas inventory was valued at weighted average cost, which was based on the purchase price of the natural gas and the cost to transport, plus or minus injections or withdrawals.

Renewable Energy Credits

GRE must obtain a certain percentage or amount of its power supply from renewable energy sources in order to meet the requirements of renewable portfolio standards in the states in which it operates. This requirement may be met by obtaining renewable energy credits that provide evidence that electricity has been generated by a qualifying renewable facility or resource. GRE holds renewable energy credits for both sale and use, and treats the credits as a government incentive to encourage the construction of renewable power plants. Renewable energy credits are valued at the lower of cost and net realizable value. Gains and losses from the sale of renewable energy credits are recognized in cost of revenues when the credits are transferred to the buyer.

Solar Panels

Inventories related to solar panels are stated at the lower of cost or net realizable value. The cost is determined using the first-in, first-out basis and includes both the costs of acquisition and the costs of manufacturing. These costs include direct material, direct labor, and indirect manufacturing costs.

The Company regularly reviews the cost of inventories against their estimated net realizable value and records write-downs if any inventories have costs in excess of their net realizable values. The Company also regularly evaluates the quantities and values of inventories, in light of current market conditions and trends among other factors and records write-downs for any quantities in excess of demand or for any obsolescence. This evaluation considers the use of modules in the systems business, expected demand, anticipated sales prices, strategic raw material requirements, new product development schedules, the effect new products might have on the sale of existing products, product obsolescence, product merchantability, and other factors. Market conditions are subject to change, and actual consumption of our inventory could differ from forecasted demand.

Inventories consisted of the following:

	December 31,	
	2021	2020
	(in thousands)	
Natural gas	\$ 1,891	\$ 1,021
Renewable credits	15,610	15,574
Solar panels	219	335
Totals	<u>\$ 17,720</u>	<u>\$ 16,930</u>

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Long-lived Assets

Property, plant and equipment - net is stated at historical cost less accumulated depreciation and any impairment. The Company provides for depreciation using a straight-line method over estimated useful life of the assets. Any leasehold improvements are amortized over the lesser of the lease term or the useful life. The cost of major additions and improvements are capitalized, while maintenance and repair costs that do not improve or extend the lives of the respective assets are charged to operations as incurred.

The estimated useful life of property plant and equipment as follows:

	Years
Building and improvements	4 - 27
Machinery and equipment	2 - 9
Computer software and development	2 - 5
Computers and computer hardware	2 - 5
Office equipment and other	5 - 7

The fair value of patents and trademarks, non-compete agreements and customer relationships acquired in a business combination accounted for under the purchase method are amortized over their estimated useful lives as follows: patents and trademarks are amortized on a straight-line basis over a 5 to 20-year period; non-compete agreements are amortized on a straight-line basis 3-year term; customer relationships are amortized ratably over a 2 to 9-year period; and licenses are amortized on a straight-line basis over a 10-year period.

The Company tests the recoverability of its long-lived assets with finite useful lives whenever events or changes in circumstances indicate that the carrying value of the asset may not be recoverable. The Company tests the recoverability based on the projected undiscounted cash flows to be derived from such asset. If the projected undiscounted future cash flows are less than the carrying value of the asset, the Company will record an impairment loss based on excess of carrying value over fair value of the assets. The Company generally measures fair value by considering sale prices for similar assets or by discounting estimated future cash flows from such asset using an appropriate discount rate. Cash flow projections and fair value estimates require significant estimates and assumptions by management. Should the estimates and assumptions prove to be incorrect, the Company may be required to record impairments in future periods and such impairments could be material.

Acquisitions

Results of operations of acquired companies are included in the Company's results of operations as of the respective acquisition dates. The purchase price of each acquisition is allocated to the net assets acquired based on estimates of their fair values at the date of the acquisition. Any purchase price in excess of these net assets is recorded as goodwill. The allocation of purchase price in certain cases may be subject to revision based on the final determination of fair values during the measurement period, which may be up to one year from the acquisition date.

For each acquisition, the Company undertakes a detailed review to identify other intangibles assets and a valuation is performed for all such identified assets. The Company uses several market participant measures to determine estimated value. This approach includes consideration of similar recent transactions, as well as utilizing discounted expected cash flow methodologies. A substantial portion of the intangible asset value that the Company acquired is the specialized know-how of the workforce, which is treated as part of goodwill and is not required to be valued separately. The majority of the value of the identifiable intangible assets acquired is derived from customer relationships, including the related customer contracts, non-compete agreements, trademarks, patents as well as licenses. If the actual results differ from the estimates, the amount recorded in the financial statements could result in a possible impairment of the intangible assets and goodwill, or require acceleration of the amortization expenses of finite-lived intangible assets.

Goodwill and Indefinite Lived Intangible Assets

Goodwill is the excess of the acquisition cost of businesses over the fair value of the identifiable net assets acquired. Goodwill and other indefinite-lived intangible assets are not amortized. These assets are reviewed annually (or more frequently under various conditions) for impairment using a fair value approach.

The Company has three reportable segments with four underlying reporting units: GRE, GRE International, and Genie Renewables, which is comprised of Prism and Diversegy.

The fair value of each reporting unit is estimated using discounted cash flow methodologies, as well as considering third party market value indicators. Calculating the fair value of the reporting units requires significant estimates and assumptions by management. Should the estimates and assumptions regarding the fair value of the reporting units prove to be incorrect, the Company may be required to record impairments to its goodwill in future periods and such impairments could be material.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The Company performs its annual goodwill impairment test as of October 1. In reviewing goodwill for impairment, the Company has the option, for any or all of its reporting units that carry goodwill - to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (i.e. greater than 50%) that the estimated fair value of a reporting unit is less than its carrying amount. If the Company elects to perform a qualitative assessment and determines that an impairment is more likely than not, the Company is then required to perform the quantitative impairment test, otherwise no further analysis is required. The Company also may elect not to perform the qualitative assessment and, instead, proceed directly to quantitative impairment test. The ultimate outcome of the goodwill impairment review for a reporting unit should be the same whether the Company chooses to perform the qualitative assessment or proceeds directly to the quantitative impairment test.

The determination of the fair value of our reporting units is based on an income approach that utilizes discounted cash flows for each reporting unit and other Level 3 inputs as specified in the fair value hierarchy in ASC Topic 820, *Fair Value Measurements and Disclosure*. Under the income approach, we determine fair value based on the present value of the most recent cash flow projections for the reporting unit as of the date of the analysis and calculate a terminal value utilizing a terminal growth rate. The significant assumptions under this approach include, among others: income projections, which are dependent on future sales, new customers, customer behavior, competitor pricing, operating expenses, the discount rate, and the terminal growth rate. The cash flows used to determine fair value are dependent on a number of significant management assumptions such as the expectations of future performance and the expected future economic environment, which are partly based upon our historical experience. The estimates are subject to change given the inherent uncertainty in predicting future results. Additionally, the discount rate and the terminal growth rate are based on judgment of the rates that would be utilized by a hypothetical market participant.

Derivative Instruments and Hedging Activities

The Company records its derivatives instruments at their respective fair values. The accounting for changes in the fair value (that is, gains or losses) of a derivative instrument is dependent upon whether the derivative has been designated and qualifies as part of a hedging relationship and on the type of hedging relationship.

Due to the volatility of electricity and natural gas prices, GRE and GRE International enter into futures contracts, swaps and put and call options as hedges against unfavorable fluctuations in market prices of electricity and natural gas and to reduce exposure from price fluctuations. The Company does not designate its derivative instruments to qualify for hedge accounting, accordingly the futures contracts, swaps and put and call options are recorded at fair value as current and noncurrent assets or liabilities and any changes in fair value are recorded in "Cost of revenues" in the consolidated statements of operations.

In addition to the above, GRE and GRE International utilize forward physical delivery contracts for a portion of their purchases of electricity and natural gas, which are defined as commodity derivative contracts. Using the exemption available for qualifying contracts, GRE and GRE International apply the normal purchase and normal sale accounting treatment to its forward physical delivery contracts, thereby these contracts are not adjusted to fair value. GRE and GRE International also apply the normal purchase and normal sale accounting treatment to forward contracts for the physical delivery of electricity in nodal energy markets that result in locational marginal pricing charges or credits, since this does not constitute a net settlement, even when legal title to the electricity is conveyed to the ISO during transmission. Accordingly, GRE and GRE International recognize revenue from customer sales, and the related cost of revenues, at the contracted price, as electricity and natural gas is delivered to retail customers.

Shipping and Handling Fees and Costs

Amounts billed to customers for shipping and handling are included in revenues. The related minimal amount of shipping and freight charges incurred by the Company are included in cost of goods sold. Distribution and handling costs of \$0.1 million and \$0.2 million were recorded in selling, general and administrative expense during the years ended December 31, 2021 and 2020, respectively.

Foreign Currency

Assets and liabilities of foreign subsidiaries denominated in foreign currencies are translated to U.S. Dollars at end-of-period rates of exchange, and their monthly results of operations are translated to U.S. Dollars at the average rates of exchange for that month. Gains or losses resulting from such foreign currency translations are recorded in "Accumulated other comprehensive income" in the consolidated balance sheets. Foreign currency transaction gains and losses are reported in "Other (expense) income, net" in the consolidated statements of operations.

Advertising Expense

Cost of advertising for customer acquisitions is charged to selling, general and administrative expense in the period in which it is incurred. In the years ended December 31, 2021 and 2020, advertising expense included in selling, general and administrative expense was \$7.9 million and \$6.1 million, respectively.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Income Taxes

The Company recognizes deferred tax assets and liabilities for the future tax consequences attributable to temporary differences between the financial statements carrying amounts of existing assets and liabilities and their respective tax bases. A valuation allowance is provided when it is more likely than not that some portion or all of a deferred tax asset will not be realized. The ultimate realization of deferred tax assets depends on the generation of future taxable income during the period in which related temporary differences become deductible. The Company considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in its assessment of a valuation allowance. Deferred tax assets and liabilities are measured using the enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date of such change.

The Company uses a two-step approach for recognizing and measuring tax benefits taken or expected to be taken in a tax return. The Company determines whether it is more-likely-than-not that a tax position will be sustained upon examination, including resolution of any related appeals or litigation processes, based on the technical merits of the position. In evaluating whether a tax position has met the more-likely-than-not recognition threshold, the Company presumes that the position will be examined by the appropriate taxing authority that has full knowledge of all relevant information. Tax positions that meet the more-likely-than-not recognition threshold are measured to determine the amount of tax benefit to recognize in the financial statements. The tax position is measured at the largest amount of benefit that has a greater than 50 percent likelihood of being realized upon ultimate settlement. Differences between tax positions taken in a tax return and amounts recognized in the financial statements will generally result in one or more of the following: an increase in a liability for income taxes payable, a reduction of an income tax refund receivable, a reduction in a deferred tax asset, or an increase in a deferred tax liability.

The Company classifies interest and penalties on income taxes as a component of income tax expense.

Contingencies

The Company accrues for loss contingencies when both (a) information available prior to issuance of the financial statements indicates that it is probable that a liability had been incurred at the date of the financial statements and (b) the amount of loss can reasonably be estimated. When the Company accrues for loss contingencies and the reasonable estimate of the loss is within a range, the Company records its best estimate within the range. When no amount within the range is a better estimate than any other amount, the Company accrues the minimum amount in the range. The Company discloses an estimated possible loss or a range of loss when it is at least reasonably possible that a loss may have been incurred.

Earnings Per Share

Basic earnings per share is computed by dividing net income or loss attributable to all classes of common stockholders of the Company by the weighted average number of shares of all classes of common stock issued and outstanding during the applicable period. Diluted earnings per share is determined in the same manner as basic earnings per share, except that the number of shares is increased to include restricted stock still subject to risk of forfeiture and to assume exercise of potentially dilutive stock options and warrants using the treasury stock method, unless the effect of such increase is anti-dilutive.

The weighted-average number of shares used in the calculation of basic and diluted earnings per share attributable to the Company's common stockholders consists of the following:

	Year ended December 31,	
	2021	2020
	(in thousands)	
Basic weighted-average number of shares	\$ 25,879	\$ 26,109
Effect of dilutive securities		
Stock options and warrants	390	628
Non-vested restricted Class B common stock	47	76
Diluted weighted-average number of shares	\$ 26,316	\$ 26,813

The following shares were excluded from the diluted earnings per share computations:

(in thousands)	Year ended December 31,	
	2021	2020
Shares underlying stock options	126	112
Non-vested deferred stock units	580	610

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Stock options were excluded from the diluted earnings per share computation in the years ended December 31, 2021 and 2020 because the exercise prices of the stock options were greater than the average market prices of the Company's Class B common stock during the periods.

Non-vested deferred stock units were excluded from the basic and diluted weighted average shares outstanding calculation because the market condition for vesting of those deferred stock units was not met as of December 31, 2021 or 2020.

