CRYSTAL | EQUITY RESEARCH

WESTWATER RESOURCES, INC.

Initial Report

April 10, 2018

WWR / Nasdaq

SPECULATIVE BUY

Initial Rating

$1.50

Initial Price Target

CAPITALIZATION	
Shares Outstanding	27.9 M
Recent Price (4/9/18)	$0.53
Market Capitalization	$14.8 M
+ Debt	0.0 M
- Cash	4.1 M
Enterprise Value	$10.7 M
Book Value	$41.1 M
Working Capital	$ 3.9 M
Dividend	Nil

Balance sheet figures as of 12/31/17

MARKET DATA	
Bid-Ask Spread, % Price	1.9%
52 Week High/Low	$2.18 - $0.51
Shares Outstanding	27.9 M
Inside Ownership	<1%
Institutional Ownership	8.0%
Estimated Flotation	27.9 M
Average Daily Volume	220 K
Short Interest, % of Float	10.5%
Beta	1.15

Source: Bloomberg LP

INVESTMENT RETURNS	WWR	Sector*
Return on Equity	Neg	7.6%
Return on Assets	Neg	3.2%
Return on Capital	Neg	4.6%

Source: Crystal Equity Research, CSI Markets

FINANCIAL PROFILE	FY16	FY17
Sales	$ 0.0 M	$ 0.0 M
EBITDA	($13.1) M	($24.7) M
EPS	($3.72)	($0.77)

Source: Company Reports

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INVESTMENT SUMMARY

- **Building portfolio of energy materials assets** that creates triple threat of uranium, lithium and graphite with pending deal to acquire natural flake graphite project.
- **Favorable growth trends in energy materials end-markets** driven by shift to renewable energy sources and need to expand energy storage capacity.
- **Near-term revenue and earnings opportunity** through sales of battery-grade graphite to battery manufacturer under signed letter of intent with proposed acquisition target Alabama Graphite.
- **Well capitalized with no debt**, available cash assets and access to new capital through common stock sales agreements with $48.6 million remaining capacity.
- **Lean and talented management team** with skills and technology knowhow relevant to energy materials sectors as competitive conditions unfold.
- **Stock price catalysts** to drive 220% appreciation to target price as battery-grade graphite materials proposition unfolds in coming months.

INDUSTRY: INDUSTRIAL, ENERGY MATERIALS | **WWR: NASDAQ**

DESCRIPTION

Westwater Resources (Westwater) is an industrial minerals development company with interests in metals used in energy generation and storage applications. The Company has used a mix of acquisitions and leases to accumulate promising mineral assets. Westwater's origins are in uranium exploration and mining with particular expertise around *in situ* recovery technology. Commercial uranium assets in Texas are in temporary shutdown and additional uranium deposits are under development in New Mexico and Turkey. Additionally, the Company has assembled properties in Nevada and Utah with indications of ample lithium deposits. Most recently Westwater has targeted graphite with the proposed acquisition of Alabama Graphite, an early stage battery-grade graphite materials developer.

RECOMMENDATION

We have initiated coverage of Westwater with a Speculative Buy rating and a one-year target price of $1.50 based on an estimated intrinsic value of $5.00 per share and tempered by recent trading patterns.

Multiple market forces are driving demand for particular metals in energy and power applications. While not unanimous, the overwhelming majority of scientists view global warming as the result of fossil fuel combustion and advocate a shift to renewable energy sources. The argument supports nuclear power as a electricity base load source despite rising capital costs. Climate concerns are also driving the adoption of wind and solar power. Additionally, combustion engines in cars and trucks are being replaced with electric drive trains. These latter two trends are triggering demand for battery storage solutions that will require large supplies of battery metals, including lithium and graphite. We believe the Company with its unique asset portfolio holds key advantages and earnings power in each of these minerals markets.

With the proposed acquisition of a graphite materials developer, Westwater could return to active production within the next two years. The target, Alabama Graphite, has successfully proven its battery-grade graphite and has multiple potential customer relationships with battery manufacturers, the most mature of which could reach commercial stage by the end of 2019. With a successful commercial market entry through the Alabama Graphite deal, Westwater could be the first domestic source of battery-grade graphite in the U.S.

In our view, WWR is undervalued given promising demand conditions in the Company's end markets, strong minerals asset portfolio, competitive technology and knowhow, and potential to return to profitable operations within as few as three years. We expect numerous valuation catalysts for the stock to unfold over the next several months, including completion of the Alabama Graphite acquisition, progress reports on customer testing of proprietary graphite materials, and results of exploration in Westwater's lithium assets.

VALUATION

Price/Sales	Neg
Price/Cash Flow	Neg
Price/EPS	Neg
Price/Book Value	0.36 X
Consensus EPS 2018	na
Forward PE	na

Per share figures ending 12/31/17

OPERATING PROJECTIONS

	2017A	*1Q17A*	*1Q18E*	*2018E*	*2019E*
Sales	$ 0.0	$0.0	$0.0	$ 0.0	$ 0.0
Operating Loss	($ 24.8)	*($2.6)*	*($3.3)*	*($13.4)*	*($ 13.6)*
Net Inc (Loss)	($ 19.0)	*$1.8*	($3.3)	*($13.4))*	*($ 13.8)*
CFO	($ 11.6)	*($3.2)*	*na*	*($12.0)*	*($11.7)*
EPS (LPS)	($0.77)	*$0.11*	*($0.12)*	*($0.28)*	*($0.22)*

Dollars in millions except per share earnings

Company Reports and Crystal Equity Research Estimates

INVESTMENT POSITIVES

- Diversified portfolio of industrial minerals assets in uranium and lithium, with plans to enter a third sector through acquisition of US-based graphite materials developer Alabama Graphite. (pg. 10)
- Positive use-case trends in end markets
    - Need for non-fossil fuel energy sources as nuclear power for base load electricity
    - Lithium-ion battery adoption rates in electric grid and transportation applications fueled by declining costs per kilowatt (pg. 35)
    - Advanced battery technology highly reliant on graphite materials (pg. 34)
- Large market opportunity in each targeted market, with double digit growth dynamic
    - Uranium - World Nuclear Association has forecast a 26% increase in uranium demand by 2025. (pg. 24)
    - Lithium - Statistics estimates 11.6% compound annual growth in total lithium demand worldwide to 422,614 metric tons per year by 2025. (pg. 32)
    - Graphite - Avicenne Energy expects 11% compound annual growth in demand for natural flake graphite to 290,000 metric tons per year by 2025. (pg. 35)
- Financial resources totaling $5.4 million in form of cash, equivalents and investments for current working capital requirements. (pg. 16)
- Access to new equity capital through stock sale agreements with two separate established investment institutions with current availability of $48.6 million. (pg. 16)
- Strong bench of engineering and managerial talent, with particular technology and process knowledge needed to enter highly competitive lithium and graphite materials markets. (pg. 28, 29)
- Undervalued stock based on current 0.36 multiple of market price to book value compared to average of 3.38 for metal mining industry. (pg. 6)
- Increasing daily trading volume in WWR shares that bodes well for narrower bid-ask spreads and increased liquidity that will facilitate bull-case investment strategy. (pg. 6)
- Potential revaluation of the stock over the next year triggered by news of fundamental accomplishments related to the acquisition of graphite materials developer Alabama Graphite and success in exploration of lithium assets in Nevada and Utah. (pg. 6)

Table I: Industry Calendar

Date	Event	Sponsor
May 2-May 3, 2018	Mines and Money New York	Mines and Money Magazine
May 16-May 15, 2018	Future of Mining, Resource Stocks, Sydney 2018	Mining Journal & MiningNews
June 14-June15, 2018	Mining Investment North America, Toronto	Spire Events Pte. Ltd.
Nov.23-Nov.30, 2018	Mine to Mill 2018, Lima	International Metallurgical Consultants

Source: Corporate Websites

INVESTMENT RISKS

- Building competition from new entrants attracted by fast growth and large market size; potential for selling price erosion.
    - Lithium - New development could add 500,000 metric tons to supply per year by 2025. Estimates by Morgan Stanley suggest lithium materials prices could be trimmed by as much as 50% through new supply availability. (pg. 32)
    - Graphite - There were at least two dozen natural flake graphite development projects underway at beginning of 2018, which could result in new supply that would erode selling prices from current levels. (pg. 37)
- Challenges from technology innovation for extracting lithium from brine sources that could lead to emergence of new low-cost producers that might challenge the Company and other lithium mining companies. (pg. 28)
- Added complexity in a business model spread across diverse energy materials markets, each with unique technology requirements and supply chain characteristics. (pg. 7)
- No current revenue streams and net cash usage to support operations and potential for increased cash usage to support operations of planned graphite acquisition. (pg. 15)
- Limited engineering staff and need to acquire additional talent for final development of battery-grade graphite and initial penetration of that market. (pg. 19)
- Investment requirements in excess of current cash resources to resume production and sales of uranium materials and bring to commercial markets proprietary graphite materials offered proposed acquisition target Alabama Graphite. (pg. 18)
- Potential for significant dilution for current shareholders through sales of common stock pursuant to equity agreements used to raise capital to support strategic plans. (pg. 18)
- Potential interruption in trading or possible migration to less efficient quotation system subsequent to delisting warning from Nasdaq Markets. (pg. 6)
- Bid-ask spread is 1.9% of current stock price is above U.S. equity market average, impacting buyers of common stock in secondary market. (pg. 1)
- Modest price volatility as measured by beta, but highly speculative security given business and strategic risk. (pgs. 1, 5 and 18)

Table II: Institutional Ownership

Institution	Date	Shares	% Outstanding
Vanguard Group, Inc.	12/31/17	614,927	2.2%
Blackrock, Inc.	12/31/17	485,536	1.7%
Geode Capital Management, LLC	12/31/17	165,640	0.59%
Northern Trust Corporation	12/31/17	53,638	0.19%
CQS Cayman Ltd. Partnership	12/31/17	57,929	0.19%

Source: Company reports and Crystal Equity Research estimates

Table III: Risk Assessment	
Risks	Comments
Valuation and Target Price	
Use of estimates in valuation and target price	Valuation based on projected sales and earnings; price target based on valuation and supplemented by analysis of historic trading patterns
Visibility on factors driving sales and earnings	Acceptable visibility in each of three materials verticals
Predictability of future cash flows	Limited visibility given extended term when sales are expected
Susceptibility to macroeconomic conditions	Pricing in all three target market verticals are subject to economic forces; other market factors may have greater influence such as technology innovation or competitor actions
Capital Market Risks	
Communications with investors, management access	Frequent communication through press releases, up-to-date filings with SEC
Financial guidance policies	Management appears to use opportunistic approach to financing, but favors equity over debt financing; no preferred stock is authorized
Security seasoning, margin-able, option-able	Common stock cannot be used as collateral in margin accounts, no options are available
Potential dilution from derivatives	Modest dilution from existing warrants and options
Trading volatility; short-interest	Short interest greater than 10% of flotation; bid-ask spread 1.9% of closing price
Beta	Beta measure of 1.15 indicating modest systematic risk, volatility
Imminent Business Risks	
Recent new competition or substitutions	Numerous new competitors entering lithium and graphite verticals; few new competitors in uranium market
Technological innovation	New technology in lithium brine processing; target acquisition Alabama Graphite is the technology leader in graphite market
Customer, distributor or supplier issues	Each of three target markets have separate supplier-customer relationships; battery manufacturers integrating backward in lithium and graphite markets; target acquisition integrating forward in graphite market
Lawsuits, infringements, investigations, etc.	Recent litigation in Texas related to uranium assets resolved in favor of the Company; pending shareholder litigation at proposed acquisition target Alabama Graphite

Source: Company Reports and Crystal Equity Research

VALUATION AND PRICE TARGET

We initiate coverage of WWR with a Speculative Buy rating and $1.50 price target in twelve-months.

In our view, the stock is undervalued given its present portfolio of uranium and lithium assets. Our assessment is based on the current stock price multiple of 3.38 times book value that prevails in the metals mining industry at the beginning of 2018 according to CSIMarket, a financial information platform. The metals mining comparison set is composed of a large group of companies with wide ranges revenue size, stage in development and financial performance. Based on current book value of $41.1 million and the industry average multiple, Westwater Resources could be valued near $138.9 million or $4.99 per share.

If approved by shareholders and successfully completed, Westwater's proposed acquisition of the developer of battery-grade graphite materials, Alabama Graphite, would dramatically alter the Company's market position as an energy materials supplier. The deal would give Westwater access to one of the largest graphite deposits in the U.S. and could make it the first domestic source of battery-grade graphite.

We estimate the graphite materials deal could bring revenue to the Company's top-line as early as 2020, with positive cash flow and profits following in subsequent years. Progress with final product development and the graphite materials business pipeline should build consistently from closing to those first sales. News and progress reports could provide strong catalysts for investor interest and trading volume. We expect upward price movement to follow.

As Westwater draws closer to commercial sales, we expect the stock to begin trading on anticipated earnings. Until then we recognize there may be factors that frustrate full valuation. We note that the Company recently received a notice from Nasdaq Markets, indicating the stock price no longer meets minimum listing criteria. A move to an alternative listing or quotation service could lead to less efficient valuation with wider bid-ask spreads and lower trading volumes. Additionally, as shown in the chart below, there is a line of volume-related price resistance at the $1.50 price level. This circumstance informs our one-year price target below intrinsic value.

Resistance and Support Levels

COMPANY DESCRIPTION

Westwater Resources is an aspiring industrial materials company with interests in minerals used in power generation and energy storage applications.

