

## Azarga Uranium Corp. (TSX: AZZ / OTCQB: AZZUF)

### Advancing a Low Cost Uranium Project to Production in the U.S. - Initiating Coverage

**BUY**

**Current Price: C\$0.18**  
**Fair Value: C\$0.79**  
**Risk: 5**

#### Sector / Industry: Junior Mining

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#### Highlights

- Azarga Uranium Corp. ("company", "AZZ") holds a portfolio of ten uranium assets in the U.S., five of which have a combined Measured and Indicated ("M&I") resource of 41 million pounds ("Mlbs"), and an inferred resource of 6 Mlbs U308.
- Three projects are in advanced stages, with Preliminary Economic Assessments ("PEA") showing a combined Before Tax – Net Present Value ("BT-NPV") of \$250 million, implying **AZZ's shares are trading at an Enterprise Value ("EV") of just 11% of BT-NPV.**
- AZZ is advancing its flagship Dewey Burdock project in South Dakota through advanced stage permitting to production. The project is planned to be an **In-Situ Recovery ("ISR")** operation, which has a significantly lower CAPEX / OPEX relative to conventional open-pit / underground uranium operations.
- **A recent PEA on Dewey Burdock returned an After Tax – Internal Rate of Return ("AT-IRR") of 50%, and an After Tax – Net Present Value ("AT-NPV") at 8% of \$148 million, at a price of \$55 per lb uranium, but the project's NPV is positive even at today's price (\$33/lbs).**
- The project has received its Nuclear Regulatory Commission license, and is currently **awaiting final permits** from the Environmental Protection Agency (draft permits received and management expects final permits in the near-term) and the state government to commence construction. As there are a number of active ISR operations close to Dewey Burdock, including Cameco's (TSX: CCO) Crow Butte mine, located 60 miles away in Nebraska, and the U.S. government is supportive towards uranium mining, **we speculate that Dewey Burdock will continue to move ahead towards construction / production.** Note that ISR accounts for most uranium mining in the U.S., and 57% of global production in 2019.
- The recent spike in uranium prices has brought interest back into the sector. We have a positive near-term and long-term outlook on uranium prices.
- **We estimate that AZZ is trading at \$0.60/lb versus the comparables' average \$1.46/lb.**
- We are initiating coverage on AZZ with a BUY rating, and a fair value estimate of C\$0.79 per share.

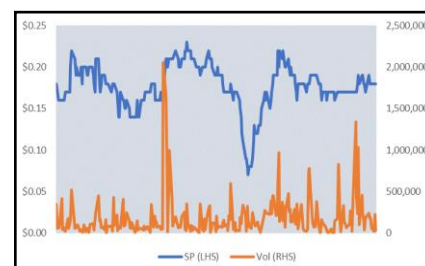
#### Risks

- AZZ's ability to advance its projects depends heavily on **uranium prices.**
- Regulatory and permitting risks.
- **Delay in receipt of permits**
- Exploration and development risks.
- As the company has not joint ventured its projects, it will not be able to simultaneously advance all of its projects.
- Access to capital and share dilution.

**Sid Rajeev, B.Tech, MBA, CFA**  
Head of Research

**Lavish Ramrakhani**  
Equity Associate

#### Price Performance (1-year)



	YTD	12M
Ret.	-13%	-3%
TSX	-3%	1%

#### Company Data

52 Week Range	C\$0.07 - C\$0.25
Shares O/S	199,406,615
Market Cap.	C\$34.90 million
Yield (forward)	N/A
P/E (forward)	N/A
P/B	0.9x

#### Key Financial Data (FYE - Dec 31)

(US\$)	2019	Q1-2020
Cash	\$184,447	\$74,156
Working Capital	-\$630,518	-\$1,048,798
Mineral Assets	\$41,440,616	\$41,626,692
Total Assets	\$41,850,626	\$41,912,779
Net Income (Loss)	-\$3,974,816	-\$206,918
EPS	-\$0.02	-\$0.00

\*See last page for important disclosures, rating and risk definitions. All figures in US\$ unless otherwise specified.