Stock-Based Compensation

The Company recognizes compensation expense for grants of stock-based awards to its employees based on the estimated fair value on the grant date. Compensation cost for awards is recognized using the straight-line method over the requisite service period, which approximates the vesting period. Stock-based compensation is included in selling, general and administrative expense. Forfeitures of equity grants are recognized as incurred.

Vulnerability Due to Certain Concentrations

Financial instruments that potentially subject the Company to concentration of credit risk consist principally of cash, cash equivalents, restricted cash, certificates of deposit and trade accounts receivable. The Company holds cash, cash equivalents and restricted cash at several major financial institutions, much of which exceeds FDIC insured limits. Historically, the Company has not experienced any losses due to such concentration of credit risk. The Company's temporary cash investments policy is to limit the dollar amount of investments with any one financial institution and monitor the credit ratings of those institutions. While the Company may be exposed to credit losses due to the nonperformance of the holders of its deposits, the Company does not expect the settlement of these transactions to have a material effect on its results of operations, cash flows or financial condition.

GRE's REPs reduce their customer credit risk by participating in purchase of receivable, or POR, programs for a majority of their receivables. In addition to providing billing and collection services, certain utility companies purchase those REPs' receivables and assume all credit risk without recourse to those REPs for those purchased receivables. GRE's REPs' primary credit risk with respect to those purchased receivables is therefore nonpayment by the utility companies. Certain of the utility companies represent significant portions of the Company's consolidated revenues and consolidated gross trade accounts receivable balance during certain period, and such concentrations increase the Company's risk associated with nonpayment by those utility companies.

The following table summarizes the percentage of consolidated revenues from customer that equal or exceed 10.0% or greater of the Company's consolidated revenues in the period (no other single customer accounted for more than 10.0% of consolidated revenues in these periods):

	Year ended December 31,	
	2021	2020
Customer A	10%	10%

There was no single customer that accounted for 10% or greater of the Company's consolidated trade accounts receivables at December 31, 2021 or 2020.

Allowance for Doubtful Accounts

The allowance for doubtful accounts reflects the Company's best estimate of probable losses inherent in the accounts receivable balance. The allowance is determined based on known troubled accounts, historical experience and other currently available evidence. Doubtful accounts are written-off upon final determination that the trade accounts will not be collected. The change in the allowance for doubtful accounts was as follows:

(in thousands)	Balance at beginning of period	Additions charged (reversals credited) to expense	Additions (deductions)	Balance at end of period
Year ended December 31, 2021				
Reserves deducted from accounts receivable:				
Allowance for doubtful accounts	\$ 4,819	\$ 1,750	\$ (204)	\$ 6,365
Year ended December 31, 2020				
Reserves deducted from accounts receivable:				
Allowance for doubtful accounts	\$ 2,631	\$ 2,844	\$ (656)	\$ 4,819

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Fair Value Measurements

Fair value of financial and non-financial assets and liabilities is defined as an exit price, which is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The three-tier hierarchy for inputs used to measure fair value, which prioritizes the inputs to valuation techniques used to measure fair value, is as follows:

- Level 1 — quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2 — quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument.
- Level 3 — unobservable inputs based on the Company's assumptions used to measure assets and liabilities at fair value.

A financial asset's or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement. The assessment of the significance of a particular input to the fair value measurement requires judgment and may affect the valuation of the assets and liabilities being measured and their placement within the fair value hierarchy.

Accounting Standards Updates

In June 2016, the FASB issued ASU No. 2016-13, *Measurement of Credit Losses on Financial Instruments*, that changes the impairment model for most financial assets and certain other instruments. For receivables, loans and other instruments, entities will be required to use a new forward-looking "expected loss" model that generally will result in the earlier recognition of allowance for losses. For available-for-sale debt securities with unrealized losses, entities will measure credit losses in a manner similar to current practice, except the losses will be recognized as allowances instead of reductions in the amortized cost of the securities. In addition, an entity will have to disclose significantly more information about allowances, credit quality indicators and past due securities. The new provisions will be applied as a cumulative-effect adjustment to retained earnings. The Company will adopt the new standard on January 1, 2023. The Company is currently evaluating the requirements of this guidance and has not yet determined the impact of its adoption on the Company's consolidated financial position, results of operations and cash flows.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 2 — Discontinued Operations and Divestiture**United Kingdom Operations**

On July 17, 2017, the Company's subsidiary, Genie Energy UK Ltd. ("GEUK"), entered into a definitive agreement with Energy Global Investments Pty Ltd ("EGC") to launch Shoreditch Energy Limited ("Shoreditch"), a joint venture to offer electricity and natural gas service to residential and small business customers in the U.K., under the trade name Orbit Energy. In second quarter of 2020, the Company contributed \$1.5 million to Shoreditch, which increased GEUK's total contribution to \$9.5 million as of October 8, 2020. Prior to October 8, 2020, the Company owns 77.0% of the outstanding equity of Shoreditch.

Prior to the Company acquiring the remaining 23.0% of Shoreditch, EGC had significant participation rights in the management of Shoreditch that limited GEUK's ability to direct the activities that most significantly impact Shoreditch's economic performance. GEUK, therefore, accounted for its ownership interest in Shoreditch using the equity method since GEUK had the ability to exercise significant influence over its operating and financial matters, although it did not control Shoreditch.

On October 8, 2020, the Company entered into an agreement (the "Purchase Agreement") with EGC under which GEUK purchased EGC's remaining interest in Shoreditch, in exchange for a cash payment of £1.3 million (equivalent to \$1.7 million on the date of closing) offset by £0.2 million (equivalent to \$0.2 million on the date of closing) in amounts owing from EGC to the Company under a loan provided to EGC in 2018 related to EGC's capital contributions to Shoreditch. Prior to October 8, 2020, the estimated fair value and net book value of the Company's investment in Shoreditch was \$5.5 million and nil, respectively. Following the transaction, Shoreditch became a wholly-owned subsidiary of GEUK.

In third quarter of 2021, the natural gas and energy market in the U.K. deteriorated which prompted the Company to start the process of orderly withdrawal from the U.K. market. In October 2021, as part of the orderly exit process, Orbit and Shell U.K. Limited ("Shell") agreed to terminate the exclusive supply contract between them. As part of the termination agreement, Orbit was required to unwind all physical forward hedges with Shell which resulted in net cash proceeds after settlement of all related liabilities with Shell.

Following the termination of the contract with Shell, Orbit filed a petition with the High Court of Justice Business and Property of England and Wales (the "Court") to declare Orbit insolvent based on the Insolvency Act of 1986. On November 29, 2021, the Court declared Orbit insolvent, revoked Orbit's license to supply electricity and natural gas in the United Kingdom, ordered the current customers to be transferred to "supplier of last resort" and transfer the administration of Orbit to Administrators effective December 1, 2021. All of the customers of Orbit were transferred to a third-party supplier effective December 1, 2021 as ordered by the Court. All assets and liabilities of the Orbit, including cash and receivables remain with Orbit and the management and control of which was transferred to Administrators. The Company expects that the administration of Orbit will be completed in 2022.

In the fourth quarter of 2021, Orbit transferred to GEIC a net amount of \$49.7 million from the proceeds of the settlement of the contact with Shell which is included in cash and cash equivalents in the consolidated balance sheet as of December 31, 2021. In January 2022, the Company transferred \$21.5 million to the Administrators of Orbit Energy to fund the settlement of the expected remaining liabilities of Orbit of \$30.8 million, which were included in the current liabilities of discontinued operations in the consolidated balance sheet as of December 31, 2021. In February 2022, the Company deposited \$28.3 million into an attorney trust account which will hold, preserve, and dispense funds to the extent needed in connection with the administration process. On February 24, 2022, the Administrators filed a petition under Chapter 15 of the U.S. Bankruptcy Code with the Bankruptcy Court of the Southern District of New York seeking (i) recognition of the U.K. administration proceeding as a foreign main proceeding and the U.K. Administrators as its foreign representatives, and (ii) entrusting distribution of the funds the Company deposited into its attorney's trust fund to the U.K. Administrators. The Company believes that the funds held in its attorney's trust are secure and more than sufficient to pay any remaining creditors of Orbit (with a significant surplus remaining). The Company is currently evaluating its response to the petition. The Company does not expect any significant losses from this petition, however, the \$28.3 million that was placed in the trust may be restricted until the matter is resolved.

The Company determined that exiting operations in the United Kingdom represented a strategic shift that will have a major effect on the Company's operations and financial statements and accordingly, the results of operations and related cash flows are presented as discontinued operations for all periods presented. The assets and liabilities of the discontinued operations have been presented separately, and are reflected within assets and liabilities from discontinued operations in the accompanying consolidated balance sheets as of December 31, 2021 and 2020.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

As a result of loss of control, the Company deconsolidated Orbit effective December 1, 2021 and estimated the remaining liability related to its ownership of Orbit.

The summary of results of operations of the discontinued operations was as follows:

	Year ended December 31,	
	2021	2020
	(in thousands)	
Total revenues	\$ 86,269	\$ 22,382
Cost of revenues	89,059	19,750
Gross (loss) profit	(2,790)	2,632
Selling, general and administrative expenses	47,894	5,168
Impairment of assets	6,650	—
Loss from operations	(57,334)	(2,536)
Gain from settlement of contract with supplier	69,120	—
Equity in net loss of equity method investees	—	(1,502)
Gain on acquisition of a subsidiary	—	5,473
Other loss	(932)	—
Net income before taxes	10,854	1,435
Income taxes	6,884	683
Income from discontinued operations, net of taxes	\$ 3,970	\$ 752

The carrying value of the Company's interest in Orbit was a liability of \$30.8 million as of December 31, 2021. The carrying value was determined by estimating the net realizable values of assets and fair values of remaining liabilities which approximates its carrying values as of December 31, 2021.

The carrying value of assets and liabilities of the discontinued operations was as follows as of December 31, 2020 (amounts in thousands):

Cash	\$ 5,011
Accounts receivables	12,408
Other current assets	220
Total current assets of discontinued operation	\$ 17,639
Goodwill	14,050
Other intangibles	6,956
Other assets	3,119
Total noncurrent assets of discontinued operations	\$ 24,125
Liabilities	
Accounts payable	\$ 16,077
Accrued expenses	7,747
Contract liabilities	3,870
Other current liabilities	1,342
Total current liabilities of discontinued operations	\$ 29,036
Other liabilities	\$ 1,785
Total noncurrent liabilities of discontinued operations	\$ 1,785

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The following table presents a summary of cash flows of the discontinued operations:

	Year Ended December 31,	
	2021	2020
	(in thousands)	
Operating Activities		
Net income	\$ 3,970	\$ 752
Non-cash items	36,550	(2,278)
Changes in assets and liabilities	5,159	(383)
Cash flows used in operating activities of discontinued operation	<u>\$ 45,679</u>	<u>\$ (1,909)</u>

The assets and liabilities of Orbit were included in GRE International segment.

Divestiture of Genie Japan

In March 2021, the Company initiated a plan to sell certain assets and liabilities of Genie Japan. In the first quarter of 2021, certain assets and liabilities of Genie Japan were reclassified as assets and liabilities held for sale and reported at lower of fair value less cost to sell and net book value.

On April 26, 2021, the Company entered into an Equity Purchase Agreement ("Purchase Agreement") with Hanhwa Q Cells Japan Co., Ltd. ("Hanhwa"), pursuant to which, the Company agreed to sell its interest in Genie Japan for ¥570.0 million (equivalent to approximately \$5.3 million at April 26, 2021) subject to certain terms and conditions set forth in the Purchase Agreement. On May 11, 2021, upon the terms and subject to the conditions of Purchase Agreement, the Company completed the divestiture of Genie Japan for an aggregate cash consideration of ¥570.0 million (equivalent to approximately \$5.2 million at May 11, 2021). Hanhwa also assumed the outstanding balance of the loan payable of Genie Japan. The Company paid \$0.6 million of commission to certain former employees of Genie Japan and recognized a pre-tax gain of \$4.2 million from the divestiture.

The assets and liabilities divested which was previously classified as held for sale included the following:

(in thousands)	
Cash	\$ 83
Trade accounts receivable	1,737
Prepaid and other current assets	391
Intangible (license)	540
Other noncurrent assets	296
Accounts payable	(611)
Accrued expenses and other current liabilities	(588)
Loans payable	(1,372)
Cumulative translation adjustment	(181)
Noncontrolling interest	114
Liabilities held for sale included in other current liabilities	<u>\$ 409</u>

The assets and liabilities of Genie Japan were included in GRE International segment.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 3 — Fair Value Measurements

The following table presents the balance of assets and liabilities measured at fair value on a recurring basis:

(in thousands)	Level 1 ⁽¹⁾	Level 2 ⁽²⁾	Level 3 ⁽³⁾	Total
December 31, 2021				
Assets:				
Marketable equity securities	\$ 1,336	\$ —	\$ —	\$ 1,336
Derivative contracts	\$ 14,405	\$ 44	\$ —	\$ 14,449
Liabilities:				
Derivative contracts	\$ 1,230	\$ —	\$ —	\$ 1,230
December 31, 2020				
Assets:				
Marketable equity securities	\$ 5,089	\$ —	\$ —	\$ 5,089
Other current assets (investment in warrants)	\$ —	\$ —	\$ 259	\$ 259
Derivative contracts	\$ 1,237	\$ 118	\$ —	\$ 1,355
Liabilities:				
Derivative contracts	\$ 286	\$ 410	\$ —	\$ 696

The Company's derivative contracts consist of natural gas and electricity put and call options and swaps. The underlying asset in the Company's put and call options is a forward contract. The Company's swaps are agreements whereby a floating (or market or spot) price is exchanged for a fixed price over a specified period.