The Company's history is in uranium mining using in situ recovery (ISR) extraction technology. Weak pricing conditions prompted a shutdown decision for the Company's operations in south Texas. Westwater sought additional assets in lower-cost uranium regions such as Turkey, but also set an eye on other energy-related minerals as part of an effort to become an diversified energy materials supplier. In 2016, Westwater began assembling lithium assets in Nevada and Utah and most recently has made an offer to acquire graphite materials developer Alabama Graphite. With the graphite deal completed, the Company will have a triple threat portfolio of energy materials assets in uranium, lithium and graphite.

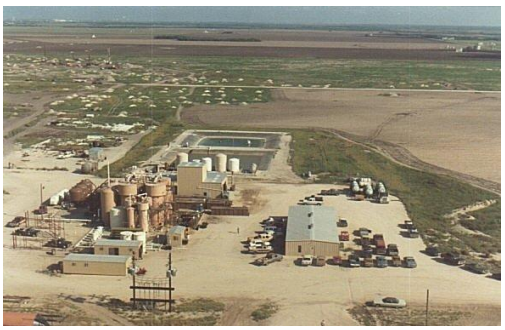
Westwater's leadership is well experienced with the capital markets and strategic transactions, accumulating key assets and raising required capital. Yet, there are other skill sets resident with the management team that investors should note. Historic experience with in situ recovery mining has helped Westwater's engineering team to build knowledge of ion exchange systems and water reclamation processes. Both appear to be of importance in the lithium market as new technologies are being introduced to the lithium brine segment. Additionally, the particular negotiations that occur between nuclear power generator customers and uranium suppliers have given the Company important experience that could be instrumental as well in dealing with battery manufacturers who are beginning to negotiate directly with suppliers of key battery materials.

ASSET PORTFOLIO

We outline Westwater's building asset portfolio in this section and then discuss our expectations for sales and earnings from these assets in the next sections on Financial Performance and Estimates. Competitive conditions are outlined for each material in the Markets section at the end this report.

Uranium

The level of world selling prices for uranium, principally aimed at the nuclear power generation market, is the key to Westwater's strategic decisions vis-à-vis its uranium asset portfolio. The Company has been in a holding pattern with its uranium assets, spending $3.4 million and $2.8 million for landing holding, standby and maintenance activities in 2017 and 2016, respectively. Additional expenses are incurred at the Texas projects where the Company is activity engaged in reclamation work to restore ground water to historic quality levels.



Kingsville Dome Processing Plant, Well Sites

Westwater either owns or leases four separate uranium-bearing properties in south Texas, all located within the renowned 'uranium belt.' The Company began operations in Texas in 1988, complete with ISR wells and processing facilities. (An outline of the ISR process is included in the Markets section of this report.) The Texas wells produced a total of 7.5 million pounds of uranium from 1988 to 2009, when depressed selling prices led management to shut down operations and put its facilities into standby status. It is noteworthy

that the Company recently received an important resolution in its favor related to a legal dispute with Kleberg County where the Kingsville Dome project is located. The decision clears up questions related to groundwater reclamation work at the projects well sites and simplifies any restart action in the future.

Management has indicated improved selling prices above its marginal cost or hurdle rate of $42 to $45 per pound must be achieved before resuming production and processing at the Texas projects. Guidance is for approximately nine months lead time and required investment of $600,000 to $1.0 million in each of Kingsville Dome processing facility and Rosita well field project to restore production.

Additionally, the Company has commenced development of a uranium project in central Turkey and is doing exploration work on a second project in the same region. Regulatory changes in 2004 in Turkey opened uranium development to the private sector. Westwater acquired the site from Anatolia Energy Ltd., which had already completed extensive exploration and development work in 2015 at the Temrezli project.

Testing Drilling at Temrezli Uranium Project, Turkey

Westwater plans to use ISR technologies and equipment at both its Turkey projects. The cost-effective character of the ISR method and low labor costs in Turkey make the sites particularly attractive given the current depressed uranium selling price environment. A preliminary economic assessment completed in 2015, indicated an estimate of $30.17 per pound in total costs. An up-to-date economic assessment would be needed to reconfirm cost levels. However, until selling price conditions in the uranium industry improve, development activities are suspended. Management has guided for a selling price hurdle rate of $35 per pound before it would be economic to resume development work at the Temrezli project.

The Company has not yet completed construction work for commercial drilling and processing and has not provided a definitive investment requirement at the Temrezli project. A wild card in the Turkey budget is the option to relocate processing equipment currently in place at Westwater's Rosita facility in Texas. Although certain fixed components would need to be purchased or constructed at Temrezli, the Rosita equipment option could decrease costs and shorten time to commercial production. Given lower cost of production at the Temrezli project, it is more likely that project will become economically viable before the Texas projects.

Exploration work has begun on yet two more uranium-bearing properties in New Mexico, where open pit and underground mining approaches have been used in the past. The properties are located within Grants belt, which is known as the largest source of uranium production in the United States. The area has a long history of exploration, development and production by several major mining companies. Unfortunately, in 2017 the Company was forced to write down the value of its Cebolleta project by $11.3 million, following a financial assessment that determined the present value of future expected cash flows are now less than the carrying value of the asset.

Table IV: Uranium Assets

Project	Location	Control	Operations	Status	Next Step
Kingsville Dome	South Texas	Leased	Production, processing	Reclamation, Standby	Processing plant awaits price increase; well field retirement
Rosita	South Texas	Leased	Production, processing	Reclamation, Standby	Await price increase
Vasquez	South Texas	Leased	Production	Reclamation	Retirement
Butler Ranch	South Texas	Leased	Preliminary	Exploration	Apply for exploration permits
Temrezli	Central Turkey	Owned	Planned production, processing	Development, PEA complete	Formal Feasibility Study
Sefaatli	Central Turkey	Owned	Preliminary	Exploration	Drill test wells
Cebolleta	West Central New Mexico	Leased	Preliminary	Exploration	Preliminary economic assessment
Juan Tafoya	West Central New Mexico	Leased	Preliminary	Exploration	Test drilling, preliminary economic assessment

Source: Company reports and Crystal Equity Research estimates

Lithium

Beginning in 2016, Westwater began assembling a portfolio of promising lithium-bearing properties through a mix of acquisitions and claim staking in Nevada and Utah. The low flat terrain of each project is appropriate for lithium brine extraction process, which is outlined in the final Markets section of this report.

In west central Nevada, with a dry lake bed area known as the Columbus Salt Marsh, the Company has staked over five hundred placer mining claims on federal lands owned by the U.S. Bureau of Land Management (BLM). Three exploration drill holes have been completed and laboratory samples of test materials reveal lithium concentrations up to 43 parts per million. The Company has permits for an additional four exploration drill holes at the project it calls Columbus Basin.

Columbus Salt Marsh, Nevada

Also in the central part of Nevada the Company has placed another 470 mining claims also on federal lands, which the Company is calling the Railroad Valley project. The claims were just staked in 2017, and limited geophysical data has been completed. An application for water rights is pending with the state of Nevada, but applications have not yet been submitted for drilling activity.

Table V: Lithium Assets

Project	Location	Control	Operations	Status	Next Step
Columbus Basin	West Central Nevada	Placer claims on public land	Preliminary	Exploration	Exploration drilling
Railroad Valley	West Central Nevada	Placer claims on public land	Preliminary	Exploration	Geophysical data gathering; water rights application
Sal Rica	Northwestern Utah	Placer claims on public land	Preliminary	Exploration	Water rights application; exploration permits

Source: Company reports and Crystal Equity Research estimates

More geological information is known about the Company's Sal Rica lithium brine project in Utah, which was acquired in 2016. Drilling in the area took place as early as the 1960s, providing data on a range of minerals including lithium. The previous owner had also completed sampling in the area, with results as high as 80 parts per million lithium. An application has been submitted to the state of Utah for water rights.

Although more is known about the geology of the Sal Rica project, we expect the Company to move first in the development of the Columbus Basin project simply because water rights have already been secured for this project. Westwater management views water rights are a key to lithium minerals development in the arid western United States. The brine extraction process requires large amounts of water to successfully collect and concentrate lithium minerals. The conventional practice is to evaporate water from brine solutions placed in large, outdoor ponds acres in size. A potentially less expensive and faster alternative process relies on reverse osmosis and ion exchange technologies rather than evaporation. While less water intensive, these new approaches are still heavily reliant on the availability of water. (Outlines of both processes are provided in the Markets section.)

Graphite

Westwater has offered to acquire Alabama Graphite (AGC), a publicly traded developer of battery-grade graphite materials. AGC plans to mine flake graphite and process it into battery-grade graphite material suitable for use in lithium ion and other batteries. AGC has exclusive control of qualified graphite feedstock resources located in central Alabama, which are among few natural flake graphite deposits in the United States. The initial mine project is located in Coosa County in an area with historic graphite mining operations, encompassing mining rights to 41,535 acres. Tests of samples from pits and trenches in the property suggested 79.4 million metric tons of inferred graphite resource. A preliminary economic assessment determined that the mine would have a 27 year life with production at a planned rate of 5,000 tons per year.

However, the pending deal appears to be more than an asset acquisition. Unlike most other graphite resource developers that sell graphite concentrate to distributors, AGC plans to produce battery grade graphite and sell directly to end users. AGC has crafted a proprietary process of four steps using standard equipment - purification, speronization, micronization and coating - to produce finished battery-grade graphite material. A series of laboratory tests of AGC's *Coated Spherical Purified Graphite* or *CPSG* material as well as initial testing by prospective customers indicate that AGC's proprietary process delivers a graphite material suitable for lithium ion batteries. *CSPG* materials produced at a pilot plant were tested in early 2017, confirming the AGC proprietary process can achieve a purity level of 99.99997% carbon by weight using graphite materials from the Coosa graphite asset. A second product, *Purified Micronized Graphite* or *PMG* also achieved promising test results in various battery configurations.

Offer and Terms

Westwater has offered to exchange 0.08 shares of its own stock for each common share of Alabama Graphite. The offer represents 11.625 million shares of Westwater common stock in exchange for the 145.3 million shares of Alabama Graphite's currently outstanding common stock. No cash has been offered other than a $2.0 million bridge loan facility to support AGC operations through the closing date. AGC's outstanding options and warrants will be exchanged for comparable derivatives of Westwater Resources common stock. Options and warrants held by AGC management will be cancelled.

Expressed in dollar terms, the offer fluctuates with the value of WWR shares. At the time of the announcement, WWR had most recently closed at $1.10 per share, implying an offer value of $0.09 per share for Alabama Graphite or $13.5 million. At the current WWR price, the offer value is approximately $8.4 million. The deal requires approval by shareholders of both companies. AGC shareholders have already voted in favor of the transaction and a vote is scheduled for Westwater Resources shareholders at a shareholder meeting on April 19, 2018.

The availability of working capital appears to have been critical for AGC. It has made possible continued work with a prospective customer through testing, evaluation and qualification of the *PMG* product for use in a line of fast-charge automotive and stationary batteries. In late 2017, the prospect, a manufacturer of various batteries, had signed a letter of intent to purchase battery materials from AGC. AGC has committed to supply this unnamed battery manufacturer a total of twenty metric tons of *PMG* and other battery-grade graphite materials over the next two years to prepare for full commercial production by 2020. AGC has reported a least two dozen other prospective customers in its business pipeline with various levels of progress in terms of testing and qualifying *CSPG* and *PMG* materials.

Business development progress had been a plus for bringing certainty to AGC's product marketability and business proposition, but it had also set a timeline for establishing graphite mining operations at the Coosa graphite asset and setting up secondary processing capacity. AGC management had been frustrated in attempts to raise capital for investment in mining equipment and processing infrastructure. A tie up with Westwater, which already has established stock sales agreements, presents a viable resolution of capital constraints for AGC.

Strategic Value

Westwater Resources appears to have struck a deal that, if successfully closed, could bring revenue to its top line at an earlier date than could be expected from its current uranium and lithium asset portfolio. With at least one customer conversation at an advanced stage and plans to accelerate volume production from a demonstration plant, it is possible revenue from graphite materials could be realized as early as the year 2020. The timeline is based on target dates set by the customer for reaching its end battery markets with advanced battery models.

Even though shareholders have not yet approved the deal, Westwater management has already begun plans for integrating the AGC graphite project into its asset portfolio. In addition to staffing arrangements, Westwater has proposed altered start-up plans to reach commercial stage with battery-grade graphite materials. The plans are aimed at lowering required capital investments and shortened lead time to first materials sales and deliveries.

Development and Production Equipment, Coosa Project

First, Westwater proposes to fulfill initial customer orders with materials made from natural flake graphite that is been outsourced from third parties. This will make it possible to delay installation of mining equipment and infrastructure at the Coosa graphite resource site. Management indicates initial work has already begun to find acceptable substitutes by characterizing the chemical profile of the Coosa graphite mineral. Since lead times to establish planned surface mining operations at Coosa are likely less than one year, Westwater management expects to move forward with this step only when high graphite concentrate volumes are needed. A preliminary economic assessment of the project completed in 2016, indicated a budget of $33.5 million would be needed for establishing commercial scale mining and processing operations. We expect this budget to be revised and updated sometime in the next two years.