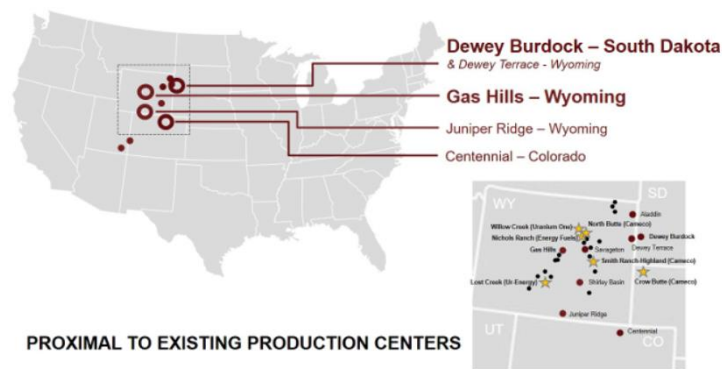
## Overview

Azarga holds a portfolio of ten uranium assets in the U.S., and is focused on advancing its flagship Dewey Burdock project through advanced stage permitting to production.

Across Dewey Burdock and four other projects in Wyoming and Colorado, AZZ holds a total M&I resource of 41 Mlbs, and an inferred resource of 6 Mlbs U3O8. **Three of these projects (Dewey Burdock and two others) are in advanced stages, with completed PEAs showing a combined BT-NPV of \$250 million, implying AZZ's shares are trading at an EV of just 11% of BT-NPV estimates.**

The company also holds five early stage exploration stage assets, including the Dewey Terrace project, which is directly adjacent to Dewey Burdock, and has potential to be a satellite deposit for Dewey Burdock. **AZZ holds a 100% interest in all projects.**

### Uranium Portfolio



PROXIMAL TO EXISTING PRODUCTION CENTERS

Ten projects, including five projects with resource estimates totaling 41 Mlbs M&I and 6 Mlbs inferred

	Tons	Grade (% U <sub>3</sub> O <sub>8</sub> )	Contained (lbs U <sub>3</sub> O <sub>8</sub> )
<b>Dewey Burdock<sup>1</sup></b>			
Measured & Indicated (ISR)	7,388,222	0.116%	17,122,147
Measured & Indicated (non-ISR)	1,097,690	0.058%	1,265,037
Inferred	645,546	0.055%	712,624
Inferred (non-ISR)	113,489	0.051%	114,858
<b>Centennial<sup>2</sup></b>			
Indicated	6,873,199	0.09%	10,371,571
Inferred	1,364,703	0.09%	2,325,514
<b>Aladdin<sup>3</sup></b>			
Indicated	466,232	0.111%	1,038,023
Inferred	42,611	0.119%	101,255
<b>Gas Hills<sup>4</sup></b>			
Indicated	2,407,000	0.098%	4,729,000
Inferred	2,324,000	0.054%	2,529,000
<b>Juniper Ridge<sup>5</sup></b>			
Indicated	5,139,000	0.058%	6,006,000
Inferred	107,000	0.085%	182,000

Source: Company

## Dewey-Burdock ISR Project

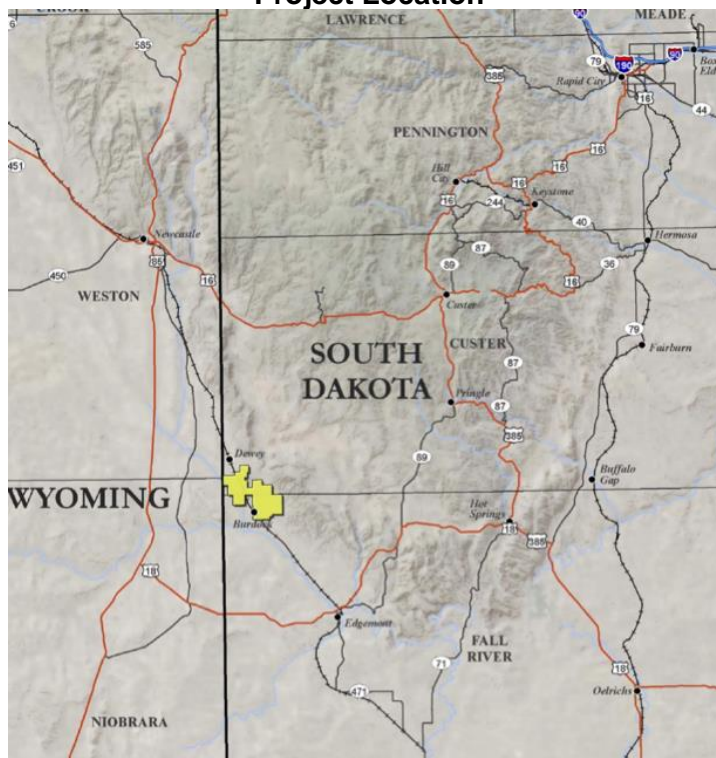
### Ownership and Location

AZZ holds a 100% interest in the project, subject to a 4.85% royalty at a uranium price of \$55 / lb.