Fair Value of Other Financial Instruments

The estimated fair value of the Company's other financial instruments was determined using available market information or other appropriate valuation methodologies. However, considerable judgment is required in interpreting this data to develop estimates of fair value. Consequently, the estimates are not necessarily indicative of the amounts that could be realized or would be paid in a current market exchange.

Restricted cash — short-term and long-term, trade receivables, due to IDT Corporation, other current assets and other current liabilities. At December 31, 2021 and 2020, the carrying amount of these assets and liabilities approximated fair value. The fair value estimate for restricted cash — short-term was classified as Level 1. The carrying value of other current assets, due to IDT Corporation, and other current liabilities approximated fair value.

Other assets, revolving line of credit and notes payable. At December 31, 2021 and 2020, other assets included notes receivable. At December 31, 2021, the outstanding balance of the sellers of Lumo Finland's one-time option was not significant and was included in other liabilities account in the consolidated balance sheet. The carrying amounts of the note receivable and loan payable approximated fair value. The fair values were estimated based on the Company's assumptions, and were classified as Level 3 of the fair value hierarchy.

The Company did not have any transfers of assets or liabilities between Level 1, Level 2 or Level 3 of the fair value measurement hierarchy during the years ended December 31, 2021 and 2020.

The primary non-recurring fair value estimates typically involve goodwill impairment testing (see Note 8), which involves Level 3 inputs, and asset impairments (see Note 8) which utilize Level 3 inputs.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 4 — Derivative Instruments

The primary risk managed by the Company using derivative instruments is commodity price risk, which is accounted for in accordance with Accounting Standards Codification 815 — Derivatives and Hedging. Natural gas and electricity put and call options and swaps are entered into as hedges against unfavorable fluctuations in market prices of natural gas and electricity. The Company does not apply hedge accounting to these options or swaps, therefore the changes in fair value are recorded in earnings. By using derivative instruments to mitigate exposures to changes in commodity prices, the Company exposes itself to credit risk and market risk. Credit risk is the failure of the counterparty to perform under the terms of the derivative contract. When the fair value of a derivative contract is positive, the counterparty owes the Company, which creates credit risk. The Company minimizes the credit or repayment risk in derivative instruments by entering into transactions with high-quality counterparties. At December 31, 2021 and 2020, GRE's swaps and options were traded on the New York Mercantile Exchange. GRE International's swaps and options were traded through counterparties.

The summarized volume of GRE's outstanding contracts and options at December 31, 2021 was as follows (MWh – Megawatt hour and Dth – Decatherm):

Settlement Dates	Commodity	
	Electricity (In MWh)	Natural Gas (In Dth)
First quarter 2022	164,063	815,100
Second quarter 2022	58,082	147,400
Third quarter 2022	75,440	95,490
Fourth quarter 2022	53,253	106,550
First quarter 2023	27,502	113,440
Second quarter 2023	24,356	77,050
Third quarter 2023	25,767	56,050
Fourth quarter 2023	25,767	54,850
First quarter 2024	6,543	48,400
Second quarter 2024	4,368	33,600
Third quarter 2024	4,416	18,100
Fourth quarter 2024	4,416	8,850
First quarter 2025	2,832	—

The fair value of outstanding derivative instruments recorded in the accompanying consolidated balance sheets were as follows:

		December 31,	
		2021	2020
Asset Derivatives	Balance Sheet Location	(in thousands)	
Derivatives not designated or not qualifying as hedging instruments:			
Energy contracts and options ⁽¹⁾	Other current assets	\$ 13,750	\$ 1,338
Energy contracts and options	Other assets	699	17
Total derivatives not designated or not qualifying as a hedging instruments — Assets		\$ 14,449	\$ 1,355
Liability Derivatives			
Derivatives not designated or not qualifying as hedging instruments:			
Energy contracts and options ⁽¹⁾	Other current liabilities	\$ 697	\$ 245
Energy Contracts and options	Other liabilities	533	41
Total derivatives not designated or not qualifying as a hedging instruments — Liabilities		\$ 1,230	\$ 286

(1) The Company classifies derivative assets and liabilities as current based on the cash flows expected to be incurred within the following 12 months.

The effects of derivative instruments on the consolidated statements of operations were as follows:

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(in thousands)		Amount of (Gain) Loss Recognized on Derivatives	
		Year ended December 31,	
		2021	2020
Derivatives not designated or not qualifying as hedging instruments	Location of (Gain) Loss Recognized on Derivatives		
Energy contracts and options	Cost of revenues	\$ (54,441)	\$ 26,814

Note 5 — Leases

The Company entered into operating lease agreements primarily for offices in domestic and foreign locations where it has operations with lease periods expiring between 2022 and 2030. The Company has no finance leases.

The Company determines if a contract is a lease at inception. Right-of-Use ("ROU") assets are included under other assets in the consolidated balance sheet. The current portion of the operating lease liabilities are included in other current liabilities and the noncurrent portion is included in other liabilities in the consolidated balance sheet.

ROU assets and operating lease liabilities are recognized at the present value of the future lease payments at the lease commencement date. The interest rate used to determine the present value of the future lease payments is the incremental borrowing rate, because the interest rate implicit in most of our leases is not readily determinable. The incremental borrowing rate is estimated to approximate the interest rate on a collateralized borrowing rate based on information available at the lease commencement date. ROU assets also include any prepaid lease payments and lease incentives. The lease terms include periods under options to extend or terminate the lease when it is reasonably certain that we will exercise that option. The Company use the base, non-cancelable, lease term when determining the lease assets and liabilities. Operating lease expense is recognized on a straight-line basis over the lease term.

	December 31,	
	2021	2020
	(in thousands)	
ROU assets	\$ 1,656	\$ 1,879
Current portion of operating lease liabilities	\$ 229	\$ 446
Noncurrent portion of operating lease liabilities	1,495	1,485
Total	\$ 1,724	\$ 1,931

At December 31, 2021, the weighted average remaining lease term is 7.4 years and the weighted average discount rate is 6.4%.

Supplemental cash flow information for ROU assets and operating lease liabilities for the years ended December 31, 2021 and 2020 are as follows:

	For the Year Ended	
	December 31, 2021	December 31, 2020
	(in thousands)	
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating activities	\$ 801	\$ 810
ROU assets obtained in the exchange for lease liabilities		
Operating leases	\$ 241	\$ —

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Future lease payments under operating leases as of December 31, 2021 were as follows:

(in thousands)	
2022	334
2023	315
2024	282
2025	233
2026	239
Thereafter	832
Total future lease payments	2,235
Less imputed interest	511
Total operating lease liabilities	\$ 1,724

Rental expenses under operating leases were \$0.8 million for each of the years ended December 31, 2021 and 2020, respectively.

Note 6 — Other Current Assets

Other current consisted of the following:

	December 31,	
	2021	2020
	(in thousands)	
Fair value of derivative contracts	\$ 13,750	\$ 1,338
Receivables from the settlement of derivative contracts	4,655	—
Other current assets	3,384	1,828
Total other current assets	\$ 21,789	\$ 3,166

Note 7 — Property and Equipment

	December 31,	
	2021	2020
	(in thousands)	
Building and improvements	16	56
Computer software	2,256	2,577
Computers and computer hardware	219	237
Office equipment and other	351	267
	2,842	3,137
Less: accumulated depreciation	(2,545)	(2,890)
Property and equipment, net	\$ 297	\$ 247

Depreciation expense of property and equipment was \$0.1 million and \$0.4 million in the years ended December 31, 2021 and 2020, respectively.

In March 2020, the Company initiated a plan to sell the property, plant and equipment of Prism. Prism's 4.75% notes payable to Catskill Hudson Bank were collateralized by Prism's land, building and improvements. In the first quarter of 2020, Prism's property, plant and equipment and notes payable with net book value of \$2.9 million and \$0.9 million, respectively, were reclassified as assets and liabilities held for sale and reported at lower of fair value less cost to sell. In the first quarter of 2020, the Company recorded a \$0.2 million write-down to the fair value of certain property and equipment. The Company used the market approach to estimate the fair values of assets and liabilities held for sale. The related inputs were corroborated by observable market data for similar assets and liabilities, therefore the estimated fair values were classified as Level 2 of the fair value hierarchy.

In October 2020, Prism completed the sale of all assets held for sales and recorded a net loss from disposal of \$0.3 million included in the selling, general and administrative expenses in the consolidated statements of operations. In October 2020, Prism settled the 4.75% notes payable to Catskill Bank previously classified as liabilities held for sale with full payment of the principal amount of \$0.9 million.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 8 — Goodwill and Other Intangibles

The table below reconciles the change in the carrying amount of goodwill for the period from January 1, 2020 to December 31, 2021:

	GRE	GRE International	Genie Renewables	Total
	(in thousands)			
Balance at January 1, 2020	\$ 9,998	\$ 1,733	\$ 404	\$ 12,135
Impairment of Prism goodwill	—	—	(404)	(404)
Cumulative translation adjustment	—	148	—	148
Balance at December 31, 2020	9,998	1,881	—	11,879
Cumulative translation adjustment	—	(124)	—	(124)
Balance at December 31, 2021	\$ 9,998	\$ 1,757	\$ —	\$ 11,755

The Company performs its annual goodwill impairment test as of October 1, 2021. The Company elected to perform a qualitative analysis for its GRE and GRE International. The Company determined, after performing a qualitative analysis, that there was no evidence that it is more likely than not that the fair value of any identified reporting unit was less than the carrying amounts, therefore, it was not necessary to perform a quantitative impairment test.

In 2020, the Company performed quantitative impairment analysis for its Prism reporting unit as a result of lower than expected results of operations in 2020. As a result of this test, the Company concluded that the carrying value Prism reporting unit exceeded its fair value of reporting unit including the allocated goodwill. Therefore, the Company recognized a goodwill impairment charge of \$0.4 million for the year ended December 31, 2020.

The table below presents information on the Company's other intangible assets:

	Weighted Average Amortization Period	Gross Carrying Amount	Accumulated Amortization	Net Balance
December 31, 2021	(in thousands)			
Patents and trademarks	17.1 years	\$ 3,805	\$ (1,103)	\$ 2,702
Customer relationships	9.0 years	1,100	(530)	570
Licenses	10.0 years	479	(103)	376
TOTAL		\$ 5,384	\$ (1,736)	\$ 3,648
December 31, 2020				
Trademark	17.0 years	\$ 3,880	\$ (878)	\$ 3,002
Non-compete agreement	3.0 years	35	(23)	12
Customer relationships	4.5 years	3,093	(2,401)	692
Licenses	10.0 years	1,224	(241)	983
TOTAL		\$ 8,232	\$ (3,543)	\$ 4,689

In the second quarter of 2020, Prism renegotiated a contract with its main customer which resulted in impairment of customer relationship of \$0.8 million included in the consolidated statements of operations.

Amortization expense of intangible assets (including a minimal amount reported in cost of revenues) was \$1.2 million and \$2.5 million in the years ended December 31, 2021 and 2020, respectively. The Company estimates that amortization expense of intangible assets will be \$0.4 million, \$0.4 million, \$0.4 million, \$0.4 million, \$0.3 million and \$1.7 million in the years ending December 31, 2021, 2022, 2023, 2024, 2025, 2026 and thereafter, respectively.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 9 — Accrued Expenses

Accrued expenses consisted of the following:

	December 31,	
	2021	2020
	(in thousands)	
Renewable energy	\$ 23,247	\$ 19,848
Liability to customers related to promotional and retention incentives	9,071	9,558
Payroll and employee benefits	3,297	3,174
Other accrued expenses	3,908	2,435
Total accrued expenses	\$ 39,523	\$ 35,015

Note 10 — Debt

Loan with Tokyo Star Bank

On November 28, 2019, Genie Japan entered into a Loan Agreement with Tokyo Star Bank for a ¥100.0 million (equivalent to \$0.9 million) short-term credit facility. Genie Japan provided a letter of credit issued by JPMorgan Chase amounting to ¥100.0 million (equivalent to \$0.9 million) as collateral. The outstanding principal amount incurred interest at Tokyo Star Bank's short-term prime rate plus 0.25% per annum. Interest was payable monthly and all outstanding principal and any accrued and unpaid interest matured on May 13, 2020. Genie Japan settled the Loan agreement and paid the outstanding balance of ¥100.0 million (equivalent to \$0.9 million) on May 13, 2020.