Second, Westwater wants to focus first on the *PMG* product, which does not require spheronization and coating steps. In addition to work flow changes, there are also proposed design changes in a planned demonstration processing plant slated for installation in 2018. AGC had previously planned to use a chlorination process to extract impurities from the graphite ore. AGC management had been attracted to the chlorination process, despite potential safety issues, because it is more environmentally friendly than the most commonly used hydrochloric acid wash and is less energy intensive than another alternative method using electric arc furnaces. Westwater intends to use conventional electric arc furnaces for the purification step of the graphite material process. Deploying electric arc furnaces in the demonstration plant will allow additional time to find design solutions to make safer the proposed chlorination process. Westwater expects the demonstration plant to have sufficient capacity to meet delivery commitments to the battery manufacturer that is presently testing *PMG*.

Management has characterized its plans for the Alabama graphite operations and commercial launch strategy as an effort to ‘derisk’ the project. The plans do appear to reduce initial capital requirements and thus reduce financial risk. The plans also appear to reduce safety risk in the purification step of process. However, a new risk of product quality and performance may emerge in the switch to alternative processing methods and graphite ore sources.

MANAGEMENT AND LEADERSHIP

Westwater Resources is manned by a compact team with primarily engineering backgrounds. Christopher Jones joined the Company in 2013, as chief executive officer. He has a lengthy track record in the mining industry, carrying out assignments in successively more responsible positions at mineral and fossil fuel resource operations. Jones has degrees in engineering and business administration.

With the longest tenure among senior officers, Dain McCoig has been responsible for operations in the Company's Texas uranium mining and processing projects. He began his tenure in 2004 as plant engineer at the Kingsville Dome project. McCoig's educational background is in mechanical engineering. He is certified as Professional Engineer by the Texas Board of Professional Engineers.

Jeffrey Vigil is Westwater's chief financial officer. He joined the Company in 2013, bringing three decades experience in mining industry finance and accounting. He was previously the chief financial officer at another publicly held uranium mining company, Energy Fuels. He is a certified public accountant in the state of Colorado.

Together the three senior officers and additional four independent board members own less than 1% of the Company's common stock. With exercise of options insider ownership would be 0.8% of shares outstanding. We note that Westwater policy requires that the CEO and CFO must acquire stock valued at a minimum of three times their base salaries within five years of their hire date.

Table VI: Insider and Significant Ownership

Name	Position	Years	Stock	Options	Experience/Education
C. Jones	Chief Executive Officer - 4	4	20,792	4,583	Mining, engineering
J. Vigil	Chief Financial Officer	5	7,207	-0-	Accounting, finance
D. McCoig	Vice President, Texas	14	1,578	208	Mining, engineering
T. Cryan	Chairman - 1, 3	12	3,286	47,291	Banking, finance, economics
M. Kaiser	Director - 1, 2, 3, 5	11	1,882	48,263	Accounting, finance
P. Burke	Director - 1, 2, 3, 4, 5	2	-0-	52,849	Finance, commercial law
T. Pagliara	Director - 1, 2, 3	1	-0-	47,291	Accounting, finance
Offices and Directors as a Group			34,745	200,485	<1% of outstanding shares
Institutional Holders as a Group					8% of outstanding shares

1 Independent Director
2 Audit Committee
3 Nominating and Corporate Governance Committee
4 Health, Safety, Environment and Public Affairs Committee
5 Compensation Committee

Source: Company Reports and Crystal Equity Research Estimates

Table VII: Corporate Governance	
Governance Issue	**Comments**
Board of Directors	
Separate board chair and CEO	Yes, Chairman of Board is independent director
Board independence	Four of five board members are independent
Board elections	Annual elections for all director positions
Quality of directors	Strong finance, accounting backgrounds; limited mining industry experience
Related-party relationships	None
Board authority	Material strategic actions require shareholder approval
Management	
CEO/Executive pay	Total compensation of CEO is 31% of next highest officer
Stock based compensation	Yes, through performance based bonuses
Performance-based compensation	Mixed of cash and stock compensation based on short-term and long-term goals
Use of assets	No perquisites are provide to senior officers or board members
Transparency, timeliness in reporting	All filings required by the SEC have been timely filed
Governance statement	Governance provisions in articles of incorporation and bylaws
Code of ethics	Code ethics for senior financial officers and code of business conduct and ethics for all directors, officers and employees
Shareholder Rights	
Cumulative voting	No
Confidential voting	Yes
Votes per share	One
Shareholder rights plans	None
Corporate structure changes	None
Special meeting rights	None
Written consent rights	Information not available
Shareholder proposals or nominations	Yes
Board or management veto	Information not available
Re-incorporation strategies	None
Common stock classes	One
Composition of shareholders	<1% insiders; 8% institutional; 92% individuals

Source: Company Reports and Crystal Equity Research

FINANCIAL PERFORMANCE

Accounting Quality

Revenue Recognition. Westwater recognizes revenue upon sale and delivery of minerals to contracted buyers. This is typical accounting practice within the uranium concentrate sector. Historically, the Company sold 'yellowcake' uranium from its Texas projects pursuant to long-term contracts with end-users. There are currently two such contracts in force. However, given depressed price conditions in the uranium concentrate market, the Company has curtailed production from its Texas uranium projects and has not sold uranium since calendar year 2009. It is anticipated that sales of uranium will resume at some point in the future pursuant to the existing arrangements or to new delivery contracts.

We expect sales of lithium and graphite to be reported under similar revenue recognition policies as that of uranium. Once fully explored and developed, we expect the Company to pursue off-take agreements, delivery contracts or purchase orders for lithium and graphite materials. Sales would be recorded upon delivery at agreed upon prices.

Significant Accounting Estimates. In addition to estimates for depreciation of equipment and other plant assets, the Company estimates obligations related to retirement of its uranium assets. The latter is a non-cash expense recognized quarterly to reflect restoration and reclamation costs associated with reclaiming surface areas and restore underground water quality where the Company has undertaken ISR uranium mining operations. Currently, asset retirement expenses relate to the Company's South Texas ISR projects.

Asset retirement costs are estimated at the time asset's carrying value is recorded and are based on management's assumptions about anticipated restoration costs. The value can be written up or down overtime as experience suggests the actual cost will be higher or lower than estimated. In the full year 2017, the Company reported $1.0 in amortization expense related to asset retirement obligations, leading to a total of $5.7 million in liabilities on the balance sheet related to the reclamation obligation.

We expect all uranium projects to be similar in terms of regulatory requirements and the need to provide for restoration and reclamation of water and land. Planned lithium and graphite mining activities are also likely to involve some environmental remediation work, but may require somewhat different accounting treatments and estimating methods.

Allowable carrying values of mineral assets are based upon estimates of future cash flows from the sale of materials extracted from these assets. Such cash flow estimates are highly dependent upon anticipated selling prices, the estimated amount of recoverable minerals and expected operating costs. A significant reduction in anticipated future cash flows can trigger a write down of asset values through non-cash impairment charges that reduce reported net income. The impairment charge taken in 2017 and its impact on reported results in 2017 are discussed below in the Property, Plant and Equipment section.

Working Capital Accounts. At the end of December 2017, the Company had no accounts receivable related to the sale of its uranium materials. This is due to the fact that operations were shuttered in 2010, at its only commercial uranium mining sites. Likewise, the Company held no inventory of unsold uranium materials.

Accounts payable and accrued liabilities totaled $538,000 and $2.4 million, respectively, at the end of December 2017, consisting of expenses associated with maintenance activities at Texas uranium properties and exploration activity at properties in New Mexico, Utah and Nevada. Accounts payable were 11.8% lower than the previous year such liabilities totaled $610,000, while accrued liabilities increased 18.7% year-over-year. We view the movements as primarily due to timing differences and not to any significant increase or decrease in spending rates.

Notes Receivable. At the end of December 2017, Westwater reported $5.1 million in notes receivable and accrued interest, of which $1.8 million was considered due within twelve months. The notes receivable arises from the extension of credit to counterparties in strategic transactions.

The Company advanced $833,744 to graphite materials developer Alabama Graphite, for which Westwater made an all-stock offer to acquire in December 2017. As part of the purchase agreement, Westwater pledged up to $2.0 million in credit to support on-going business development activities at Alabama Graphite in the months leading up to the anticipated closing sometime in the second calendar quarter 2018. The loan carries interest at the rate of 3.0% payable annually and is secured by Alabama Graphite's mineral asset leases and equipment.

Additionally, Westwater resources reported a $5.0 million secured note receivable related to the sale of the Company's subsidiary Hydro Resources to Laramide Resources Ltd. in January 2017. The note is secured by the Churchrock and Crownpoint uranium-bearing properties in New Mexico. This three-year term loan bears interest at the rate of 5% up through commercial production, at which time the interest rate increases to 10%. The first principal payment of $1.5 million was due on January 5, 2018, and was received by the Company in a timely manner. Accrued interest was also paid $750,000 in cash and 1.982 million Laramide common shares as allowed in the credit agreement.

Property, Plant and Equipment. The Company has $101.2 million in total assets on its balance sheet, consisting of a uranium processing plant in Texas, uranium mineral rights and properties in New Mexico and Turkey, and other equipment and facilities in Turkey, Texas and corporate headquarters in Colorado. Net of accumulated depreciation these assets are valued at $34.4 million. This compares to net assets of $46.9 million a year earlier.

The year-over-year difference in asset value was largely due to asset impairment charges taken during 2017, totaling $11.4 million. Based on current lower selling prices for uranium recent analysis indicated the carrying values exceeded potential cash flows from the Company's Cebolleta and Juan Tafoya assets in New Mexico. A small impairment charge of $100,000 was also taken on assets related to the Kingville Dome property in Texas. These non-cash impairment charges were reflected as expenses on the 2017 income statement.

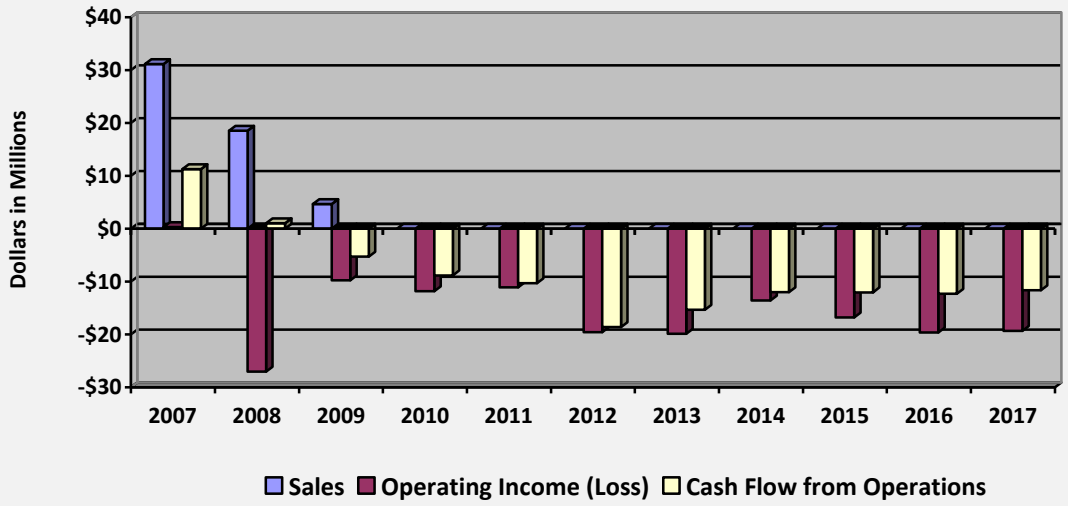
Intangible Assets and Goodwill. The Company has no intangible assets or goodwill as of the end of the most recently reported fiscal year ending December 31, 2017.

Off-Balance Sheet Liabilities. Westwater has no off-balance sheet liabilities.

Extraordinary Items. The Company reported no extraordinary items in the last two fiscal years.

Related Party Transactions. No related-party transactions have been reported by Westwater in recent fiscal years.

Chart I: Historic Sales and Operating Income



Source: Company Reports

Profitability and Cash Flow Requirements

It has been nearly a decade since Westwater management observed sufficiently tempting selling prices to prompt production and sales of uranium materials. The Company's last reported sales of its historic mainstay product in 2009, when 59,000 pounds of uranium were sold at an average price of $49.08 per pound. Costs were $39.73 per pound and royalties another $4.87 per pound. A net loss was reported for the year on those metrics. Westwater last achieved a profit in 2007, when the average sales price per pound was $71.61 versus an average cost of $33.21 per pound.

Since shutting down uranium production beginning in 2010, the management has strived to minimize expenses and conserve cash resources. Activities consist principally of restoration and reclamation work at the Texas uranium projects and exploration work at the New Mexico uranium assets and Nevada and Utah lithium assets.

Expenses incurred during the year 2017, included $4.6 million for work at the Company's mineral properties and $6.6 million for general and administrative activities. Management also spent $1.0 million for professional services during the year for work related to acquisitions, including the pending deal to acquire Alabama Graphite. We note that the Company reported a total of $24.8 million in total operating expenses in the full year 2017. However, this included $11.4 million for an impairment charge intended to mark down the value of an mineral assets and $1.0 million in accretion of asset retirement obligations. Both were non-cash expenses and the impairment expense is a one-time charge that is not likely to be repeated. Accordingly, reported operating expenses excluding these two charges, or $12.3 million, is more reflective of the costs of executing on the Company's current business plans.

Cash flow from operations provides an even clearer picture of the Company's current financial position. The Company used $11.6 million in cash resources to support operations during the full year 2017. This compares to the use of $12.3 million in cash during the previous year.

Balance Sheet and Capitalization

Westwater reported $4.1 million in total cash on the balance sheet at the end of December 2017. We estimate that cash holdings at the time of this report are approximately $3.2 million based on the receipt of payments on notes receivable and recent spending rates. Additionally, the Company holds $1.4 billion in marketable securities.