AZZ controls approximately 16,962 acres of mineral rights and 12,613 acres of surface rights on the project. It is located in the Edgemont uranium district in South Dakota, approximately **60 miles from Cameco's Crow Butte mine in Nebraska**. Crow Butte produced 12 Mlbs of uranium (using ISR / same as AZZ's planned operations) from 1991 until Cameco suspended operations across its mines in the U.S. (all small-scale) in 2016.

*60 miles from  
Cameco's ISR mine*

### Project Location



Source: Company

Dewey Burdock's topography, which is relatively low lying, is considered to be conducive for ISR operations. The project is accessed by an all-weather gravel road, and a rail line crosses the project. If advanced to production, the PEA suggests the construction of a 15-mile power line. Water for the project can be obtained from groundwater by drilling wells.

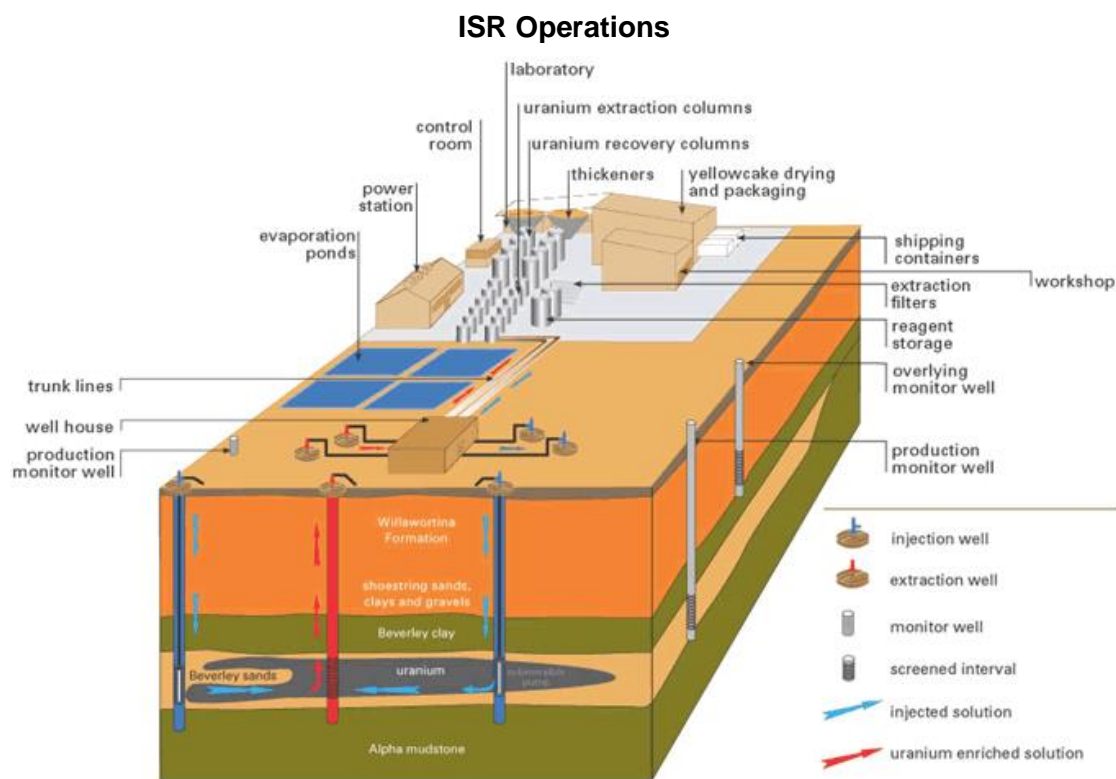
### History and Mineralization

The Edgemont district has been explored and mined for uranium since the 1950s. AZZ gained control of Dewey Burdock in 2006. AZZ and previous operators have drilled extensively on the property. Uranium in the project area **occurs in**

**sandstones as classic roll front deposits, favorable to ISR mining**, and similar to most uranium mining operations in the U.S. Mineralization is located in stacked horizons at depths of 184 to 927 ft below surface at Dewey, and from surface to 782 ft at Burdock.