On May 13, 2020, Genie Japan entered into a new Loan Agreement with Tokyo Star Bank for a ¥150.0 million (equivalent to \$1.4 million) short-term credit facility ("May 2020 Loan") with a maturity date of November 13, 2020. On November 13, 2020, Genie Japan and Tokyo Star Bank amended the May 2020 Loan to extend the maturity date to May 13, 2021. Genie Japan provided a letter of credit issued by JPMorgan Chase in the amount of ¥150.0 million (equivalent to \$1.4 million) as collateral. The outstanding principal amount incurred interest at 3.0% per annum and was payable monthly. In May 2021, the Company completed the divestiture of Genie Japan including balance of the May 2020 Loan (*see* Note 2).

Credit Agreement with JPMorgan Chase Bank

On December 13, 2018, the Company entered into a Credit Agreement with JPMorgan Chase Bank ("Credit Agreement"). On December 23, 2021, the Company entered into the third amendment of its existing Credit Agreement to extend the maturity date of December 31, 2022. The Company continues to have the aggregate principal amount of \$5.0 million credit line facility ("Credit Line"). The Company pays a commitment fee of 0.1% per annum on unused portion of the Credit Line as specified in the Credit Agreement. The borrowed amounts will be in the form of letters of credit which will bear interest of 1.0% per annum. The Company will also pay a fee for each letter of credit that is issued equal to the greater of \$500 or 1.0% of the original maximum available amount of the letter of credit. The Company agreed to deposit cash in a money market account at JPMorgan Chase Bank as collateral for the line of credit equal to \$5.1 million. As of, December 31, 2021, there are no letters of credit issued by JP Morgan Chase Bank. At December 31, 2021, the cash collateral of \$5.6 million was included in restricted cash—short-term in the consolidated balance sheet.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 11 — Income Taxes

The components of income before income taxes are as follows:

	Year ended December 31,	
	2021	2020
	(in thousands)	
Domestic	\$ 15,446	\$ 27,536
Foreign	17,215	(5,103)
INCOME BEFORE INCOME TAXES	\$ 32,661	\$ 22,433

Significant components of the Company's deferred income tax assets consist of the following:

	December 31,	
	2021	2020
	(in thousands)	
Deferred income tax assets (liabilities):		
Bad debt reserve	\$ 1,770	\$ 1,317
Accrued expenses	1,386	1,475
State taxes	57	66
Charitable contributions	37	201
Net operating loss	12,477	16,870
ROU assets	(455)	450
Lease liability	474	(401)
Stock options and restricted stock	178	321
Unrealized gain	(1,088)	—
Amortization	259	475
Total deferred income tax assets	15,095	20,774
Valuation allowance	(10,836)	(15,675)
DEFERRED INCOME TAX ASSETS, NET	\$ 4,259	\$ 5,099

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The Company recognizes a valuation allowance against deferred tax assets to the extent that it believes that the deferred tax assets are not more likely than not to be realized. In making such a determination, the Company considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations. If the Company determines that it would be able to realize its deferred tax assets in the future in excess of their net recorded amount, the Company would make an adjustment to the deferred tax asset valuation allowance, which would reduce the provision for income taxes. In 2020, the Company wrote off the foreign net operating loss carry-forwards and the corresponding valuation allowance relating to the winding down of the exploration business.

The provision for income taxes consists of the following:

	Year ended December 31,	
	2021	2020
	(in thousands)	
Current:		
Federal	\$ 5,566	\$ —
State and local	2,383	1,105
Foreign	—	—
	<u>7,949</u>	<u>1,105</u>
Deferred:		
Federal	939	5,530
State and local	(367)	996
Foreign	268	—
	<u>840</u>	<u>6,526</u>
PROVISION FOR INCOME TAXES	\$ 8,789	\$ 7,631

The differences between provision for income taxes expected at the U.S. federal statutory income tax rate and income taxes provided are as follows:

	Year ended December 31,	
	2021	2020
	(in thousands)	
U.S. federal income tax benefit at statutory rate	\$ 6,859	\$ 4,710
Valuation allowance	(4,839)	(28,204)
Nondeductible expense	269	67
Impact of foreign operations	3,256	(38)
Deferred tax adjustments	479	(1,097)
Net operating loss carry-forwards adjustment	1,189	31,228
State and local income tax, net of federal benefit	1,898	432
Others	(322)	533
PROVISION FOR INCOME TAXES	\$ 8,789	\$ 7,631

At December 31, 2021, the Company had foreign net operating loss carry-forwards of approximately \$8.9 million, \$6.9 million of which start expiring in 2028.

The Company includes certain entities that are not included in the Company's consolidated tax return. The entities have separate U.S. federal and state net operating loss carry-forwards of \$38.5 million that begin to expire in 2025. During 2020, the Company wrote off \$8.1 million (tax effected) of state net operating loss carry-forwards related to the wind-down of the exploration business do not expire. Net operating loss carry-forwards in the amount of \$28.0 million related to Prism may be subject to Internal Revenue Code Section 382 limitation at the time of utilization. Current year losses of \$0.5 million will not expire.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The change in the valuation allowance for deferred income taxes was as follows:

	Balance at beginning of period	Additions charged to costs and expenses	Deductions	Balance at end of period
	(in thousands)			
Year ended December 31, 2021				
Reserves for valuation allowances deducted from deferred income taxes, net	\$ 15,675	\$ —	\$ (4,839)	\$ 10,836
Year ended December 31, 2020				
Reserves for valuation allowances deducted from deferred income taxes, net	\$ 42,420	\$ 3,569	\$ (30,314)	\$ 15,675

In 2021, the Company has net deferred tax liabilities in Finland and in Sweden, as such no valuation allowance is required to be recorded and the corresponding valuation allowance as of December 31, 2020, was released. In addition, in 2021, the Company reclassified the deferred tax assets in U.K. to discontinued operations, along with the corresponding valuation allowance. As of December 31, 2021, the Company maintains a valuation allowance on the deferred tax assets of net operating losses relating to consolidated U.S. entities and its Israel entity.

The table below summarizes the change in the balance of unrecognized income tax benefits:

	Year ended December 31,	
	2021	2020
	(in thousands)	
Balance at beginning of period	\$ 383	\$ 433
Additions based on tax positions related to the current period	81	84
Additions based on tax positions related to prior periods	—	—
Lapses of statutes of limitations	(104)	(134)
Balance at end of period	\$ 360	\$ 383

All of the unrecognized income tax benefits at December 31, 2021 and 2020 would have affected the Company's effective income tax rate if recognized. The Company does expect the total amount of unrecognized income tax benefits to significantly decrease within the next twelve months.

In the years ended December 31, 2021 and 2020, the Company recorded a minimal amount of interest on income taxes. At December 31, 2021 and 2020, accrued interest included in current income taxes payable was minimal.

The Company currently remains subject to examinations of its tax returns as follows: U.S. federal tax returns for 2016 to 2019, state and local tax returns generally for 2016 to 2020 and foreign tax returns generally for 2016 to 2020.

Note 12 — Equity

Class A Common Stock and Class B Common Stock

The rights of holders of Class A common stock and Class B common stock are identical except for certain voting and conversion rights and restrictions on transferability. The holders of Class A common stock and Class B common stock receive identical dividends per share when and if declared by the Company's Board of Directors. In addition, the holders of Class A common stock and Class B common stock have identical and equal priority rights per share in liquidation. The Class A common stock and Class B common stock do not have any other contractual participation rights. The holders of Class A common stock are entitled to three votes per share and the holders of Class B common stock are entitled to one-tenth of a vote per share. Except as required by law or under the terms of the Series 2012-A Preferred Stock (the "Preferred Stock"), the holders of Class A and Class B common stock and the Preferred Stock vote together as a single class on all matters submitted to a vote of the Company's stockholders. Each share of Class A common stock may be converted into one share of Class B common stock, at any time, at the option of the holder. Shares of Class A common stock are subject to certain limitations on transferability that do not apply to shares of Class B common stock.

Series 2012-A Preferred Stock

Each share of Preferred Stock has a liquidation preference of \$8.50 (the "Liquidation Preference"), and is entitled to receive an annual dividend per share equal to the sum of (i) \$0.6375 (the "Base Dividend") plus (ii) seven and one-half percent (7.5%) of the quotient obtained by dividing (A) the amount by which the EBITDA for a fiscal year of the Company's retail energy provider business exceeds \$32 million by (B) 8,750,000 (the "Additional Dividend"), payable in cash. EBITDA consists of income (loss) from operations exclusive of depreciation and amortization and other operating gains (losses). During any period when the Company has failed to pay a dividend on the Preferred Stock and until all unpaid dividends have been paid in full, the Company is prohibited from paying dividends or distributions on the Company's Class B or Class A common stock.

The Preferred Stock is redeemable, in whole or in part, at the option of the Company 100% of the Liquidation Preference plus accrued and unpaid dividends.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The Base Dividend is payable (if declared by the Company's Board of Directors, and accrued, if not declared) quarterly on each February 15, May 15, August 15 and November 15, and to the extent that there is any Additional Dividend payable with respect to a fiscal year, it will be paid to holders of Preferred Stock with the May dividend. With respect to the payment of dividends and amounts upon liquidation, dissolution or winding up, the Preferred Stock is equal in rank to all other equity securities the Company issues, the terms of which specifically provide that such equity securities rank on a parity with the Preferred Stock with respect to dividend rights or rights upon the Company's liquidation, dissolution or winding up; senior to the Company's common stock; and junior to all of the Company's existing and future indebtedness.

Each share of Preferred Stock has the same voting rights as a share of Class B common stock, except on certain matters that only impact the Company's common stock, as well as additional voting rights on specific matters or upon the occurrence of certain events.

Dividend Payments

In each of the years ended December 31, 2021 and 2020, the Company paid aggregate cash base dividends of \$0.6376 per share on its Preferred Stock, equal to \$1.7 million in dividends paid. On December 31, 2021, the Company accrued Additional Dividends of \$0.0848 per share on its Preferred Stock, equal to \$0.2 million, in respect of the GRE results of operations through December 31, 2021, which is expected to be paid around May 15, 2022. On February 15, 2022, the Company paid a quarterly Base Dividend of \$0.1594 per share on its Preferred Stock for the fourth quarter of 2021 to stockholders of record as of the close of business on February 7, 2022.

In March 2021, in light of the losses incurred from the effects of events in Texas and Japan discussed above, the Company suspended the payment of quarterly dividends on its common stock.

On February 9, 2022, the Board of Directors declared a quarterly dividend of \$0.075 per share on our Class A common stock and Class B Common Stock. The dividend will be paid on or about March 1, 2022 to stockholders of record as of the close of business on February 22, 2022.

The Delaware Corporation Law allows companies to declare dividends out of its "Surplus," which is calculated by deducting the par value of the company's stock from the difference between total assets less total liabilities. The Company elected to record dividends declared against accumulated deficit.

Stock Repurchases

On March 11, 2013, the Board of Directors of the Company approved a program for the repurchase of up to an aggregate of 7.0 million shares of the Company's Class B common stock. In 2021, the Company acquired 622,932 Class B common stock under the stock repurchase program for an aggregate amount of \$3.8 million. In 2020, the Company acquired 233,602 Class B common stock under the stock repurchase program for an aggregate amount of \$1.7 million. At December 31, 2021, 5.3 million shares remained available for repurchase under the stock repurchase program.

In the year ended December 31, 2021, the Company paid \$0.3 million to repurchase 62,008 shares of its Class B common stock. In the year ended December 31, 2020, the Company paid \$0.5 million to repurchase 56,650 shares of its Class B common stock. These shares were tendered by the Company's employees to satisfy tax withholding obligations in connection with the lapsing of restrictions on awards of restricted stock. Such shares were repurchased by the Company based on their fair market value on the trading day immediately prior to the vesting date.

As of December 31, 2021 and 2020, the Company held 2.0 million and 1.3 million shares of Class B common stock, respectively, in treasury, with respective costs of \$14.0 million and \$9.8 million, and a weighted average cost of \$7.01 and \$7.46 per share.

On March 21, 2020, the Board of Directors of the Company approved a program to redeem up to \$4.0 million worth of the Company's Preferred Stock in accordance with the Certificate of Designations for the preferred stock. There was no redemption under this program in 2021 and 2020.

On February 9, 2022, the Board of Directors of the Company authorized a program to repurchase up to \$1.0 million per quarter of the Company's Preferred Stock at the liquidation preference of \$8.50 per share beginning in the second quarter of 2022.