The Company has no debt on its balance sheet, exclusively using equity to capitalize its business operations and strategic growth plans. In the most recent year the Company issued a total of 11.1 million shares of common stock after having issued 12.1 million shares in the previous year. In 2016, a total of 2.5 million shares were used to convert convertible debt valued at $5.8 million. Additionally, 18.8 million shares were issued to raise new capital totaling $29.3 million and another 1.8 million shares were used as currency to pay $4.1 million in bills related to operating activity. Thus shares outstanding have increased six-fold over the last two years.

Westwater can raise capital pursuant to two separate agreements with U.S. capital market firms for the sale of its common stock at prevailing market prices. The second of the two agreements runs through March 2020, while the first appears to have no specific termination date. As of December 31, 2017, a total of $48.6 million remained available under the agreements. We expect management to hold off on using either of these two facilities until the Westwater stock price appreciates from current all-time low levels.

Investment Requirements

There is some opacity in the view of Westwater's investment requirements. With uranium operations in a holding pattern waiting for more compelling sales prices, there is little need to make significant capital investment. To resume production at the Rosita well field area and Kingsville Dome processing facilities would require an investment of $1.6 million to $2.0 million in capital costs. We would also expect some additional working capital would be required to support start-up activities that are expected to take as long as nine months.

Additional investment will be needed to begin production as the Company's Temrezli uranium project in Turkey. Management has stopped short of citing exact investment requirements, in part due to the possibility of relocating certain equipment already in place in at the Rosita project in Texas. Management has suggested at that least twenty-four months lead time is needed to begin production once a start-up decision is made.

Lithium assets in Nevada and Utah are currently in exploration phase, during which time spending is limited to staff geologists and outsourced engineering services. Typically the more significant capital spending is not expected until year two or year three of such an exploration and development project. Management has provided limited guidance on capital investment requirements at its lithium projects, ostensibly awaiting more data on the resource quality.

The pending acquisition of Alabama Graphite is expected to dramatically change Westwater's capital requirements. AGC management had previously outlined a capital budget of $40 million needed to reach commercial stage. This figure was composed of $33.5 million related to capital costs and another $6.5 million for development activities, including a second pilot or demonstration plant capable of producing modest quantities of planned battery-grade graphite materials.

However, Westwater management has laid out an alternate path to take these materials to market. A pilot plant will be constructed yet in 2018 as originally planned. Westwater expects to go to market with battery materials processed with outsourced graphite, which will be upgraded to *PMG* at that demonstration plant with a modified version of Alabama Graphite's proprietary process. The altered design comes with lower capital requirements over the next two to three years compared to AGC's original plans. Thus under the revised plan, we estimate capital requirements to support the Alabama Graphite commercial market debut could be near $5.0 million over the next twelve to eighteen months. An additional $2.0 million required work working capital may be required to expand relationships with outside engineering services or to hire in-house engineering talent to continue development of the battery-grade graphite materials production process.

Macro-Economic Exposure

Interest Rates. Given that the Company has no outstanding debt, Westwater has limited exposure to interest rate changes.

Currency Rates. Commodity sales are typically denominated in U.S. dollars. Thus from the perspective of the reporting currency and the Company's top-line there is little currency risk. However, we expect the Company to have exposure to currency fluctuations as related to expenses incurred in its planned Turkey operations. This exposure is somewhat limited in the near term, while expenses remain nominal at the Temrezli project.

Geo-political Events. With the entrance into the Turkey uranium market, the Company has opened the door to the effects political actions in that country and the adjacent region. While Turkish officials have at times voiced considerable disagreement with the U.S. government, we believe the business climate does not represent undue risk of loss or business disruption. Turkey provides legal recourse for foreign businesses and does not appear interested in reentering the uranium materials industry with a state run organization.

EARNINGS MODEL

In our view, Westwater is on a path returning to profitability. Future sales and earnings at Westwater Resources as the Company is currently configured are highly dependent upon selling prices in the uranium market and the speed at which lithium assets can be explored and developed. The pending acquisition of the graphite materials developer appears more likely than not to meet with shareholder approval and come to a successful closing during the June quarter. Therefore, our projections of revenue, costs and expenses include the opportunities and requirements of developing and selling graphite materials as well as uranium and lithium opportunities and requirements.

Our financial model as shown in Table IX on page 22 reflects the following assumptions:

- Uranium
  - It will require at least two more years for the industry to work through current oversupply of uranium material to the point that world selling prices can be pushed up to the levels that justify production in some projects.
  - Westwater will first return to market with materials produced at its Temrezli project in Turkey where marginal cost is estimated to be near $35 per pound.
  - First revenue from uranium materials sales are not expected until the second half of the year 2021 at the earliest.
  - No capital spending is anticipated until year 2020, when it is expected that the Company will begin further investment in Temrezli.
  - Restoration and reclamation work in various projects in Texas are expected to continue as planned. Accretion of asset retirement obligation is expected to continue during the five-year projection period.
- Lithium
  - Exploration work is expected to continue on lithium assets in Nevada and Utah.
  - At least two years is expected to be required to reach design and construction stage. Then another one to two years is anticipated before commissioning and initial lithium production. Thus no revenue from lithium materials is expected in our five-year projection period.
  - Mineral property expenses, including work at the various lithium project sites, are estimated to continue at recent spending rates.
- Graphite
  - It is assumed the proposed acquisition of Alabama Graphite is approved by Westwater shareholders at the April 2018 annual meeting.
  - The deal is reflected on the balance sheet beginning June 2018. The model reflects a total of 11.625 million shares of Westwater's common stock are issued in the June 2018 quarter. A purchase price of $8.4 million calculated at the current share price of $0.53, of which 100% is allocated to property, plant and equipment.
  - Capital expenditures totaling $5.0 million are reflected in year 2018, for the completion of a second pilot plant with pre-commercial production capacity.
  - Westwater is successful in testing and proving battery-grade graphite materials using outsourced graphite concentrate and conventional purification equipment.
  - It is expected that the unnamed battery manufacturer that signed a letter of intent will move to a more formal purchasing agreement by the end of year 2019. First revenue from the sale of *PMG* to this customer is expected in year 2020, at an estimated sales price of $1,800 per metric ton and a 50% production cost rate.

- Operating expenses
  - General and administrative expenses reflect the addition of at least two additional employees transferred from Alabama Graphite to carry out business development and site management functions.
  - Operating expenses also reflect the continuation of contracted testing and processing work needed to prove effective Westwater's amended process for the PMG graphite product.

- Balance sheet
  - It is assumed that the note receivable is repaid in cash by Laramide Resources as scheduled. Additionally, it is assumed that the common stock that was received as payment from Laramide is held for future appreciation.
  - No leverage is expected during the five-year projection period.
  - The Company is expected to sell common stock pursuant to the two agreements currently in place. Given the foregoing spending and capital investment assumptions, we estimate the Company will need to raise as much as $12.0 million over the next twelve months from the date of this report. Our model reflects the sale of shares at the current share price of $0.53.

The combined effect of our assumptions results in an estimated $12.0 million in net cash usage by operations in the year 2018, and another $5.0 million in cash used for capital investment. The year 2019 is expected to unfold with another $11.7 million in net cash usage by operations. While our model reflects first revenue in 2020 from the sale of battery-grade graphite materials, we believe Westwater operations will not become cash flow positive until the year 2022. At this time sales from uranium 'yellowcake' are expected to resume and battery-grade graphite are expected to reach scale. We believe these developments could return the Company to positive cash flow and profitability. (See Exhibit I on page 38 for a display of long-term projections.)

Table VIII: Summary Historical and Projected Sales and Earnings

	2016 Actual	2017 Actual	2018 Estimate	2019 Estimate
Sales	$0.0 mln.	$0.0 mln.	$0.0 mln.	$0.0 mln.
Operating Income (Loss)	($13.3) mln.	($24.8) mln.	($13.4) mln..	($13.8) mln.
Earnings (Loss) Per Share	($3.73)	($0.78)	($.28)	($0.22)
Cash from (used by) Operations	($12.6) mln.	($11.6) mln.	($12.0) mln.	($11.7) mln.

Source: Company Reports and Crystal Equity Research Estimates

Table IX: Historic and Projected Financial Results

Dollars in Thousands	2017A	1Q18A	2Q18E	3Q18E	4Q18E	2018E	2019E
Total revenue	-	-	-	-	-	-	-
Operating expenses:							
Mineral property expenses	4,584	1,250	1,250	1,250	1,250	*5,000*	*5,500*
General and administrative	6,614	1,800	1,800	1,800	1,800	*7,200*	*7,600*
Accretion of asset retirement obligations	1,039	250	250	250	250	*1,000*	*1,000*
Depreciation and amortization	142	40	40	40	40	*160*	*160*
Impairment of mineral assets	11,436	-	-	-	-	-	-
Other	1,003	-	-	-	-	-	-
Total operating expenses	24,818	3,340	3,340	3,340	3,340	*13,360*	*13,760*
Operating income (loss)	(24,818)	(3,340)	(3,340)	(3,340)	(3,340)	*(13,360)*	*(13,760)*
Other income (expenses), net							
Interest income	614	-	-	-	-	-	-
Gain on uranium properties	4,927	-	-	-	-	-	-
Other	276	-	-	-	-	-	-
Income available to shareholders	(19,001)	(3,340)	(3,340)	(3,340)	(3,340)	*(13,360)*	*(13,760)*
Net EPS (loss), available to shareholders	($0.77)	($0.12)	($0.08)	($0.06)	*($0.06)*	*($0..28)*	*($0.22)*
Weighted shares outstanding, diluted	24,737	27,929	39,554	60,607	*60,607*	*47,174*	*70,607*

Dollars in Thousands	2017A	Pro Forma 2017 with AGC Acquisition	2018E	2019E
BALANCE SHEET				
Cash and equivalents	4,054	4,054	*1,164*	*964*
Available for sale securities	1,361	1,361	*1,361*	*1,361*
Note receivable, net	1,750	1,750	*1,750*	*750*
Other	668	1,268	*668*	*668*
Current assets	7,833	8,433	*4,943*	*3,221*
Property, plant and equipment	34,409	43,258	*48,098*	*47,938*
Restricted cash	3,668	3,668	*3,668*	*3,668*
Notes receivable	3,328	3,328	*1,828*	*328*
Total assets	50,238	58,687	*58,537*	*56,677*
Accounts payable	538	538	*600*	*1,000*
Accrued liabilities	2,352	2,352	*2,500*	*3,000*
Current liabilities	3,968	3,968	4,366	5,454
Asset retirement obligation, net	4,653	4,653	5,465	6,277
Paid-in capital	297,250	305,699	*317,669*	*327,659*
Retained earnings (deficit)	(256,190)	(256,190)	*(269,550)*	*(283,310)*
Total shareholder equity	41,117	49,556	*48,206*	*44,446*

Source: Company reports and Crystal Equity Research estimates

MARKETS

Uranium

Since the mid-1900's uranium has been an important energy mineral. Indeed, almost all uranium supplies are used to make electricity with only a small portion used for medical isotopes or marine propulsion. The nuclear fuel market is neatly divided into four segments, beginning with mining and milling of uranium concentrate where Westwater participates. Since uranium must be in a specific chemical form with the right isotopic concentration, it must go through three additional steps before it is placed in a nuclear reactor. Thus conversion, enrichment and fabrication are the next three, vital links in the supply chain.

It is a naturally occurring element and is present almost everywhere on Earth with greater abundance than gold or silver. There are active uranium mining operations in twenty countries around the world. The top ten producing uranium operations produce about 85% of current production and 54% of the world's annual supply from just six countries: Canada, Australia, Kazahkstan, Niger, Russia and Namibia.

Uranium Ore

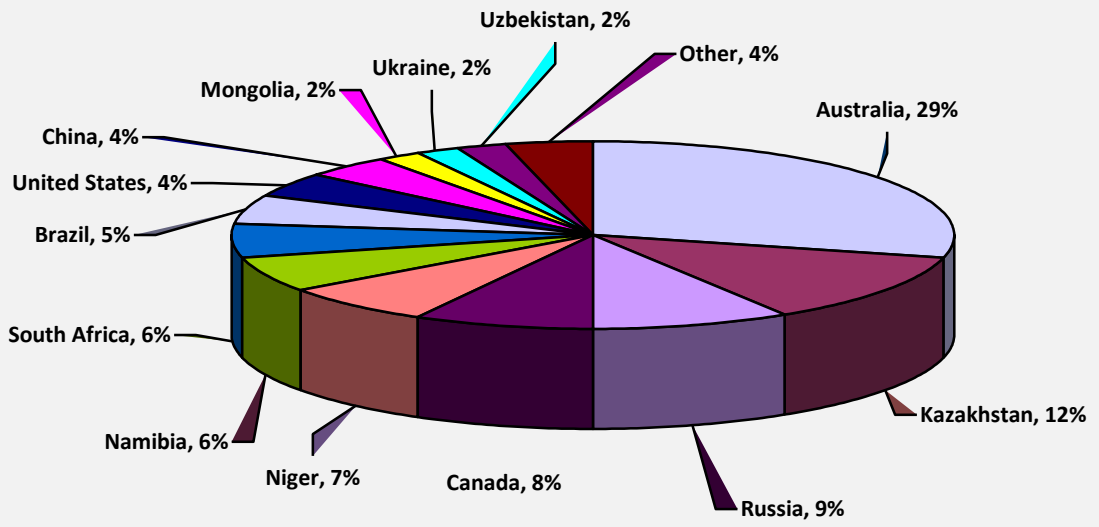
Uranium minerals are closely associated with more radioactive elements of radium and radon that are found in the same ores. Thus while uranium itself is only marginally radioactive, the ores where it is found must be handled with care to avoid occupational or environmental hazards. As a consequence federal and local jurisdictions are actively involved in regulating and inspecting uranium development projects as well as operating mines and recovery projects.

<u>Demand Conditions</u>

Demand for uranium is impacted by the economics of nuclear power reactors, which are characterized by very high initial capital costs and relatively modest operating costs over a lengthy expected life. As a consequence, once a reactor is commissioned it is cost effective to keep running at maximum capacity regardless of uranium pricing. Thus nuclear reactor owners are less sensitive to price than some energy commodities. Uranium demand forecasts are typically estimated based on current and planned capacity. According to the International Atomic Energy Agency (IAEA), the current operating base is 449 nuclear reactors, of which 99 are located in the United States. The World Nuclear Association (WNA) estimates these reactors require approximately 63,000 tons of uranium per year. This translates to about 75,000 metric tons of uranium oxide concentrate.

The position of nuclear reactors in the world power generation is pushed and pulled by mixed views. The industry touts its value in the age of global warming and the need to rotate away from fossil fuels for power generation. New zero greenhouse gas emissions, high reliability and competitive lifetime costs are just three of the positive attributes of nuclear power. However, with the advances of natural gas as an alternative fossil fuel source has changed the competitive dynamic, lowering wholesale prices to levels below cost for some older or less efficient nuclear power plants. Furthermore, the advent of solar and wind power is to contributing to lower capacity factors for base load generators as electrical grids are modernized with technologies aimed at incorporating such intermittent power sources into the electrical load.

Chart II: Known Recoverable World Uranium Resources



Source: World Nuclear Association, February 2016

Furthermore, nuclear power operators have had a number of problems to address in new reaction projects. Public acceptance, particularly in the wake of catastrophic accidents such as at the Fukushima site in 2011, has been less than enthusiastic. There have been delays in new reactor construction in Japan and Europe as a consequence of adverse public opinion. Additionally, in the United States there have been delays and cancellations related to unproven reactor designs. The cumulative impact is a slowing in growth for the sector.

Uranium demand for existing and planned nuclear power reactors is highly predictable. Nuclear reactors generally operate continuously close to full capacity with planned maintenance and reloading schedules. Thus the amount of uranium need to each reactor throughout its expected life is relatively easy to estimate. The consistent character of the end-user provides good visibility into supply chain requirements.

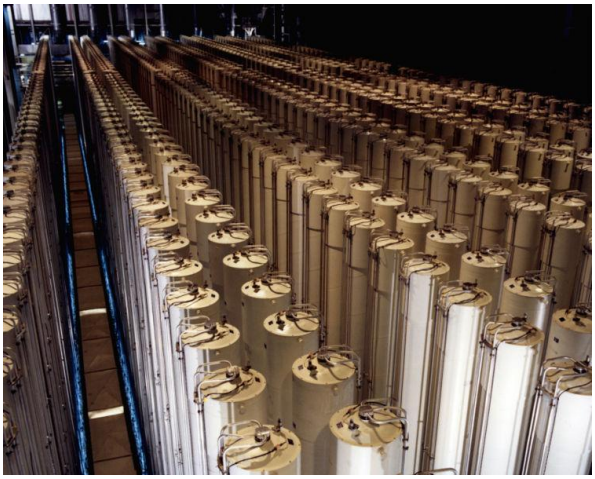
The WNA has forecast a 26% increase in uranium demand by 2025. The prediction is based in part on world energy outlook that suggests electricity demand could increase by as much as 67% from the levels seen in 2014. A 30% increase in reactor capacity is needed to help meet electricity needs. Lifetime extensions of existing plants and the economics of continued operation of older reactors could impact demand in the near- and medium-term.

Most growth in new nuclear power reactors is seen in Asia. According to the WNA, of the sixty reactors under construction in June 2017, most were in China, India and Russia. As recently as 2017, the People's Republic of China indicated intentions to build nuclear power capacity to as much as 150 gigawatts by 2030. It is also noteworthy that by 2035, there will be nuclear reactors in nine countries that do not now have nuclear power production capacity: Construction has already started in four of those countries: United Arab Emirates, Belarus, Bangladesh and Turkey.

Supply Sources

Uranium materials demand is met through a combination of new production (primary supply) and commercial or government inventories placed back on the market (secondary supply). The U.S. Department of Energy (DOE) has historically 'transferred' or placed uranium materials at various amounts on the market from government stockpiles. Proceeds from the sales are used to support cleanup services at the shuttered nuclear enrichment facilities. The DOE transferred 2,500 metric tons in 2015, 2,100 in 2016 and 1,300 in 2017. Such levels are expected to slowly fall away by the 2020s. At the present time transfers of U.S. government supplies represent about 4% of world demand and 13% of domestic demand.

There are additional secondary supply sources from within the industry. Highly enriched uranium inventories can be blended back into supplies and used fuel rods can yield recycled uranium material. Owners of enrichment capacity can engage in a practice of 'underfeeding', that is producing an enriched product with a smaller amount of feed material. This has the effect of increasing capacity utilization. While extra work is required, less feed material is needed. The result can be a lower cost per production unit at the enrichment step. Enrichers can also feed depleted tails or waste back into the enrichment process in a practice known as 're-enrichment.' Changes in enrichment supply may lead to shifts in demand for uranium concentrate and ultimately impact concentrate prices.



Gas Centrifuges at Enrichment Plant

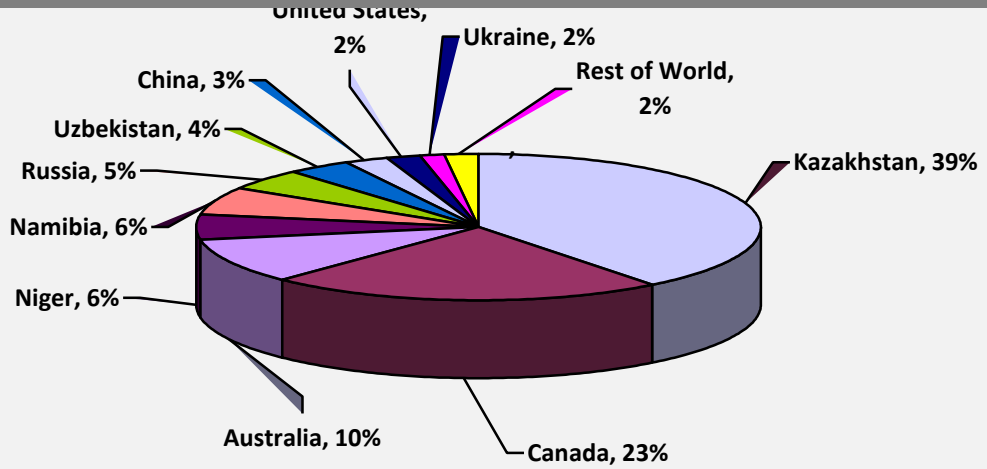
Primary Production

The most significant uranium production region today is in Kazakhstan in the Tortkuduk, Moinkum, Inkai, and Central Mynkuduk regions. Several uranium developers have interests in Kasakhstan, including the Katco Joint Venture, Orano (previously Areva), Uranium One, Cameco and Kazatomprom, among others, using the in situ leach mining method. About 39% of the world supply comes from Kazakhstan.

A significant portion of current day uranium supplies come from the Athabasca Basin in northern Saskatchewan Province, bringing Canada's contribution to world supplies to 23%. Despite ample resources Australia, the region experienced reduced production over the years, settling at about 10% of global production in 2016.

Uranium development has been going through a period of flux. A number of mining projects that were initiated in the decade beginning in 2000, have been abandoned in reaction to historically low prices for U308. Additionally, a number of projects were placed in maintenance or, as in the case of Westwater's Temrezli project in Turkey, new well field development has been delayed. Most recently, planned increases in production in Kazakhstan have been reduced as announced by KazAtomProm in March 2017. Nonetheless, projects at Cigar Lake in Canada and Husab in Namibia are still ramping up production suggesting diversity in business strategies within the industry.

Chart III: World Uranium Production in 2016



Source: World Nuclear Association, July 2017

The competitive environment was shifted over the past two decades as lower prices triggered a wave of mergers and closures. The consolidation streak was interrupted with the development of Kazakhstan resources using the in situ leach mining method. The region is now host to several multinational companies and has supported the emergence of KazAtomProm as a major player in the uranium market. The Katco Joint Venture with Orano (formerly Areva) operates the Tortkuduk and Myunkum mine in Kazakhstan using the in situ leach approach. It has become the third most prolific uranium mine in the world accounting 6% of total world production.

With the increased activity in the Kazakhstan regions it is no surprise that KazAtomProm is the single most prolific producer in the uranium materials market. KazAtomProm production contributed about 21% of world production in 2016, followed by Cameco with 17% and Orano with 13%. Another 13% was produced by the ARMZ-Uranium One joint venture. Accordingly, the top four producers provided 64% of world uranium production.

As important as in situ leach mining has become to the industry, the largest operating uranium mines are using conventional mining methods. McArthur River and Cigar Lake in Canada are two underground mines operating by Cameco. Together the two mines accounted for 22% of world production in 2016. Approximately 4% of world production originates at the SOMAIR open pit mine in Niger operated by majority owner Orano. As much as 5% world production originals as a by-product of comes from the underground copper mine called Olympic Dam in Australia. This latter source is likely to remain an important source of world supply given that to date it is the single largest known uranium deposit.

Pricing

The most popular form of uranium for commercial purposes is triuranium octoxide or U3O8. It is the most stable form of uranium in the presence of oxygen and is favored type what the industry calls ‘yellowcake’ that is used to ship uranium between mills and refineries. Uranium prices are typically quoted in dollars per pound for concentrate. Immediate and one-time deliveries are quoted in ‘spot’ prices, while longer-term contracts are called the ‘term’ market. The U.S. Energy Information Administration (EIA) estimates at least three quarters of uranium purchased in the U.S. is subject to long-term contracts with the balance purchased at spot prices.

Price determination for uranium is accomplished through a peculiar practice involving 'price indicators.' There is no commodities exchange for uranium at any stage in the supply chain. Instead monthly spot and term prices indications for concentrate, converted and enriched materials are published by recognized industry experts. The consulting firms Ux Consulting (UxC) and TradeTech, LLC are considered the leading price authorities, influencing negotiations by both sellers and buyers.

The EIA reports that in 2016, the most recent full year for which aggregate information has been published publicly, U.S. operators of commercial nuclear power reactors purchased 50.6 million pounds of U3O8 at a weighted average realized price of $42.43 per pound. Realized prices in 2016, declined 4% compared to the previous year. Domestic-origin uranium accounted for 11% of these sales, and the remainder was filled by foreign-origin supplies. As of April 2017, UxC's spot price indicator was $23.50 per pound for uranium concentrate. Secondary uranium suppliers and speculators are the most sensitive to spot prices.

Yellowcake

It is important to note that domestic uranium concentrate producers are largely unexposed to spot uranium prices. Most uranium is sold pursuant to long-term contracts negotiated in advance between suppliers and end-users in what is known in the industry as term prices or realized prices. The typical sales transaction for concentrate at the front-end of the supply chain involves a single purchaser negotiating directly with a mining company. After agreeing on a price, the mining company delivers processed 'yellowcake' to a conversion facility selected by the purchaser. Purchasers are able to communication with suppliers globally, causing prices to be largely harmonious the world over.

Economics of Uranium Production

The market clearing term price for uranium concentrates is influenced greatly by the marginal cost of production for the suppliers. Public company reports provide additional partial indications of prices built into existing contracts. The consulting firm Energy Resource International (ERI) reports that new U.S. production was supported by long-term contracts in a range of $55 to $70 per pound, although one supplier reported an existing contract with a price in the range of $45 to $50 per pound. Cutbacks in production have been announced in recent years when prices declined, providing anecdotal information on marginal costs across the industry. Conventional mines in Utah appeared sensitive at $45 per pound and ISR operations at $40 per pound. Cameco halted new well field development at its Nebraska Crow Butte site in early 2016, when prices reached $30 per pound.

By supplementing quantities moving through the supply chain, the practice of underfeeding creates a link between in the enrichment process and uranium concentrate prices. Likewise, excess inventories maintained by non-producers or by power producers with unexpectedly idle reactors, can also suppress prices at the front end of the supply chain.

U.S. suppliers are usually able to sell uranium products and services worldwide. The exceptions are Russia and China. Political and strategic interests in those countries have led to policies that support domestic sources or joint ventures and partnerships. It is notable that enrichment facilities as well as electric power plants in many countries are wholly or at least partially controlled by central governments.

As noted above, the U.S. Department of Energy is allowed to sell government uranium supplies as long as it is determine that the sales do not have an adverse impact on domestic mining or processing. For DOE purposes adverse impact is causing delays or reductions in production, employment or capacity utilization or expansion. In an April 2017 statement, the DOE determined that any future transfers "will not have an adverse material impact" on mining activity, but revealed that its economic models suggested that future government transfers up to 1,600 metric tons per year could suppress spot prices for uranium concentrate by approximately $1.60 per pound through 2019, and approximately $1.40 per pound in the next decade.