Sales of Shares and Warrants

On June 8, 2018, the Company sold to Howard S. Jonas, the Chairman of the Company's Board of Directors, (1) 1,152,074 shares of the Company's Class B common stock, at a price of \$4.34 per share for an aggregate sales price of \$5.0 million, and (2) warrants to purchase an additional 1,048,218 shares of the Company's Class B common stock at an exercise price of \$4.77 per share for an aggregate exercise price of \$5.0 million. The warrants will expire in June 2023. In addition, on June 12, 2018, the Company sold to a third-party investor (1) 230,415 treasury shares of the Company's Class B common stock, at a price of \$4.34 per share for an aggregate sales price of \$1.0 million, and (2) warrants to purchase an additional 209,644 shares of the Company's Class B common stock at an exercise price of \$4.77 per share for an aggregate exercise price of \$1.0 million. As of December 31, 2021, there were outstanding 1,257,862 warrants to purchase the Company's Class B common stock at \$4.77 per share which will expire on in June 2023.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Purchase of Equity of Subsidiaries

In September 2021, the Company purchased from Howard S. Jonas, the Chairman of the Board of Directors of the Company, Michael Stein, the Chief Executive Officer of the Company, Avi Goldin, the Chief Financial Officer of the Company, certain employees and consultant an aggregate of 4.3% fully vested interest in GRE International by issuing 218,862 of the Company's Class B common stock.

In October 2021, the Company purchased from Wes Perry, the Chairman of the Audit Committee of the Company's Board of Directors, a 0.2% interest in GEIC by issuing 36,591 of the Company's Class B common stock.

Note 13 — Stock-Based Compensation

Stock-Based Compensation Plan

The Company's 2011 Stock Option and Incentive Plan (as amended, the "2011 Plan") is intended to provide incentives to executives, employees, directors and consultants of the Company. Incentives available under the Plan include stock options, stock appreciation rights, limited rights, deferred stock units, and restricted stock. The 2011 Plan, was scheduled to expire on October 24, 2021. The 2011 Plan expired in 2021 and no new grants are to be issued thereunder, however, outstanding grants are not impacted by the expiration of the plan.

On March 8, 2021, the Board of Directors adopted the Company 2021 Stock Option and Incentive Plan (the "2021 Plan"). The 2021 Plan, was approved by the Company's stockholders in May 2021, became effective and replaced the 2011 Plan on May 12, 2021. Similar to the 2011 Plan, the 2021 Plan is intended to provide incentives to executives, employees, directors and consultants of the Company. Incentives available under the 2021 Plan include stock options, stock appreciation rights, limited stock appreciation rights, deferred stock units, and restricted stock. The Plan is administered by the Compensation Committee of the Company's Board of Directors. The maximum number of shares reserved for the grant of awards under the 2021 Plan is 1.0 million shares of Class B Common Stock. At December 31, 2021, the Company had 532,845 shares of Class B common stock available for future grants.

Restricted Stock

The fair value of restricted shares of the Company's Class B common stock is determined based on the closing price of the Company's Class B common stock on the grant date. Share awards generally vest on a graded basis over three years of service following the grant.

A summary of the status of the Company's grants of restricted shares of Class B common stock is presented below:

	Number of Non-vested Shares	Weighted-Average Grant Date Fair Value
	(in thousands)	
Non-vested restricted shares at December 31, 2020	256	\$ 7.31
Granted	379	6.37
Vested	(166)	5.75
Forfeited	—	—
NON-VESTED RESTRICTED SHARES AT DECEMBER 31, 2021	469	\$ 6.78

At December 31, 2021, there was \$2.6 million of total unrecognized compensation cost related to non-vested restricted stock. The total unrecognized compensation cost is expected to be recognized over a weighted-average period of 2.2 years. The total grant date fair value of shares vested was \$0.5 million in each of the years ended December 31, 2021 and 2020. The Company recognized compensation cost related to the vesting of the restricted stock of \$1.3 million and \$1.0 million in the years ended December 31, 2021 and 2020, respectively.

Stock Options

Option awards are generally granted with an exercise price equal to the fair market value of the Company's stock on the date of grant (which is determined by reference to the closing price for the Class B common stock on the New York Stock Exchange trading date immediately preceding the grant. Option awards generally vest on a graded basis over three years of service and have ten-year contractual terms. Expected volatility is based on historical volatility of the Company's Class B common stock and other factors. The Company uses historical data on exercise of stock options, post vesting forfeitures and other factors to estimate the expected term of the stock-based payments granted. The risk free rate is based on the U.S. Treasury yield curve in effect at the time of grant.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

A summary of stock option activity for the Company is as follows:

	Number of Options (in thousands)	Weighted- Average Exercise Price	Weighted- Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2020	552	\$ 8.96	2.1	\$ 798
Granted	—	—		
Exercised	—	—		
Cancelled/Forfeited	(169)	6.85		
OUTSTANDING AT DECEMBER 31, 2021	383	5.56	1.6	\$ 316
EXERCISABLE AT DECEMBER 31, 2021	280	\$ 6.01	1.7	\$ 190

The total intrinsic value of options exercised during the year ended December 31, 2020 was \$0.8 million. There were no stock options exercised in 2021. At December 31, 2021, there was no unrecognized compensation cost related to non-vested stock options. There were no compensation cost related to vesting of the options in the years ended December 31, 2021 and 2020.

Lumo Finland Grant

In February 2020, Lumo Finland, granted 59,499 deferred stock units in Lumo Finland to certain Lumo Finland employee with a grant date fair value of €4.66 (equivalent to \$5.08 on the grant date) The deferred stock units vest in equal amounts on January 2021, 2022 and 2023. The cost is being recognized on a straight-line basis over the requisite service period, which approximates the vesting period. Lumo Finland recognized compensation costs related to the vesting of the Lumo Finland deferred stock units of \$0.1 million for each of the years ended December 31, 2021 and 2020. At December 31, 2021, the unrecognized compensation cost relating to these grants was \$0.1 million and is expected to be recognized over a weighted-average period of 1.1 years.

Market Condition Awards

In February 2020, the Company granted certain employees and members of its Board of Directors an aggregate of 305,000 deferred stock units, which are subject to vesting in two tranches upon the achievement of a specified thirty-day average closing price of the Company's Class B common stock within specified periods of time (the "2020 market conditions") and the satisfaction of service-based vesting conditions. Each deferred stock unit entitles the grantee to receive, upon vesting, up to two shares of Class B common stock of the Company upon achievement of market conditions which will be subject to restrictions that will lapse annually over three years from grant. The grant-date fair value of the deferred stock units is amortized over approximately 3.5 years after the date of grant irrespective of whether the 2020 market conditions were met. The 2020 market conditions were not achieved and the deferred stock units expired in February 2021. In the fourth quarter of 2021, 15,000 deferred stock units were forfeited as a result of the termination of the employment of a grantee.

In February 2021, the Company granted certain employees and members of its Board of Directors an aggregate of 305,000 deferred stock units which will vest in two tranches contingent upon the achievement of a specified thirty-day average closing price of the Company's Class B common stock within a specified period of time (the "2021 market conditions") and the satisfaction of service-based vesting conditions. Each deferred stock unit entitles the recipient to receive, upon vesting, up to two shares of Class B common stock of the Company depending on market conditions which will be subject to restrictions that will lapse annually over three years from grant. The grant-date fair value of the deferred stock units is being amortized over approximately 3.5 years after the date of grant irrespective of whether the 2021 market conditions were met. In the fourth quarter of 2021, 15,000 deferred stock units were forfeited as a result of the termination of the employment of a grantee. The 2021 market conditions were not achieved and the deferred stock units expired in February 2022.

The Company used a Monte Carlo simulation model to estimate the grant-date fair value of the awards. Assumptions and estimates utilized in the model include the risk-free interest rate, dividend yield, expected stock volatility based on a combination of the Company's historical stock volatility. The Company recognized compensation costs related to the deferred stock units award of \$1.5 million for the year ended December 31, 2021. As of December 31, 2021, there were approximately \$3.3 million of total unrecognized stock-based compensation costs related to outstanding and unvested equity-based grants. These costs are expected to be recognized over a weighted-average period of approximately 2.3 years.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 14 — Variable Interest Entity

Citizens Choice Energy, LLC ("CCE") is a REP that resells electricity and natural gas to residential and small business customers in the State of New York. The Company does not own any interest in CCE. Since 2011, the Company has provided CCE with substantially all of the cash required to fund its operations. The Company determined that it has the power to direct the activities of CCE that most significantly impact its economic performance and it has the obligation to absorb losses of CCE that could potentially be significant to CCE on a stand-alone basis. The Company therefore determined that it is the primary beneficiary of CCE, and as a result, the Company consolidates CCE within its GRE segment. The net income or loss incurred by CCE was attributed to noncontrolling interests in the accompanying consolidated statements of operations.

In October 2015, GRE paid \$0.2 million to the owner of the limited liability company interests in CCE, and loaned CCE \$0.5 million in exchange for an option to purchase 100% of the issued and outstanding limited liability company interests of CCE for one dollar plus the forgiveness of the \$0.5 million loan. The option expires on October 22, 2023.

Net loss related to CCE and aggregate net funding repaid to (provided by) the Company were as follows:

	Year ended December 31,	
	2021	2020
	(in thousands)	
Net loss	\$ 1,445	\$ 1,452
Aggregate funding provided by the Company, net	\$ 625	\$ 1,524

Summarized consolidated balance sheet amounts related to CCE are as follows:

	December 31,	
	2021	2020
	(in thousands)	
ASSETS		
Cash, cash equivalents and restricted cash	\$ 559	\$ 491
Trade accounts receivable	544	433
Prepaid expenses and other current assets	367	416
Other assets	359	359
TOTAL ASSETS	\$ 1,829	\$ 1,699
LIABILITIES AND NONCONTROLLING INTERESTS		
Current liabilities	\$ 547	\$ 518
Due to IDT Energy	5,668	4,122
Noncontrolling interests from CCE	(4,386)	(2,941)
TOTAL LIABILITIES AND NONCONTROLLING INTERESTS	\$ 1,829	\$ 1,699

The assets of CCE may only be used to settle obligations of CCE, and may not be used for other consolidated entities. The liabilities of CCE are non-recourse to the general credit of the Company's other consolidated entities.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 15 — Legal and Regulatory Proceedings***Legal Proceedings***

On February 18, 2020, named plaintiff Danelle Davis filed a putative class action complaint against Residents Energy and GRE in United States District of New Jersey alleging violations of the Telephone Consumer Protection Act, 47 U.S.C § 227 et seq. Although Residents Energy and GRE deny any wrongdoing in connection with the complaints, the parties settled the matter for a minimal amount which was included in selling general and administrative expenses in the first quarter of 2021.

In addition to the matter disclosed above, the Company may from time to time be subject to legal proceedings that arise in the ordinary course of business. Although there can be no assurance in this regard, the Company does not expect any of those legal proceedings to have a material adverse effect on the Company's results of operations, cash flows or financial condition.

Agency and Regulatory Proceedings

From time to time, the Company receives inquiries or requests for information or materials from public utility commissions or other governmental regulatory or law enforcement agencies related to investigations under statutory or regulatory schemes, and the Company responds to those inquiries or requests. The Company cannot predict whether any of those matters will lead to claims or enforcement actions or whether the Company and the regulatory parties will enter into settlements before a formal claim is made.

State of Connecticut Public Utilities Regulatory Authority**Town Square**

On September 19, 2018, the State of Connecticut Public Utilities Regulatory Authority ("PURA") commenced an investigation into Town Square following customer complaints of allegedly misleading and deceptive sales practices on the part of Town Square. The Connecticut Office of Consumer Counsel subsequently joined in the investigation. Although Town Square denies any basis for those complaints and any wrongdoing on its part, it cooperated with the investigation and responded to subpoenas for discovery. On June 17, 2020, PURA notified Town Square that it was advancing its investigation by assigning Prosecutorial staff for the purpose of investigating Town Square's compliance with licensed electric supplier billing, marketing, and licensing requirements, and, if appropriate, facilitating settlement discussions among the parties that contains, but is not limited to, an appropriate civil penalty, extensive retraining of the supplier's third-party agents, and retention of all sales calls with continued auditing.

In July 2021, the parties settled the dispute. Pursuant to the terms of the settlement agreement, Town Square paid \$0.4 million. Town Square has also agreed to voluntarily refrain from in-person marketing activities in Connecticut for a period of 15 months. For the years ended December 31, 2021 and 2020, Town Square's gross revenues from sales in Connecticut was \$29.0 million and \$38.0 million, respectively.

Residents Energy

In August 2020, Residents Energy began marketing retail energy services to Connecticut. For the year ended December 31, 2021, Residents Energy's gross revenues from sales in Connecticut was \$0.2 million. During the fourth quarter of 2020, the enforcement division of PURA contacted Residents Energy concerning customer complaints received in connection with alleged door-to-door marketing activities in violation of various rules and regulations. On March 12, 2021, the enforcement division filed a motion against Resident Energy with the adjudicating body of PURA, seeking the assessment of \$1.5 million in penalties, along with a suspension of license, auditing of marketing practices upon reinstatement and an invitation for settlement discussions.