Logically, placement of government supplies back into the supply chain may not impact the price immediately. Rather the impact would occur when the availability displaces commercial supply. Thus the market may still be working through larger government transfers made in past years. It may take several years before the reductions in government transfers to the commercial market begin to have a positive impact on price talk.

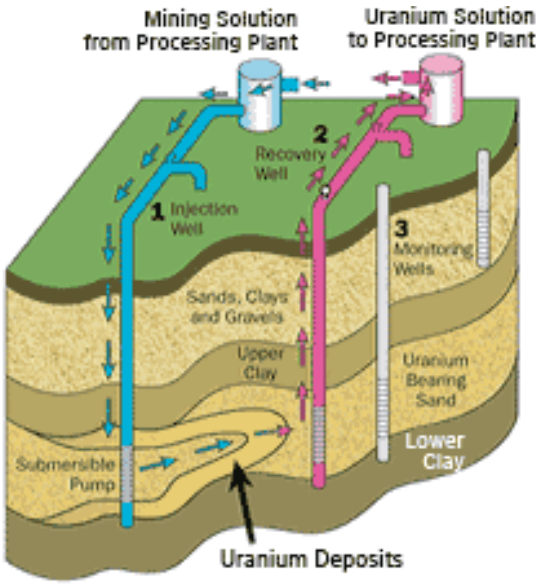
Mining Methods

Not all uranium mining methods are equal. For deposits deep underground, the industry engages in conventional underground mining practices. Surface mining with removal of overburden and deep pits are used for deposits closer to the surface. A mill crushes and grinds the ore to give easier access to uranium particles. The crushed rock is treated in tanks of sulfuric acid to dissolve the uranium oxides. Barren rock and other minerals are allowed to settle out of the sulfuric acid mix. The remaining solution is filtered and the uranium is recovered through an ion exchange or solvent extraction system. The 'tailings' of barren rock and other minerals contain about 70% of the radioactivity of the original ore. In an underground mine the most course material might be returned underground as fill. The balance is pumped as slurry to a tailings dam. Measures must be taken to reduce surface radioactivity and radon emission from the tailings as well as recycle waste water that might contain radium. Tailing deposits at completed mines are often covered by clay or soil.

Open Pit Uranium Mine, Australia

Conventional methods are in use at Ranger mine in Australia, the Rossing mine in Namibia and at McAurther River mine in Canada, which are all among the largest uranium operations in the world. According to the World Uranium Association, in 2016 about 47% of current uranium production is through conventional pit and underground mining operations and another 5% originates as a by-product of other mining operations.

The in situ recovery (ISR) method, otherwise called in situ leach (ISL), was first used in the 1990s as developers began to target ore bodies found among porous unconsolidated material such as gravel or sand in ground water. The method begins with bore holes are drilled into the deposit. A leaching solution is pumped into the deposit to dissolves the uranium ore so it can be pumped to the surface and processed. The extracted uranium-bearing water is then filtered through resins in an ion exchange process. Uranium-loaded resins are then processed to separate the U3O8 and produce 'yellowcake'. The resins can be recycled back into the ion exchange system and reused. There are some waste slurries that must be disposed and any contamination of the aquifer by leaching activity must treated and restored.



ISR has experienced rapid adoption over the last three decades as developers have targeted geologies where the method is possible. It is widely considered as more environmentally sound than conventional mining methods. There is comparatively very little disturbance of the environment and in situ mining operations are largely low profile structures. Most of the radioactivity of the uranium ore body remains underground thereby reducing hazards for employees from radiation. More importantly, it is considered a low-cost technology, in large part because capital requirements are more modest and there is shorter time to production. There is lower energy requirement and less labor deployed than in conventional methods. Furthermore, no uranium mill tailings are created and environmental safeguards are more affordable than those needed in conventional mines that disturb large amounts of rock.

Despite its economic appeal, ISL cannot be used everywhere. The uranium deposits must be permeable to a liquid solution and there must be some sort of impermeable layer above and below the deposit to prevent the solution from leaching into groundwater. According to the World Uranium Association, about 47% of the current uranium production is accomplished through the in situ recovery method. The method is used in all uranium mining in Kazakhstan and various sites in the United States, including Westwater's operations in Texas. Westwater also plans to use this method at its Temrezli project in Texas, a plan which is expected to better position the project with attractive margin cost performance.

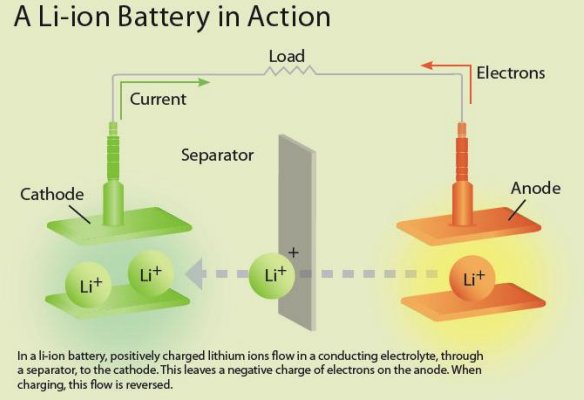
Lithium

Battery Use Case

Lithium has numerous applications, from lubricating grease and glass fabrication, to glazes for ceramics, to batteries. It is the battery application that is driving most of the current growth in the lithium market. The metal has proven most effective as material for the battery cathode, the terminal where current flows out as a battery is discharged and delivers stored energy to a device or equipment. As a consequence there are an estimated eight different lithium-ion battery chemistries in production around the world. The most common form is lithium cobalt oxide. Lithium is also used in battery electrolyte in the form of lithium salt.

For all the complexity in their chemistry, lithium ion batteries are simple in design. There are only three main components: a positive electrode called a cathode, a negative electrode called an anode, and electrolyte. The electrolyte serves as a 'highway' for migration of ions and their associated electrons from anode to cathode. The typical electrolyte is a lithium salt in an organic solvent. The cathode is usually made from lithium metal oxide material or vanadium, while the anode is most frequently made from graphite, but silicon and lithium are options. Carbonaceous anodes from graphite are the most utilized due to low cost and ease of supply.

Beside conductivity characteristics, battery manufacturers select materials based on easy of handling, stability at room temperature and low toxicity. At the present time, lithium provides the best combination of energy density to price for batteries. There are substitutes for lithium compounds in most of current applications. For example, calcium, magnesium, mercury, and zinc can be used for battery anode material. Battery manufacturers are continuously researching lower cost alternatives for both cathode and anode battery components. For the time being lithium remains the preferred material.

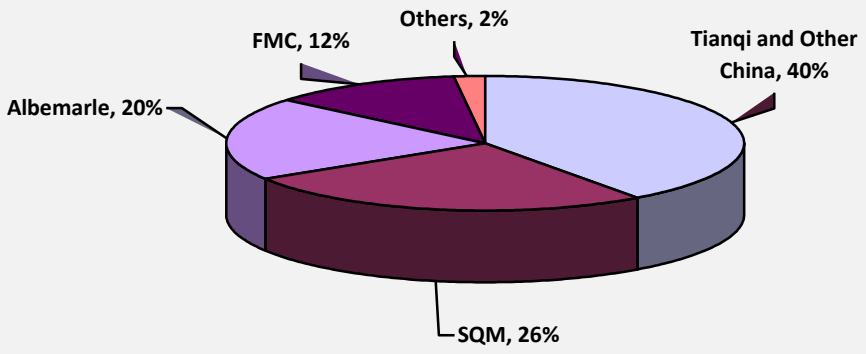


Structure and Competitors

Compared to other industrial commodities, the lithium sector is underdeveloped. It is populated by a few conglomerates and a growing number of junior minerals companies.

- The largest single market share is claimed by Sociedad Quimica y Minera de Chile (SQM: NYSE), which is extracts lithium from brines in the Salar de Atacama in Chile. SQM is also planning a significant project in Argentina that is slated for commercial stage by 2019, bringing as much as 50,000 metric tons to market annually.
- SQM is followed closely by U.S.-based Albemarle Corporation (ALB: NYSE), a well diversified specialty chemicals producer. Its most significant lithium projects are in the Salar de Atacama in Chile with annual production near 25,000 metric tons and the Silver Peak operation in the U.S. with an output of 6,000 metric tons per year. Albemarle also has an ownership interest in Australia's Greenbushes Mine through a joint venture with Talison. Albemarle's share is about 30,000 metric tons per year.
- Another U.S. supplier, FMC Corp. (FMC: NYSE) has captured 12% of the world market.
- Sichuan Tianqi Lithium Industries (SZSE: Shenzhen) in China along with several other China-based companies accounts for as much as 40% of world lithium supplies.

Chart IV: Lithium Market Share



Source: Company Reports

Reserves and Production

There are two primary sources for lithium: hard-rock called pegmatites and brines. Granite pegmatite ore bodies are the hard-rock sources for lithium. Spodumene is the most common occurring lithium hard-rock mineral. Recovery of lithium from hard-rock sources follows the typical mineral extraction steps: crushing of ore, concentration by froth flotation, and then precipitation from this aqueous solution. Through the precipitation step, either lithium hydroxide or lithium carbonate is produced, which is then further processed into a final form.

Salar de Antofalla, Argentina

In recent years, spodumene has been surpassed by brines as the source for the majority of lithium supply. Lithium brine deposits are accumulations of saline groundwater with high levels of dissolved lithium. Brine is pumped from the ground and placed in ponds where the lithium is concentrated through evaporation. Developers like arid locations where evaporation can be accomplished in months rather than years to reach lithium concentrations in a range between 1% and 2%. The concentrated lithium materials can be gathered and shipped to processing plants for final production. The formation of lithium brine supplies has been critical in meeting new demand for battery applications

Besides an arid climate, developers look for closed basins with a dry lake. The preference is to find an area of land that is sinking or is gradually caving in due to tectonic movement or changes in the earth's crust. Some developers also look for adjacent geothermal activity, but certainly the presence of aquifers is important. Of course, in all sites developers are seeking lithium source-rocks.

The economics of brine-sources lithium are impacted primarily by anticipated evaporation rates. Using current methodologies based on solar evaporation, the time to sufficient lithium concentrations is dependent upon the local climate. Hours of sunlight, humidity, wind levels and temperature could all have an impact. Factors, such as lithium grade, the presence of saleable by-products, and the need to remove impurities are just as important in brine operations as in hard-rock mining.

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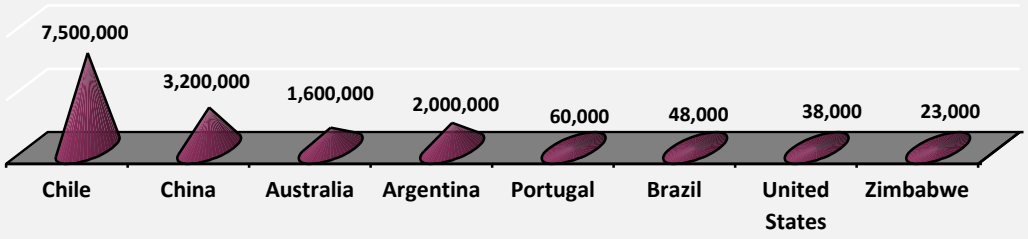
Lithium brine reserves can be found around the world, including North America, South America, Africa, Asia and Australia. South America accounts for as much as two-thirds of the world's reserves from the Lithium Triangle of Chile, Argentina and Bolivia. Chile is the host of the largest lithium brine deposit called the Salar de Atacama in the Antofagasta region. The salar or dry lake is over 3,000 square kilometers and expected to yield as much as 6.8 million tons of lithium reserves. According to an industry expert with knowledge of the region, the Salar de Antofalla in Argentina is another important lithium brine source with as much as 9.0 million tons of identified lithium resource.

As important as South America has become to the world lithium supply, Australia is currently the top producer of lithium in the world. Australia's lithium is sourced from hard-rock deposits in the Greenbushes area. Two other projects are also in the planning stages at Mount Catlin and Mount Marion.

Chart V: Lithium Reserves by Country



Reserves in Tons

Source: U.S. Geological Survey, Mineral Commodity Summaries, January 2017

In the United States, Nevada and Utah have become hot spots for lithium development. As noted above Albemarle is already well established with its Silver Peak project in Nevada's Clayton Valley. In addition to Westwater Resources, Liberty One Lithium Corporation (LBY: TSX), Dajin Resources (DJI. V), and Pure Energy Minerals Ltd. (PE: V) have exploration efforts underway in Nevada. Notably, MGX Minerals (XMG: CN) has plans for a novel lithium project in Utah's Paradox Basin, extracting lithium from wastewater used in drilling for oil and gas.

Demand and Pricing

Statistica, an industry research firm, reports that total lithium demand worldwide is expected to reach 422,614 metric tons per year by 2025, driven largely by supply requirements for battery production. Demand pressure from battery manufacturers is expected to influence not only volume but the structure of the industry as well. Driven by concerns over supply security battery manufacturers have taken steps to ensure uninterrupted lithium supplies. In particular, electric vehicle battery concerns have begun integrating backward into the supply chain to own lithium supplies directly or to exert greater control over the production process.

Lithium spot prices more than doubled over the two years ending December 2017. The price trajectory may not continue unchecked. New supply is expected to arrive on the market over the next several years. Projects in development in Argentina and Australia coupled with expansion of current sites in Chile are expected to add 500,000 metric tons to supply per year beginning in 2025, bringing annual production to about 715,000 metric tons per year. Estimates by Morgan Stanley suggest lithium materials prices could be trimmed by as much as 50% by the times these supplies come online. However, lithium industry analysts have seeded a more modest ramp in production and a less price volatility, citing the inherent interests of the leading low-cost producers to preserve profit margins by making less dramatic additions to supply.

Trading Economics, a commodities market reporting service, tracks lithium price trends through an exchange traded fund. The current fund level of 124.16 points is well off the historic peak for lithium pricing at 156.80 points, which was reached in early January 2018. Actions by the two low-cost producers, Albemarle and SQM, have influence over lithium price trends. Both are expanding production and are expected to capture market share over the next several years. We note that SQM has reportedly been in negotiations with Tesla, Inc. (TSLA: Nasdaq) to supply lithium for Tesla's Model S all-electric car. Morgan Stanley estimated in early 2018 that new supplies could erode lithium prices to $7,332 per metric ton compared to recent levels near $13,375 per ton.

Chart VI: Historical Lithium Pricing

Source: Trading Economics, Lithium ETF, March 2018

Process Methods

There is potential for significant change in the lithium sector from impending technology innovations. Several companies are exploring methods to accelerate time to market and reduce the cost of production. Pure Energy is planning a pilot project in Nevada to prove the efficiency of refining lithium brines without evaporation ponds. The evaporation step requires a lengthy period of time, usually months in length. The removal of impurities such as magnesium, calcium and iron in the conventional process is also time consuming and costly. The new process involves ion exchange technology to extract the lithium before returning water to the ground. Electrolysis is then used to produce lithium hydroxide. The process was developed by a subsidiary of Tenova S.A. Pure Energy and Tenova expect the pilot plant to prove lithium concentrate can be achieved in days at significantly lower refinement and purification cost.

Lithium Energi Exploration, Inc. (LEXI: TSX.V), a junior lithium developer with interests in the Salar Antofalla of Argentina, has begun work on an alternative processing plant. The plant will will use technology licensed from IBC Advanced Technologies, Inc. (private) for metal separation. Called Molecular Recognition Technology (MRT), the process is expected to make possible selective extraction of lithium. The MRT process uses super-molecular chemistry to select target materials. It is a non-ion exchange process using specially designed organic chelating agents or ligands.

Neither Pure Energy nor Lithium Energi Exploration are significant in size and some might dismiss the importance of their production to the world lithium ion market. However, it is clear that a meaningful change in the cost of lithium brine processes could have far reaching ramifications for the economics of this fast growing market. The availability of low-cost supplies even from a small supplier is likely to filter through the market, leading to new technology adoption and ultimately to price competition.

It is noteworthy that Westwater has extensive knowledge of ion exchange technology by virtue of its experience with in situ recovery uranium mining. Should Pure Energy's effort appear successful, it is may be possible for Westwater engineers to adopt this process for its own lithium brine operations. We expect that topic to be explored over the next couple of years as Westwater works through exploration of its current lithium brine assets in Nevada and Utah.

Graphite

Graphite Ore

Graphite is a crystalline form of carbon. It occurs naturally as a mineral in some rocks, but can be synthesized from petroleum coke. It has the same composition as a diamond, one of the hardest minerals known to man, but because of the unique structure of graphite it is extremely light, soft, inert and highly resistant to heat - properties that make graphite highly coveted by product developers.

Natural 'flake' graphite in particular is suitable for advanced technology applications. Crystalline flake graphite is composed of flat, plate-like particles with irregular edges. It is found in layers or pockets in metamorphic rocks and sometimes in massive accumulations in veins or lenses. Flake graphite derives its value from flake size, grade, purity and ease of purification. All types and grades are put through some beneficiation process to remove contaminants, improve particle size and enhance purity. Processing costs can have a significant impact on profitability for a graphite asset developer.

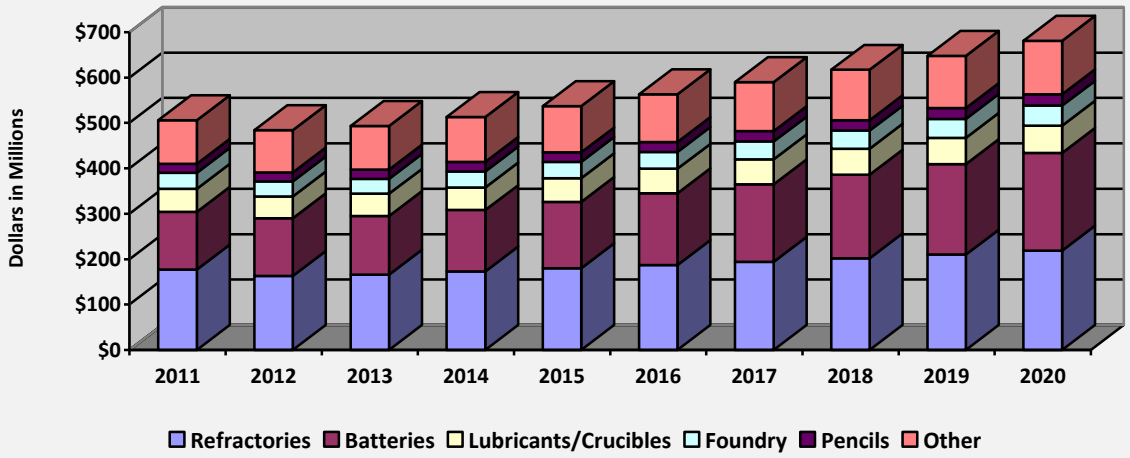
Use Cases

There is a long list of potential uses for graphite from the simplest pencil leads to the most complex metal alloys. However, as with lithium, the real story today for graphite is batteries. With its strong conductivity and heat-resistant qualities, graphite is a perfect material for the anode and cathode components of a battery. In particular, graphite is an important material for lithium ion batteries. Indeed, the typical lithium ion battery destined for electric vehicles requires more graphite than lithium. According to Oak Ridge National Laboratory, a high energy, 100 AH battery for an electric vehicle could require as much as 563.6 grams of graphite or graphite alloy for the anode, representing about 16% of the total battery content.

Graphite must be at least 99.5% pure to qualify for use in lithium ion batteries. Anode materials need to have excellent porosity and conductivity, which is why graphite is the go-to material used by battery producers. Graphite is also compatible with common cathode materials. The anode material has to be durable for good length of use and light weight to give end-users more design flexibility. Low cost is another factor that makes graphite popular for batteries. It is estimated that one kilogram of purified graphite is required to produce one kilowatt hour of energy from a lithium ion battery. A large electric vehicle battery can require as much as 55 pounds of graphite, although the family car probably requires around 22 pounds to 40 pounds of graphite.

Lithium ion battery manufacturers prefer graphite particle size is in a range of 10 microns to 25 microns with at least 99.9999% carbon purity. A spherical shape with low surface area is preferred by battery producers. Reduced surface area on the graphite particles helps promote low temperatures as the battery is used and helps prevent a malfunction called thermal runaway. Low surface area also helps avoids irreversible capacity loss. Such losses reduce battery efficiency due to a portion of lithium and electrolyte that get irreversibly bound up after the initial battery charge. Irreversible capacity loss of 6% or less is preferred and is sometimes expressed as a corollary called cycling efficiency. Battery manufacturers look for a minimum cycling efficiency of 94%.

Chart VII: World Graphite Demand by Application



Source: Statistica, 2018

Demand

The implications for battery materials are impressive. Industry analysts have converted battery storage predictions into flake graphite demand. There are numerous estimates for graphite demand. While the number differs in magnitude, the estimates appear to confirm significant growth and large market opportunity.

Most predictions for graphite demand begin with a discussion of the world battery market. There is currently capacity to produce lithium ion batteries totaling about 35 gigawatt hours per year. Several large-scale facilities are coming online in the next few years, including Tesla's Gigafactory in Nevada, LG Chem in Nanjing, China and FoxConn in Anhui, China. By 2020, Benchmark Mineral Intelligence estimates total capacity could reach 122 gigawatt hours per year, with a majority in China.

Most of the new battery production capacity is expected to be soaked up by demand for electric car batteries. Along with added capacity, battery makers are expected to achieve critical cost reductions through economies of scale. According to Bloomberg New Energy Finance, the current average price per kilowatt hour is near $275. Lithium ion battery prices are expected to fall to as low as $75 per kilowatt hour by 2030. The efficiencies that battery producers deliver to the electric vehicle supply chain will likely accelerate adoption of vehicle electrification, creating a virtuous cycle of demand.

According, to Avicenne Energy, a consulting firm focused on supply chain economics, the battery sector is expected to require as much as 290,000 metric tons of flake graphite by the year 2025. This compares 118,000 metric tons of graphite used in 2014 for batteries. As a consequence, the market value for graphite intended lithium ion batteries is expected to reach $46 billion by 2022. That represents 11% compound annual growth over the next six years. The adoption of electric cars and evolution of the electrical grid are the center of the growth, but proliferation of smartphones, tablets and other electronic devices also plays a part.

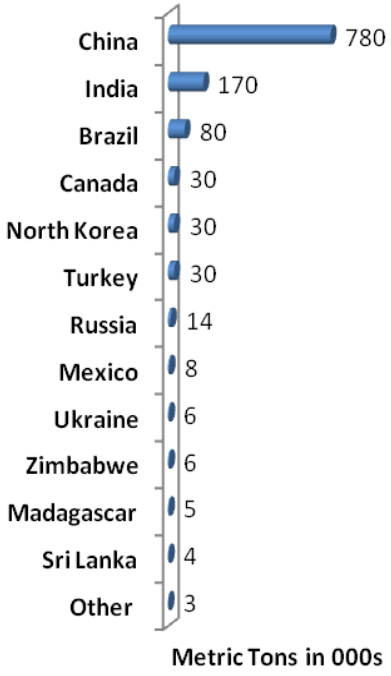
In April 2017, Allied Market Research released a report predicting $18.8 billion market value for graphite industry by 2022, implying compound annual growth near 5.4%. More recently Markets and Markets, another industry research firm, published an even more optimistic view, predicting a $29.1 billion market value by 2022. Industry growth predictions appear to be driven largely by new demand from the lithium ion battery market.

Benchmark Minerals Intelligence, an industry research firm, recently issued new estimates of demand for graphite for lithium ion batteries at 230,000 metric tons by 2020, compared to current demand near 130,000 metric tons. IHS Markit Ltd. has also entered the 'graphite prediction race' with a report that pegs the growth in energy storage driven by lithium ion module price declines to as low as $100 per kilowatt hour by 2019. Affordability could propel adoption rates to the point that the global energy storage capacity will double six times by 2030, potentially rising to over 300 gigawatt hours.

Benchmark forecasts that demand for spherical graphite for the battery anode market could increase from 80,000 tons per year in 2015 to 250,000 tons per year by the end of 2020. To maintain the current mix of synthetic and natural graphite sources for spherical graphite, at least 360,000 tons of natural flake graphite will be needed as feedstock to produce the even a conservative estimate of spherical demand.

Graphite Production

Almost every country in the world has natural graphite reserves in some abundance. However, only a few regions produce graphite in quantity, with China the unchallenged leader, producing all graphite grades as well as 100% of world supply of battery-grade spherical graphite.



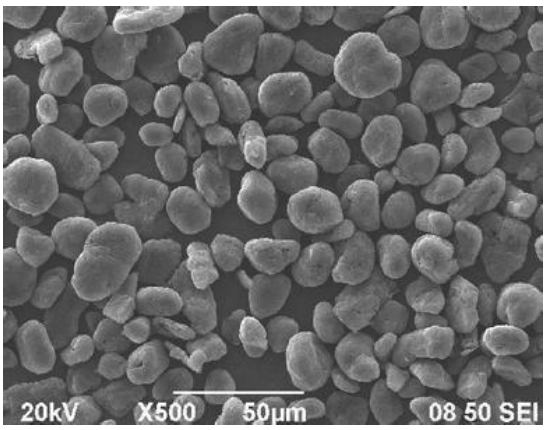
China currently supplies as much as 95% of uncoated spherical graphite to the world. Much of the China production is sent to Japan refiners for the coating step. The anticipated expansion in demand for spherical graphite has China producers making plans to integrate downstream to sidestep their Japan customers. Such moves would bring a majority of the entire battery supply chain into China.

Graphite of various grades has been produced intermittently in the United States since before the Revolutionary War. The largest deposits of flake graphite are in Texas, Alabama, Pennsylvania, and New York. However, production has been unprofitable over the past few decades in the face of competition from exports from China. Consequently, graphite production in the U.S. has dwindled to zero.

The benefits of tighter control over the supply chain are encouraging battery manufacturers in the rest of the world looking for alternative sources for graphite. The U.S. Department of Defense had already placed graphite on its critical materials list and encourages defense suppliers to find domestic sources.

Pricing

Graphite prices appear to be firming up mid-year 2017. Developments in the China graphite market have been favorable given the dominance of China in the global graphite market. Supply of natural flake graphite from China continues to be constrained, but selling prices are rebounding and exports are up year-over-year. The encouraging news appears to be the result of a let up in environmental inspections that had been restricting mining activity and suppressing prices. The China central government also cancelled an export tax applied to flake graphite concentrate.



High-purity, spherical graphite commands higher selling prices, potentially offering greater profit margins and more ample returns on capital investment. In July 2017, Benchmark Minerals Intelligence reported that purified, spheronized and coated graphite like Alabama Graphite's *CSPG* is priced in a range of $10,000 to $12,000 per metric ton. Micronized graphite selling prices were near $7,000 per metric ton.