In June 2021, the parties settled the dispute. Pursuant to the terms of the settlement agreement, Residents Energy paid \$0.3 million and volunteered to withdraw from the market in Connecticut for a period of 36 months.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Other Informal Reviews or Investigations

From time to time regulators may initiate informal reviews, compliance checks or issue subpoenas for information as means to evaluate the Company and its subsidiaries' compliance with applicable laws, rule, regulations and practices.

On October 25, 2019, the Office of the Attorney General of the State of Illinois ("IL AG") notified Residents Energy (by way of subpoena) that it is conducting an investigation to assess compliance with the Illinois Consumer Fraud and Deceptive Business Practices Act. The notice was issued in the form of a subpoena in the course of the foregoing. The Company, which has responded in part, has challenged the merits of the subpoena and investigation. The IL AG is seeking to compel Residents Energy's response to its subpoena. Residents Energy denies any wrongdoing on its part. As of December 31, 2021, no claims or demands have been made against Residents Energy by the IL AG, and there is insufficient basis to deem any loss probable or to assess the amount of any possible loss. For the years ended December 31, 2021 and 2020, Resident Energy's gross revenues from sales in Illinois was \$26.0 and \$29.9 million, respectively.

In response to certain customer complaints, the State of Maine Public Utility Commission ("MPUC") has opened a review of the door to door marketing practices of Town Square. In connection with the review, the MPUC has requested information from Town Square demonstrating compliance in the form of an order to show cause as to why its marketing practices are in compliance and it should be permitted to continue licensed operations in Maine. In August 2021, the parties settled the dispute without any obligation for payment by Town Square. In connection with the settlement, Town Square has agreed to voluntarily refrain from door-to-door marketing activities in Maine through June 30, 2023, and to voluntarily refrain from outbound telemarketing to obtain new residential customers for a period of six months, along with certain compliance procedures. For the years ended December 31, 2021 and 2020, Town Square's gross revenues from sales in Maine was \$1.5 million and \$1.2 million, respectively.

Note 16 — Commitments and Contingencies*Purchase Commitments*

The Company had purchase commitments of \$144.0 million at December 31, 2021, of which \$103.6 million was for future purchases of electricity. The purchase commitments outstanding at December 31, 2021 are expected to be paid as follows (in thousands):

2022	\$	82,246
2023		48,354
2024		12,426
2025		1,006
Thereafter		—
Total payments	\$	144,032

In 2021, the Company purchased \$14.0 million and \$18.2 million of electricity and renewable energy credits, respectively, under these purchase commitments. In 2020, the Company purchased \$68.1 million and \$13.1 million of electricity and renewable energy credits, respectively, under these purchase commitments.

Renewable Energy Credits

GRE's REPs must obtain a certain percentage or amount of their electricity from renewable energy sources in order to meet the requirements of renewable portfolio standards in the states in which they operate. This requirement may be met by obtaining renewable energy credits that provide evidence that electricity has been generated by a qualifying renewable facility or resource. At December 31, 2021, GRE had commitments to purchase renewable energy credits of \$40.5 million.

Performance Bonds and Unused Letters of Credit

GRE has performance bonds issued through a third party for certain utility companies and for the benefit of various states in order to comply with the states' financial requirements for REPs. At December 31, 2021, GRE had aggregate performance bonds of \$13.5 million outstanding and a minimal amount of unused letter of credit.

BP Energy Company Preferred Supplier Agreement

Certain of GRE's REPs are party to an Amended and Restated Preferred Supplier Agreement with BP, which is to be in effect through November 30, 2023. Under the agreement, the REPs purchase electricity and natural gas at market rate plus a fee. The obligations to BP are secured by a first security interest in deposits or receivables from utilities in connection with their purchase of the REP's customer's receivables, and in any cash deposits or letters of credit posted in connection with any collateral accounts with BP. The ability to purchase electricity and natural gas under this agreement is subject to satisfaction of certain conditions including the maintenance of certain covenants. At December 31, 2021, the Company was in compliance with such covenants. At December 31, 2021, restricted cash — short-term of \$1.0 million and trade accounts receivable of \$46.4 million were pledged to BP as collateral for the payment of trade accounts payable to BP of \$13.9 million at December 31, 2021.

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 17 — Related Party Transactions

On December 7, 2020, the Company invested \$5.0 million to purchase 218,245 shares of Class B common stock of Rafael Holdings, Inc. ("Rafael"). Rafael, a publicly-traded company, is also a related party. Rafael is a former subsidiary of IDT that was spun off from IDT in March 2018. Howard S. Jonas is the Chairman of the Board of Directors of Rafael. In connection with the purchase, Rafael issued to the Company warrants to purchase additional 43,649 shares of Rafael's Class B common stock with an exercise price of \$22.91 per share. The warrants had a term expiring on June 6, 2022. The Company exercised the warrants in full on March 31, 2021 for a total exercise price of \$1.0 million. The Company does not exercise significant influence over the operating or financial policies of Rafael. For the year ended December 31, 2021, the Company recognized unrealized loss on investment of \$5.0 million, in connection with the investment. For the year ended December 31, 2020, the Company recognized \$0.3 million unrealized gain from marketable equity securities and other investments. At December 31, 2021, the carrying value of the investment in the common stock was \$1.3 million.

The Company was formerly a subsidiary of IDT Corporation ("IDT"). On October 28, 2011, the Company was spun-off by IDT. The Company entered into various agreements with IDT prior to the spin-off including an agreement for certain services to be performed by the Company and IDT. The Company also provides specified administrative services to certain of IDT's foreign subsidiaries. Howard Jonas is the Chairman of the Board of IDT.

The Company leases office space and parking in New Jersey from Rafael. The leases expire in April 2025.

The charges for services provided by IDT to the Company, and rent charged by Rafael, net of the charges for the services provided by the Company to IDT, are included in "Selling, general and administrative" expense in the consolidated statements of operations.

	Year ended December 31,	
	2021	2020
	(in thousands)	
Amount IDT charged the Company	\$ 1,172	\$ 1,282
Amount the Company charged IDT	\$ 134	\$ 155
Amount Rafael charged the Company	\$ 247	\$ 225

The following table presents the balance of receivables and payables to IDT and Rafael:

	December 31,	
	2021	2020
	(in thousands)	
Due to IDT	\$ 551	\$ 299
Due from IDT	\$ 19	\$ 40
Due to Rafael	\$ —	\$ —

On August 31, 2018, the Company extended a loan to a former employee for \$0.1 million. The loan agreement required scheduled payments from December 31, 2020 to December 2052. The loan bears the same interest equivalent to a minimum rate, in effect from time to time required by local regulations and is compounded annually. The Company recorded nominal amounts of interest income for the years ended December 31, 2021 and 2020 related to the loan. The outstanding balance of loan receivable, including accrued interest was \$0.1 million as of December 31, 2021.

The Company obtains insurance policies from several insurance brokers, one of which is IGM Brokerage Corp. ("IGM"). IGM is owned by the mother of Howard S. Jonas and Joyce Mason, the Company's Corporate Secretary. Jonathan Mason, husband of Joyce Mason and brother-in-law of Howard S. Jonas, provides insurance brokerage services via IGM. Based on information the Company received from IGM, the Company believes that IGM received commissions and fees from payments made by the Company (including payments from third party brokers). The Company paid IGM a total of \$0.3 million in 2021 and 2020 related to premium of various insurance policies that were brokered by IGM. There was no outstanding payable to IGM as of December 31, 2021. Neither Howard S. Jonas nor Joyce Mason has any ownership or other interest in IGM other than via the familial relationships with their mother and Jonathan Mason.

In the September and October of 2021, the Company purchased from certain related parties interest in GRE International and GEIC (see Note 12 — *Equity*)

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Investments in Atid 613.

In September 2018, the Company divested a majority interest in Atid Drilling Ltd. in exchange for a 37.5% interest in a contracting drilling company in Israel ("Atid 613") which the Company accounts for using equity method of accounting. The Company did not recognize any equity in net loss from Atid 613 in 2021. The Company recognized a \$0.2 million equity in net loss from Atid 613 for the year ended December 31, 2020. The carrying value of investments in Atid 613 was \$0.1 million at December 31, 2021 and 2020 included in other noncurrent assets in the consolidated balance sheets.

The Company also entered into a Shareholder Agreement with Atid 613's other shareholders to govern certain issues regarding management of the new company. Under the Shareholder Agreement, among other things, Genie Israel agreed to make available to Atid 613 working capital financing up to \$0.4 million ("Credit Facility"). Any outstanding borrowing under the Credit Facility would bear interest at a variable rate as described in the Shareholder Agreement. As of December 31, 2021, the outstanding balance of Credit Facility was nil.

On August 12, 2019, the Company, together with the other shareholders of Atid 613 signed a Funding Agreement to provide aggregate loans to Atid 613 in an amount of up to New Israeli Shekel or NIS\$1.1 million (equivalent to \$1.5 million at December 31, 2021), including the Company's commitment to extend up to NIS\$1.9 million (equivalent to \$0.5 million at December 31, 2021) of such amount. In August 2019, the Company extended NIS\$0.8 million (equivalent to \$0.2 million) in loans. The loans which are secured by Atid 613's assets bore no interest until March 1, 2020 and bore interest at 5.5% for all subsequent periods. In May 2021 Atid 613 paid the outstanding balance of the loan of \$0.2 million. At December 31, 2021, the balance of loan receivables from Atid 613 was nil.

Note 18 — Business Segment and Geographic Information

The Company has three reportable business segments: GRE, GRE International and Genie Renewables (formerly Genie Energy Services, or GES). In the first quarter of 2021, the Company modified its management reporting to rename its GES segment as "Genie Renewables." GRE owns and operates REPs, including IDT Energy, Residents Energy, TSE, Southern Federal and Mirabito. Its REP businesses resell electricity and natural gas to residential and small business customers in the Eastern and Midwestern United States and Texas. GRE International, operates REPs in Finland and Sweden. Genie Renewables designs, manufactures and distributes solar panels, offers energy brokerage and advisory services and also sells third-party products to customers. Corporate costs include unallocated compensation, consulting fees, legal fees, business development expenses and other corporate-related general and administrative expenses. Corporate does not generate any revenues, nor does it incur any cost of revenues.

The Company's reportable segments are distinguished by types of service, customers and methods used to provide their services. The operating results of these business segments are regularly reviewed by the Company's chief operating decision-maker.

The accounting policies of the segments are the same as the accounting policies of the Company as a whole. The Company evaluates the performance of its business segments based primarily on income (loss) from operations. There are no significant asymmetrical allocations to segments.

Operating results for the business segments of the Company were as follows:

	GRE	GRE International	Genie Renewables	Corporate	Total
	(in thousands)				
Year ended December 31, 2021					
Revenues	\$ 311,831	\$ 44,386	\$ 7,508	\$ —	\$ 363,725
Income (loss) from continuing operations	34,695	4,788	252	(6,644)	33,091
Depreciation and amortization	375	859	46	2	1,282
Provision for doubtful accounts receivable	1,657	77	16	—	1,750
Stock-based compensation	933	134	—	1,863	2,930
Impairment of assets	—	—	—	—	—
Provision for (benefit from) income taxes	8,246	(1,139)	131	1,551	8,789
Year ended December 31, 2020					
Revenues	\$ 304,450	\$ 27,266	\$ 25,214	\$ —	\$ 356,930
Income (loss) from continuing operations	36,508	(5,097)	(2,572)	(6,967)	21,872
Depreciation and amortization	465	2,064	326	107	2,962
Provision for doubtful accounts receivables	2,589	255	—	—	2,844
Stock-based compensation	463	161	—	510	1,134
Impairment of assets	—	—	1,397	—	1,397
Provision for (benefit from) income taxes	10,350	(1,161)	—	(1,558)	7,631

GENIE ENERGY LTD.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Total assets for the business segments of the Company were as follows:

	December 31,			
	2021		2020	
	(in thousands)			
GRE	\$	174,442	\$	101,904
GRE International		34,674		13,509
Genie Renewables		3,946		3,171
Corporate		16,403		26,991
Total assets of continuing operations		229,465		145,575
Assets of discontinued operations		—		41,764
Total assets	\$	229,465	\$	187,339

Geographic Information

Revenues from customers located outside of the United States, which are located primarily in Finland, Sweden and Japan were as follows:

	United States	Finland	Other Foreign Countries	Total
	(in thousands)			
Year ended December 31, 2021	\$ 319,339	\$ 36,775	\$ 7,611	\$ 363,725
Year ended December 31, 2020	329,664	17,797	9,469	356,930

Net long-lived assets and total assets held outside of the United States, which are located primarily in Finland, Sweden, Japan and Israel, were as follows:

	United States	Finland	Other Foreign Countries	Total
	(in thousands)			
December 31, 2021				
Long-lived assets, net	\$ 15,238	\$ 1,875	\$ 244	\$ 17,357
Total assets	194,791	25,125	9,549	229,465
December 31, 2020				
Long-lived assets of continuing operations, net	\$ 15,623	2,157	\$ 913	\$ 18,693
Total assets of continuing operations	132,066	8,756	4,753	145,575

Long-lived assets consist of property and equipment, net, right-of-use assets, intangibles and other long-term assets.

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

Our authorized capital stock consists of (i) 35 million shares of Class A common stock, (ii) 200 million shares of Class B common stock, and (iii) 10 million shares of Preferred Stock.

The following description of our classes of authorized stock does not purport to be complete and is subject to and qualified in its entirety by reference to our charter and bylaws, copies of which are filed as exhibits to the Annual Report on Form 10-K to which this Exhibit 4.2 is a part.

Class A Common Stock

Holders of shares of our Class A common stock are entitled to three votes for each share on all matters to be voted on by the stockholders. Holders of our Class A common stock are entitled to share ratably in dividends, if any, as may be declared from time to time by the Board of Directors in its discretion from funds legally available therefor. Each share of our Class A common stock may be converted, at any time and at the option of the holder, and automatically converts upon transfers to unaffiliated parties, into one fully paid and non-assessable share of our Class B common stock.

As of March 11, 2022, there were 1,574,326 shares of our Class A common stock outstanding.

Class B Common Stock

Holders of shares of our Class B common stock are entitled to one tenth of one vote for each share on all matters to be voted on by the stockholders. Holders of our Class B common stock are entitled to share ratably in dividends, if any, as may be declared from time to time by the Board of Directors in its discretion from funds legally available therefor. Our Class B common stock is listed on the NYSE.

As of March 11, 2022, there were 24,635,170 shares of our Class B common stock outstanding.

Preferred Stock

The Board of Directors has the authority to fix the price, rights, preferences, privileges and restrictions, including voting rights, of those shares without any further vote or action by the stockholders.

The Series 2012-A preferred stock was established by resolutions of the Board of Directors of the Company on July 30, 2012. Holders of our Series 2012-A Preferred Stock are entitled to one tenth of one vote for each share on all matters to be voted on by the stockholders. Our Series 2012-A preferred stock is listed on the NYSE.

Each share of our Series 2012-A preferred stock has a liquidation preference of \$8.50 (the "Liquidation Preference"), and is entitled to receive an annual dividend per share equal to the sum of (i) \$0.6375 (the "Base Dividend") plus (ii) seven and one-half percent (7.5%) of the quotient obtained by dividing (A) the amount by which the EBITDA for a fiscal year of our retail energy provider business exceeds \$32 million by (B) 8,750,000 (the "Additional Dividend"), payable in cash. EBITDA consists of income (loss) from operations exclusive of depreciation and amortization and other operating gains (losses).

The Series 2012-A Preferred Stock is redeemable, in whole or in part, at our option following October 11, 2017 at 101% of the Liquidation Preference plus accrued and unpaid dividends, and 100% of the Liquidation Preference plus accrued and unpaid dividends following October 11, 2018.

During any period when we have failed to pay a dividend on the Series 2012-A preferred stock and until all unpaid dividends have been paid in full, we are prohibited from paying dividends or distributions on our Class B or Class A common stock.

The Base Dividend is payable (if declared by our Board of Directors, and accrued, if not declared) quarterly on each February 15, May 15, August 15 and November 15, and to the extent that there is any Additional Dividend payable with respect to a fiscal year, it will be paid to holders of Series 2012-A preferred stock with the May dividend. With respect to the payment of dividends and amounts upon liquidation, dissolution or winding up, the Series 2012-A preferred stock is equal in rank to all other equity securities we issue, the terms of which specifically provide that such equity securities rank on a parity with the Series 2012-A preferred stock with respect to dividend rights or rights upon our liquidation, dissolution or winding up; senior to our common stock; and junior to all of our existing and future indebtedness.

As of March 11, 2022, there were 2,322,699 shares of our Series 2012-A preferred stock outstanding.

Anti-Takeover Effects of Our Charter and By-Laws

Some provisions of Delaware law and our Certificate of Incorporation and By-Laws could make the following more difficult:

- acquisition of us by means of a tender offer;
- acquisition of us by means of a proxy contest or otherwise; or
- removal of our incumbent officers and directors.

These provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions also are designed to encourage persons seeking to acquire control of us to first negotiate with our Board of Directors. We believe that the benefits of increased protection give us the potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us and outweigh the disadvantages of discouraging those proposals because negotiation of them could result in an improvement of their terms.

Certificate of Incorporation; By-Laws

Our Certificate of Incorporation and By-Laws contain provisions that could make more difficult the acquisition of us by means of a tender offer, a proxy contest or otherwise. These provisions are summarized below.

Undesignated Preferred Stock. The authorization of our undesignated preferred stock makes it possible for our Board of Directors to issue our preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes of control of our management.

Size of Board and Vacancies. Our Certificate of Incorporation provides that the number of directors on our Board of Directors will be fixed exclusively by our Board of Directors. Newly created directorships resulting from any increase in our authorized number of directors or any vacancies in our Board of Directors resulting from death, resignation, retirement, disqualification, removal from office or other cause will be filled solely by the vote of our remaining directors in office.

Stockholder Meetings. Under our By-Laws, only our (i) Chairman of the Board, (ii) Chief Executive Officer, (iii) President or (iv) Corporate Secretary may call special meetings of our stockholders.

DOMESTIC SUBSIDIARIES

Name

American Shale Oil Corporation (DE)

American Shale Oil, LLC (DE), Assumed Name in TX: AMSO, LLC

AMSO Holdings I, Inc. (DE)

AMSO Holdings, LLC (DE)

Cedar Solar, LLC (DE)

CityCom Essential Services, Inc. (DE)

CityCom Solar, LLC (DE)

CPP Genie Community Solar, LLC (DE)

Diversegy Consultant Program, LLC (TX)

Diversegy, LLC (TX)

DiversegyPro, LLC (DE)

DMS Promotions, LLC (DE)

Evergreen Gas & Electric, LLC (DE)

Genie Energy International Corporation (DE)

Genie Energy Services, LLC (DE)

Genie Georgia GP, LLC (DE)

Genie Georgia P2, LLC (DE)

Genie Georgia, LLC (DE)

Genie Japan, LLC (DE)

Genie Nordic, LLC (DE)

Genie Mongolia, Inc. (DE)

Genie Oil and Gas, Inc. (DE)

Genie Retail Energy, Inc. (DE)

Genie Retail Energy International, LLC (DE)

Genie Solar Energy LLC (DE)

Genie Solar Operations, LLC (DE)

Genie Ventures, LLC (DE)

IDT Energy, Inc. (DE)

IntelliMark Services, LLC (DE)

Mirabito Natural Gas, LLC (DE)

North American Energy, Inc. (DE)

One Sun Capital GP, LLC (DE)

Oriel Energy, Inc. (DE)

Papetti Solar, LLC (DE)

Plus EnergG, Inc. (DE)

Prism Solar Technologies, Inc. (DE)

Residents Energy, LLC (NY)

Retail Energy Holdings LLC (MN)

Southern Federal Power, LLC (DE)

Town Square Energy, LLC (DE)

Town Square Energy East, LLC (DE)

Town Square Energy Georgia, LP (DE)

Virtual Power Hedging, LLC (DE)

FOREIGN SUBSIDIARIES

Name	Country of Formation
Genie Dutch Holdings B.V.	Netherlands
Genie Energie B.V.	Netherlands
Town Square Energy Canada, Ltd.	Canada
Genie Energy UK Ltd	United Kingdom
Lumo Energia Oyj	Finland
Lumo Energy AB	Sweden
Genie Energy Israel Ltd.	Israel
Genie IP B.V.	Netherlands
Genie Israel Holdings Ltd.	Israel
Afek Oil & Gas Ltd.	Israel
Atid Drilling Ltd.	Israel
Israel Energy Initiatives Ltd.	Israel
Orbit Energy Limited (f/k/a Thistle Energy Supply Limited)	United Kingdom
Petrocycle, Ltd.	Israel
Shoreditch Energy Limited	United Kingdom

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Genie Energy Ltd.
Newark, New Jersey

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-222856) and Form S-8 (No. 333-262602, 333-239411, 333-225703, 333-202800, 333-177565 and 333-231976) of Genie Energy Ltd. of our reports dated March 16, 2022, relating to the consolidated financial statements and the effectiveness of the Genie Energy Ltd.'s internal control over financial reporting, which appear in this Form 10-K. Our report on the effectiveness of internal control over financial reporting expresses an adverse opinion on the effectiveness of the Company's internal control over financial reporting as of December 31, 2021.

/s/ BDO USA, LLP

Woodbridge, New Jersey
March 16, 2022

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Genie Retail Energy International LLC
Newark, New Jersey

We are not the primary auditors for Genie Energy Ltd. For the years ended December 31, 2021, and 2020. We have served as the auditors for Genie Retail Energy International, LLC (GREI, a subsidiary of Genie Energy Ltd.) for the years ending December 31, 2021, and 2020. We do hereby consent to the inclusion of our reports for the year ended December 31, 2021 and 2020 for GREI in the Registration Statements on Form S-3 (No. 333-222856) and Form S-8 (No. 333-262602, 333-239411, 333-225703, 333-202800, 333-177565 and 333-231976) of Genie Energy Ltd.

/s/ Zwick CPA, PLLC

(Formerly known as Zwick and Banyai, PLLC)

Southfield, Michigan
March 16, 2022

Certification of Chief Executive Officer

pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Michael Stein, certify that:

1. I have reviewed this Annual Report on Form 10-K of Genie Energy Ltd.;
2. Based on my knowledge, this Report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this Report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 16, 2022

/s/ Michael Stein

Michael Stein

Chief Executive Officer

Certification of Principal Financial Officer

pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Avi Goldin, certify that:

1. I have reviewed this Annual Report on Form 10-K of Genie Energy Ltd.;
2. Based on my knowledge, this Report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this Report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 16, 2022

/s/ Avi Goldin

 Avi Goldin
 Chief Financial Officer

GENIE ENERGY LTD.

Certification Pursuant to

18 U.S.C. Section 1350

(as Adopted Pursuant to Section 906 of
the Sarbanes-Oxley Act Of 2002)

In connection with the Annual Report of Genie Energy Ltd. (the "Company") on Form 10-K for the annual period ended December 31, 2021 as filed with the Securities and Exchange Commission (the "Report"), I, Michael Stein, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 16, 2022

/s/ Michael Stein

Michael Stein
Chief Executive Officer

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Genie Energy Ltd. and will be retained by Genie Energy Ltd. and furnished to the Securities and Exchange Commission or its staff upon request.

GENIE ENERGY LTD.

Certification Pursuant to

18 U.S.C. Section 1350

(as Adopted Pursuant to Section 906 of
the Sarbanes-Oxley Act Of 2002)

In connection with the Annual Report of Genie Energy Ltd. (the "Company") on Form 10-K for the annual period ended December 31, 2021 as filed with the Securities and Exchange Commission (the "Report"), I, Avi Goldin, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 16, 2022

/s/ Avi Goldin

Avi Goldin
Chief Financial Officer

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Genie Energy Ltd. and will be retained by Genie Energy Ltd. and furnished to the Securities and Exchange Commission or its staff upon request.