Concentrate price changes typically filter through value-added derivative graphite over time. Average concentrate prices were $632.00 per metric ton in June 2017, which was lower compared to the previous year but higher than the previous month. There are at least two dozen natural flake graphite development projects underway, including the Coosa project that Alabama Graphite intends to use as feedstock for its *CSPG* product. New supply could erode concentrate pricing from current levels.

Competition

We expect the lines between graphite resource developer and materials producer to become increasingly blurred. Alabama Graphite is not the only industry player to attempt forward integration into finished graphite products. In the first quarter 2017, graphite mining giant Imerys Graphite & Carbon acquired Nippon Power Graphite, a producer of battery anode material. Nippon buys spheronized graphite material from suppliers in China and applies the final coating before selling to the lithium ion battery market. The move makes it clear that Imerys intends to capture a larger portion of the market.

Substitutes

Lithium ion battery manufacturers currently use a significant amount of purified synthetic graphite. About 70% of battery anode material is made from synthetic graphite and the balance from natural graphite. However, synthetic graphite is produced in a series of steps involving high-temperature ovens and strong chemicals such as hydrochloric acid. Environmental concerns and sustainability objectives, especially among electric vehicle producers, may shift the mix in favor of natural flake graphite. However, the lower price of natural flake graphite compared to synthetic graphite may be a more salient factor.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST.

Exhibit I: Historic and Projected Financial Performance

Dollars in Thousands	2014 Year	2015 Year	2016 Year	2017 Year	*2018 Year*	*2019 Year*	*2020 Year*	*2021 Year*	*2022 Year*
Total revenue	-	-	-	-	-	-	*900*	*16,900*	*84,750*
Operating expenses:									
Mineral property expenses	3,502	4,470	3,248	4,584	*5,000*	*5,000*	*5,500*	*6,000*	*6,500*
General and administrative	9,132	7,488	7,650	6,614	*7,200*	*7,600*	*8,500*	*9,000*	*10,500*
Accretion of asset retirement obligations	425	450	480	1,039	*1,000*	*1,000*	*1,000*	*1,000*	*1,000*
Depreciation and amortization	331	336	247	142	*160*	*160*	*160*	*160*	*160*
Impairment of mineral properties	160	960	1,673	11,436	-	-	-	-	-
Other	-	3,048	-	1,003	-	-	-	-	-
Total operating expenses	13,550	16,752	13,298	24,818	*13,360*	*13,760*	*15,160*	*16,160*	*18,160*
Operating income (loss)	(13,550)	(16,752)	(13,298)	(24,818)	*(13,360)*	*(13,760)*	*(14,710)*	*(13,710)*	*6,040*
Other income (expense)									
Interest income	-	-	-	614	-	-	-	-	-
Interest expense	(2,368)	(2,645)	(2,800)	-	-	-	-	-	-
Gain on derivatives	2,919	-	-	-	-	-	-	-	-
Gain on uranium properties	2,313	4,268	-	4,927	-	-	-	-	-
Loss on extinguishment of convertible debt	-	-	(3,322)	(39)	-	-	-	-	-
Other, net	2	(14)	(185)	28	-	-	-	-	-
Total other income (expense)	2,866	1,609	(6,307)	5,530	-	-	-	-	-
Income (loss) before income taxes	(10,684)	(15,143)	(19,605)	(19,288)	*(13,360)*	*(13,760)*	*(14,710)*	*(13,710)*	*6,040*
Provision for income taxes (benefit from)	-	-	-	-	-	-	-	-	*1,812*
Unrealized change in value, mkt. securities	-	(67)	(49)	287	-	-	-	-	-
Realized loss on sale securities	-	-	116	-	-	-	-	-	-
Net income (loss)	(10,684)	(15,210)	(19,538)	(19,001)	*(13,360)*	*(13,760)*	*(17,710)*	*(13,710)*	*4,228*
Net EPS (LPS), comprehensive	$ (5.28)	$ (5.65)	$ (3.72)	$ (0.77)	*$ (0.28)*	*$ (0.22)*	*$ (0.19)*	*$ (0.16)*	*$ 0.05*
Wtd shares outstanding, diluted in 000s	2,023	2,691	5,252	24,737	*47,174*	*63,107*	*79,107*	*84,857*	*87,357*

Exhibit II: Corporate History and Stock Price Movement

Source: Company Reports and Stockcharts.com

Exhibit III: Market Comparables

COMPANY	SYM	SECTOR	RECENT PRICE	TRLNG REV Mill	OPER MARGIN	DEBT / EQUITY	ROE	MARKET CAP Mill	PRICE/ SALES	PRICE/ CSH FL	PRICE/ EARN	PRICE/ BK VAL
Advantage Lithium	AAL: V	Lithium	$0.83	$0.0	nm	0.00	32.9%	$115.3	na	neg	neg	2.60
Albemarle Corp.	ALB: NYSE	Lithium	$92.74	$3,070.0	22.1%	48.13	2.6%	$10,260.0	3.34	33.75	189.27	2.79
Altius Minerals	ALS: TO	Uranium	$10.88	$45.4	34.2%	20.33	na	$470.1	13.39	32.32	22.32	1.76
Azincourt Energy Corp.	AAZ: V	Uranium	$0.10	$0.0	nm	0.00	neg	$6.6	na	neg	neg	2.27
Bass Metals, Inc. (Stratmin)	BSM: ASX	Graphite	$0.02	$0.2	nm	0.00	neg	$51.0	423.43	neg	neg	5.00
Berkeley Energia Ltd.	BKY: L	Uranium	$66.00	$0.3	nm	1185.66	neg	$162.8	354.16	neg	na	1880.00
Cameco Corp.	CCJ: NYSE	Uranium	$9.09	$1,650.0	7.6%	30.75	neg	$3,590.0	2.18	7.89	na	0.97
Dajin Resources Corp.	DJI: V	Lithium	$0.09	$0.0	nm	0.00	neg	$13.2	na	neg	neg	3.97
Eagle Graphite, Inc.	EGA: V	Graphite	$0.02	$0.0	nm	0.00	neg	$7.9	na	neg	neg	na
Energy Fuels, Inc.	UUUU: NYSE	Uranium	$1.71	$31.1	-79.4%	21.60	neg	$127.4	4.10	neg	neg	1.03
First Graphite Ltd.	FGR: AXS	Graphite	$0.13	$0.0	nm	1.05	neg	$64.8	9699.55	neg	neg	11.79
FMC Corp.	FMC: NYSE	Lithium	$76.57	$2,880.0	17.7%	118.51	neg	$10,300.0	3.58	30.70	19.19	3.84
Focus Graphite	FMS: V	Graphite	$0.04	$0.0	nm	0.00	neg	$14.9	na	neg	neg	0.60
Galaxy Resources Ltd.	GXY: ASX	Lithium	$2.27	$125.6	7.5%	0.00	0.3%	$926.1	9.65	21.19	nm	2.62
Global Li-Ion Graphite	LION: CSE	Graphite	$0.33	$0.0	nm	3.79	neg	$7.1	na	neg	neg	5.06
Graphite India Ltd.	GRAPHITE: BO	Graphite	$11.71	$1,389.7	8.0%	0.00	6.1%	$274.8	12.88	71.56	neg	8.02
Imerys Graphite & Carbon	NK: PA	Graphite	$97.07	$4,600.0	14.1%	92.21	12.7%	$7,676.2	1.36	7.19	17.19	2.20
International Lithium	ILC: V	Lithium	$0.07	$0.0	nm	181.65	neg	$6.7	na	neg	neg	3.75
Jiangxi Gangeng Lithium Co.	002460: SZSE	Lithium	$11.77	$242.9	30.5%	na	na	$8,722.3	12.24	124.14	36.23	13.20
Kibaran Resources	KNL: ASX	Graphite	$0.10	$0.3	nm	0.00	neg	$25.5	98.70	neg	neg	1.57
Leading Edge Materials	LEM: V	Graphite	$0.60	$0.0	nm	0.00	neg	$53.7	na	neg	neg	2.42
LiCo Energy Metals, Inc.	LIC: V	Cobalt	$0.07	$0.0	nm	0.00	neg	$12.4	na	neg	neg	2.16
Lincoln Materials	LML: ASX	Graphite	$0.03	$0.0	nm	0.00	neg	$15.0	na	neg	neg	1.70
Lithium X Energy Corp.	LIX: V	Lithium	$1.99	$0.0	nm	0.00	neg	$200.2	na	neg	neg	2.76
Lomiko Metals	LMR: V	Graphite	$0.07	$0.0	nm	0.00	neg	$2.8	na	neg	neg	0.36
Magnis Resources	MNS: ASX	Graphite	$0.33	$0.0	nm	0.00	neg	$183.9	na	neg	neg	11.94
Mason Graphite	LLG: V	Graphite	$1.46	$0.0	nm	9.06	neg	$197.4	na	neg	neg	5.73
MGX Minerals, Inc.	XMG: V	Lithium	$0.76	$0.0	nm	0.00	neg	$79.4	na	neg	neg	9.43
Mineral Resources Ltd.	MIN: ASX	Lithium	$13.00	$1,530.0	16.0%	18.24	19.0%	$2,434.0	2.08	9.82	14.16	2.60
Nemaska Lithium	NMX: TO	Lithium	$1.04	$0.0	nm	1.04	neg	$419.5	na	neg	neg	3.31
Neo Lithium Corp.	NLC: V	Lithium	$1.12	$0.0	nm	0.00	neg	$131.4	na	neg	neg	3.62
Neometals Ltd.	NMT: ASX	Lithium	$0.24	$0.0	nm	0.03	2.5%	$132.4	0.00	neg	80.00	2.12
NexGen Energy Ltd.	NXE: NYSE	Uranium	$1.71	$0.0	nm	115.53	neg	$566.5	na	neg	neg	5.57

Market Comparables cont.

COMPANY	SYM	SECTOR	RECENT PRICE	TRLNG REV Mill	OPER MARGIN	DEBT / EQUITY	ROE	MARKET CAP Mill	PRICE/ SALES	PRICE/ CSH FL	PRICE/ EARN	PRICE/ BK VAL
NextSource Materials	NEXT: TSX	Graphite	$0.09	$0.0	nm	0.00	neg	$41.7	na	neg	neg	na
Northern Graphite Corp.	NGC: V	Graphite	$0.28	$0.0	nm	0.00	neg	$18.3	na	neg	neg	1.48
Nouveau Monde	NOU: V	Graphite	$0.24	$0.0	nm	0.00	neg	$32.3	na	neg	neg	2.52
NRG Metals, Inc.	NGZ: V	Graphite	$0.21	$0.0	nm	0.00	neg	$25.6	na	neg	neg	45.83
Orocobre Ltd.	ORL: TO	Lithium	$4.10	$16.7	-84.3%	0.23	2.6%	$1,075.4	83.20	neg	55.79	4.94
Paladin Energy Ltd.	PDN: ASX	Uranium	$0.13	$77.8	-377.4%	0.00	na	$222.9	3.74	neg	neg	na
Peninsula Energy Ltd.	PEN: ASX	Uranium	$0.18	$15.7	-424.6%	26.97	neg	$41.8	2.64	41.68	neg	0.69
Pure Energy Minerals Ltd.	PE: V	Lithium	$0.22	$0.0	nm	0.00	neg	$29.1	na	neg	neg	1.18
SGL Carbon SE	SGLFF: OTC	Graphite	$14.89	$1,060.0	4.7%	223.34	neg	$1,770.0	1.67	16.02	10.62	4.51
Sociedad Qimica y Minera	SQM: NYSE	Lithium	$48.34	$2,160.0	29.9%	55.70	18.8%	$12,720.0	5.90	18.07	29.75	5.82
Sovereign Metals	SVM: ASX	Graphite	$0.09	$0.1	nm	0.00	neg	$25.4	561.08	neg	neg	2.50
Syrah Resources	SYR: AX	Graphite	$2.43	$1.6	-832.2%	0.43	neg	$721.5	608.61	neg	neg	2.68
Talga Resources Ltd.	TLG: ASX	Graphite	$0.64	$0.0	nm	0.00	neg	$129.0	8653.87	neg	neg	10.51
Tianqi Lithium Corp.	002466: SZSE	Lithium	$9.24	$237.7	42.0%	na	31.4%	$9,921.0	11.42	72.91	28.48	6.10
Triton Minerals	TON: ASX	Graphite	$0.06	$0.0	nm	0.00	neg	$43.6	na	neg	neg	3.70
Uranium Energy Corp.	UEC: NYSE	Uranium	$1.32	$0.0	nm	30.52	neg	$208.0	na	neg	neg	3.17
UR-Energy, Inc.	URG: NYSE	Uranium	$0.61	$38.4	3.6%	50.12	0.2%	$88.6	2.32	15.74	614.80	2.32
Youngy Co. Ltd.	002192 SZSE	Lithium	$4.55	$11.8	1.5%	0.00	na	$1,152.4	28.41	neg	1207.29	9.85
Zenyatta Ventures	ZEN: V	Graphite	$0.51	$0.0	nm	0.00	neg	$32.5	na	neg	neg	1.88
Total Group					-82.0%	44.70	11.7%	$1,452.9	792.44	35.93	178.85	43.19
Uranium Group					-139.4%	148.15	0.2%	$548.5	54.65	24.41	318.56	210.86
Lithium Group					9.2%	24.91	13.8%	$3,086.9	15.98	44.37	184.46	4.56
Graphite Group					-201.3%	14.34	9.4%	$496.3	2,229.02	31.59	13.91	6.29

Source: Company Reports, Bloomberg, LP

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Report	Date	Price	Rating	Target Price
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