Genie Energy Ltd. Corporate Structure

as of July 16, 2021

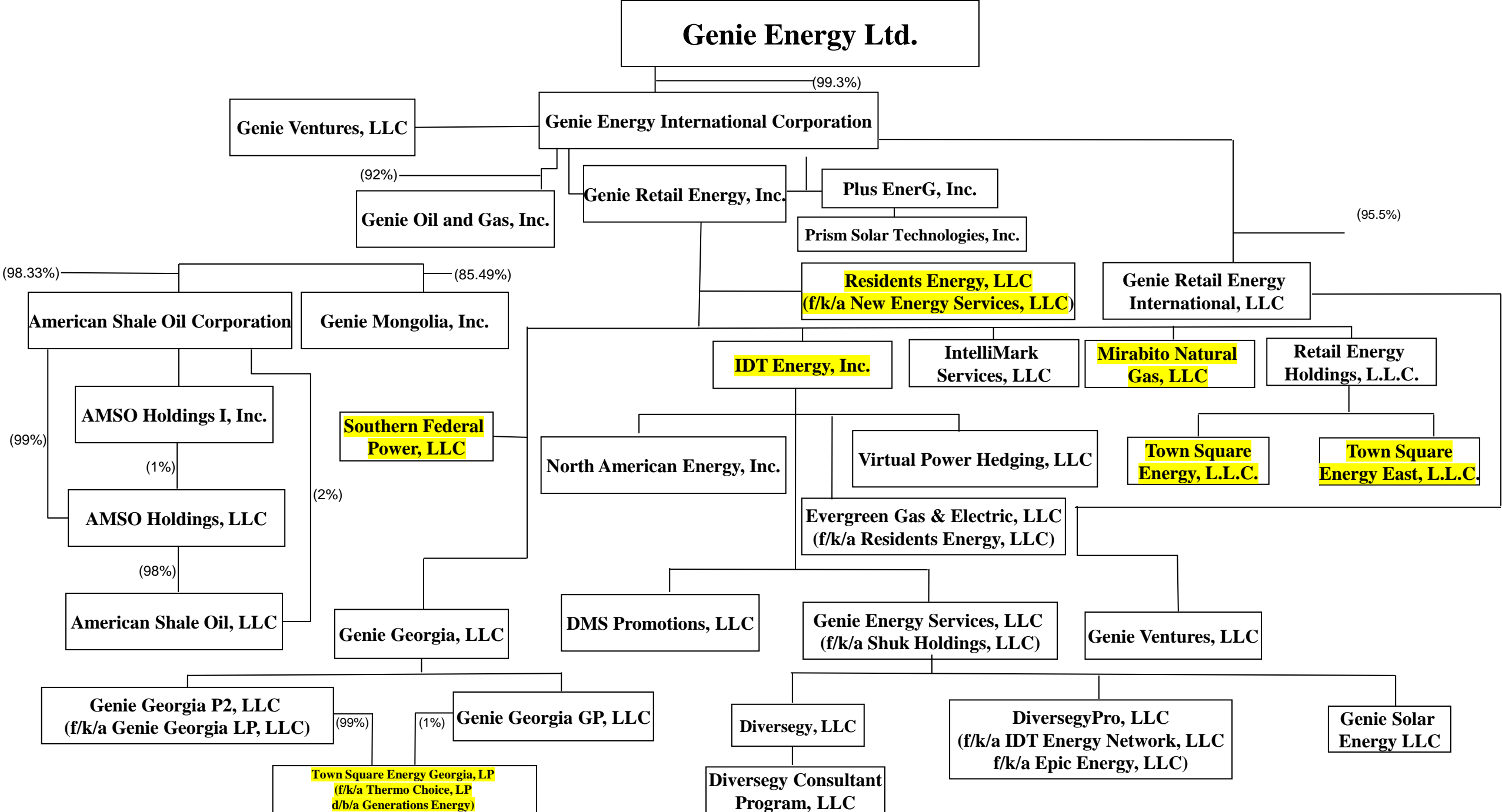


Exhibit D-1 “Operations”

IDT Energy, Inc.’s business is the supply of electricity and natural gas to residential, small commercial and some large commercial customers. IDT Energy does not generate its own power. In addition to supplying electricity and natural gas to customers in Ohio, IDT Energy is currently also supplying electricity and/or natural gas to customers in Illinois, Maryland, New Jersey, New York, Pennsylvania and the District of Columbia.

IDT Energy has a long-standing Key Supplier Agreement (“KSA”) in place with BP Energy that covers all the activities of IDT Energy. Pursuant to the KSA, BP is the financially responsible party and the scheduling entity for IDT Energy’s load. BP is responsible for scheduling electricity on a daily basis and securing ancillary services to support the load.

Exhibit D-2 “Operations Expertise and Key Technical Personnel”

IDT Energy Inc.’s management team has been effectively running and building the applicant’s electricity and natural gas supply business over the last many years. The company has tens of thousands of customers in six states and the District of Columbia. All of the key personnel have significant experience in the field as described more fully in the biographical sketches below.

Michael Stein, CEO

mstein@genieretail.com

973-438-3018

Michael Stein is the CEO of Genie Retail Energy, Inc. and its subsidiaries, including IDT Energy, Inc. Previously, he served as Executive Vice President of Operations and then Senior Vice President of Operations of Genie Energy Ltd. Prior to assuming responsibility for the energy related initiatives, Mr. Stein was Senior Vice President of Business Development of IDT Telecom and was an analyst at Belstar Investment Management. He holds a BA in Psychology from Yeshiva University.

Alan Schwab, President and Chief Operating Officer

aschwab@genieretail.com

973-438-4343

Alan Schwab is the President and Chief Operating Officer (COO) of Genie Retail Energy, Inc. and its subsidiaries, including IDT Energy, Inc. As President and COO, Alan is responsible for the day-to-day operations of the businesses including sales, operations, compliance, customer service and technology. Under his leadership, IDT Energy expanded its customer base into the New Jersey, Pennsylvania, Maryland, Illinois and District of Columbia markets.

Prior to his foray into energy, Alan excelled in a succession of senior operations positions at IDT Corporation beginning at IDT Telecom, which he joined in 1996. As SVP at IDT Telecom, Alan managed the routing, provisioning and switching translations for IDT’s global telecommunications network.

Alan subsequently was named COO of IDT Capital, the division of IDT responsible for new business initiatives and incubation. In that capacity, he directed the development of over a dozen successful start-ups, including IDT Energy.

Alan holds an MBA from Barry University in Miami, Florida.

Avi Goldin, CFO

agoldin@genie.com

973-438-4075

Avi Goldin has served as Chief Financial Officer of Genie Energy Ltd. since August 2011. He now also serves as CFO of Genie Retail Energy, Inc. and its subsidiaries, including IDT Energy, Inc. Prior to assuming these roles, Avi served as Vice President of Corporate Development of IDT Corporation from May 2009 through October 2011. He originally joined IDT in January 2004 and held several positions within IDT and its affiliates before leaving in January 2008 to join CayComm Media Holdings, a telecommunications acquisition fund, where he served as Vice President, Finance. Avi rejoined IDT in May 2009 as Vice President of Corporate Development. Prior to joining IDT, Avi served as an Investment Analyst at Dreman Value Management, a \$7 billion asset management firm and as an Associate in the Satellite Communications group at Morgan Stanley & Co.

Avi holds an MBA from the Stern School of Business of New York University, a B.A. in Finance from the Syms School of Business of Yeshiva University and is a Chartered Financial Analyst (CFA).

Brad Martin, VP of Marketing

bmartin@genieretail.com

973-438-3184

Brad Martin is Vice President of Marketing for Genie Retail Energy, Inc. and its subsidiaries, including IDT Energy, Inc. He is responsible for the companies' marketing and customer acquisition strategy, including on- and off-line media plans, media partner development and new consumer offers.

Brad previously served as Senior Director of Marketing Programs at RCN Telecommunications, where he managed marketing, product development, sales, customer care, project management and back office operations. Brad rose through the leadership ranks in RCN's marketing group while serving various senior positions, earning the CEO's Award for Marketing Performance in 2005.

Prior to joining RCN, Brad was Marketing Director at SmartServ Online and i3 Mobile, both developers of mobile telephony applications. During his tenure he successfully launched applications with every major wireless carrier in North America.

Brad established his marketing career at Columbia House, Co. where he directed product management, business development and customer acquisition programs for one of the largest consumer software and video gaming clubs in North America.

Brad graduated with a Bachelor of Science in Marketing and Management Information Systems from Yeshiva University in New York.

Jacob Cohen, Director of Supply

jcohen@genie.com

917455-8764

Jacob Cohen is Director of Supply for Genie Retail Energy, Inc. and its subsidiaries, including IDT Energy, Inc. Jacob has more than 15 years of experience in the retail energy industry.

Jacob's core disciplines are in energy trading, risk management, retail energy operations and finance/accounting.

Jacob has specialized in the supply-side of the business from management of large-scale utility-owned generation facilities to retail portfolio management. He is an experienced commodities trader in both physical and financial markets and is a seasoned operator.

Prior to joining Genie Retail Energy, Inc., Jacob worked with other retail electricity and gas suppliers including Discount Power Inc., Japan Power & Gas and Abest Power & Gas, where he oversaw pricing, trading and operations.

Jacob earned an MBA from Fordham University.



AEP Ohio
1 Riverside Plaza, 27th Floor
Columbus OH 43215

May 13, 2022

520 Broad St
Newark, NJ 07102

Re: IDT Energy, Inc. ("CRES Supplier")/CRES Supplier Contact: Avi Keilson

CRES Supplier's posted collateral in the form of cash as of 5/13/2022

To CRES Supplier:

In reference to the following specific provisions of Ohio Power Company's Distribution Tariff filed pursuant to Order dated April 25, 2018 in Case No. 16-1852-EL-SSO, namely Paragraph 32, Section: *Supplier Terms and Conditions of Service*, Paragraph 32.9 Section: *CRES Provider Credit Requirements* (See 5th Revised Sheet No. 103-33D of PUCO No. 20 Terms and Conditions of Open Access Distribution Service) and CRES Supplier's available load data through May 12, 2022, AEP Ohio has undertaken a limited review of posted collateral through this date, subject to the limitations set forth below, and AEP Ohio believes that the CRES Supplier is current with the specifically identified collateral requirements through May 13, 2022.

Please note AEP Ohio is not undertaking a separate review of CRES Supplier's financial wherewithal, the status of pending invoices or invoices for amounts that are yet to be billed or due, nor are we evaluating or taking a position as to whether the CRES Supplier will, on a prospective basis, remain in compliance with the identified collateral requirements or other Tariff requirements. This review was limited to the specific collateral requirements identified above, and does not include a review of whether the CRES Supplier is in compliance with any other Tariff requirements or PUCO rules and regulations binding upon CRES suppliers, and further, does not account for any PJM rebillings or settlements that may occur at a later time.

This letter is effective only as of the date hereof, and we are not assuming any responsibility for updating this letter, nor is AEP Ohio waiving any rights or remedies it may be entitled to under Ohio law, its Tariff or any CRES Supplier agreements. This letter is intended solely for the benefit of the addressees and may not be relied upon by such addressees or any other person or entity for any other purpose.

Sincerely,

James Ballantyne
614.813.0319

Competitive Retail Electric Service Affidavit

County of Essex :

State of New Jersey :

Alan Schwab, Affiant, being duly sworn/affirmed, hereby states that:

1. The information provided within the certification or certification renewal application and supporting information is complete, true, and accurate to the best knowledge of affiant, and that it will amend its application while it is pending if any substantial changes occur regarding the information provided.
2. The applicant will timely file an annual report of its intrastate gross receipts, gross earnings, and sales of kilowatt-hours of electricity pursuant to Sections 4905.10(A), 4911.18(A), and 4928.06(F), Ohio Revised Code.
3. The applicant will timely pay any assessment made pursuant to Sections 4905.10, 4911.18, and 4928.06(F), Ohio Revised Code.
4. The applicant will comply with all applicable rules and orders adopted by the Public Utilities Commission of Ohio pursuant to Title 49, Ohio Revised Code.
5. The applicant will cooperate fully with the Public Utilities Commission of Ohio, and its Staff on any utility matter including the investigation of any consumer complaint regarding any service offered or provided by the applicant.
6. The applicant will fully comply with Section 4928.09, Ohio Revised Code regarding consent to the jurisdiction of Ohio Courts and the service of process.
7. The applicant will comply with all state and/or federal rules and regulations concerning consumer protection, the environment, and advertising/promotions.
8. The applicant will use its best efforts to verify that any entity with whom it has a contractual relationship to purchase power is in compliance with all applicable licensing requirements of the Federal Energy Regulatory Commission and the Public Utilities Commission of Ohio.
9. The applicant will cooperate fully with the Public Utilities Commission of Ohio, the electric distribution companies, the regional transmission entities, and other electric suppliers in the event of an emergency condition that may jeopardize the safety and reliability of the electric service in accordance with the emergency plans and other procedures as may be determined appropriate by the Commission.
10. If applicable to the service(s) the applicant will provide, it will adhere to the reliability standards of (1) the North American Electric Reliability Council (NERC), (2) the appropriate regional reliability council(s), and (3) the Public Utilities Commission of Ohio.
11. The Applicant will inform the Public Utilities Commission of Ohio of any material change to the information supplied in the application within 30 days of such material change, including any change in contact person for regulatory purposes or contact person for Staff use in investigating consumer complaints.

12. The facts set forth above are true and accurate to the best of his/her knowledge, information, and belief and that he/she expects said applicant to be able to prove the same at any hearing hereof.

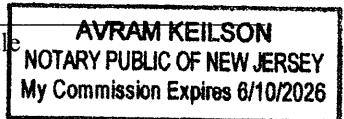
13. Affiant further sayeth naught.

[Signature], Pres. > COO
Signature of Affiant & Title

~~Sworn~~^{Affirmed} and subscribed before me this 16th day of May, 2022
Month Year

[Signature]
Signature of official administering oath

Print Name and Title



My commission expires on _____

**This foregoing document was electronically filed with the Public Utilities
Commission of Ohio Docketing Information System on**

5/17/2022 2:05:44 PM

in

Case No(s). 16-0699-EL-CRS

Summary: In the Matter of the Application of IDT Energy, Inc