### ISR Operations

Uranium is typically extracted through conventional open-pit / underground mining methods, and by in situ recovery. **ISR is used for orebodies that lie in groundwater in porous materials such as sandstone.** The extraction process involves injecting lixiviant (an oxidant-charged solution), which dissolves uranium. The resulting uranium-rich solution is pumped out, and transferred to a processing facility, where uranium will be removed via an ion exchange process. These types of deposits are very different from Canadian uranium projects, which are unconformity and basement-rock related structurally controlled deposits, subject to open-pit / underground operations. Canadian deposits tend to be of higher grade and larger, but their CAPEX and OPEX are also significantly higher.



Source: WNA / Heathgate Resources

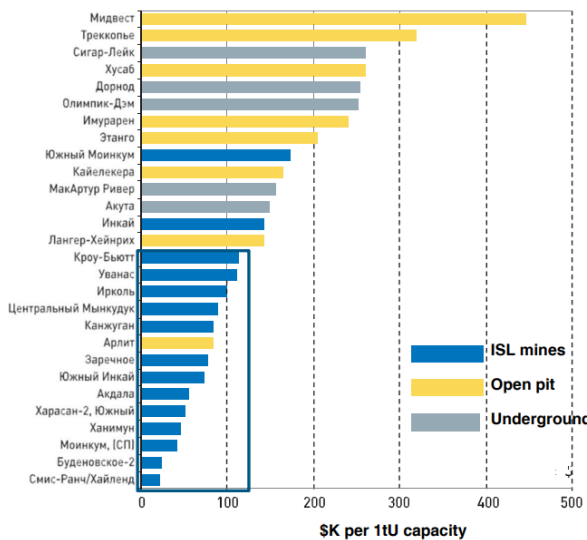
A major advantage of ISR is that there is **minimal surface disturbance, and tailings or waste rock are not generated** as in other mining methods. Another advantage, as mentioned above, is their **lower CAPEX / OPEX**, due to lower power consumption, equipment, and labor costs. For example, Dewey Burdock's initial CAPEX is just \$32 million versus a typical Canadian project's \$1+ billion CAPEX.

ISR operations also have **lower radiation exposure**, and can be advanced to production quicker.

**uraniumone™**  
investing in our energy

**Uranium Mines Specific CAPEX**

ISR operations have lower CAPEX / OPEX



- 13 of 14 mines with the lowest specific CAPEX are ISL mines
- 10 of such mines are in Kazakhstan
- \$80M is an average CAPEX estimation for 1,000tU capacity ISL mine (including \$48M for processing plant)

In 2019, 57% of global production came from ISR, up from just 16% in 2000. Most uranium mining in the U.S., Kazakhstan and Uzbekistan is by ISR. Among active / temporarily suspended operations, uranium production in the U.S. currently comes from six facilities: five ISR plants in South Dakota’s neighboring states, Nebraska and Wyoming, and one underground mine. **Five of the top ten mines in the world deploy ISR operations.**

57% of global production came from ISR operations in 2019

**Five of the top ten largest uranium mines are ISR operations**

Mine	Country	Main owner	Type	Production (tonnes U)	% of world
Cigar Lake	Canada	Cameco/Orano	underground	6924	13
Husab	Namibia	Swakop Uranium (CGN)	open pit	3400	6
Olympic Dam	Australia	BHP Billiton	by-product/ underground	3364	6
Moinkum & Tortkuduk	Kazakhstan	Orano/Kazatomprom	ISL	3252	6
Inkai, sites 1-3	Kazakhstan	Kazaktomprom/Cameco	ISL	3209	6
Budenovskoye 2	Kazakhstan	Uranium One/Kazatomprom	ISL	2600	5
Rössing	Namibia	Rio Tinto	open pit	2076	4
SOMAIR	Niger	Orano	open pit	1912	4
Central Mynkuduk	Kazakhstan	Kazatomprom	ISL	1964	3
South Inkai (Block 4)	Kazakhstan	Uranium One/Kazatomprom	ISL	1601	3
<b>Top 10 total</b>				<b>30,032</b>	<b>56%</b>

Source: WNA

**2019 Resource and PEA**

Dewey Burdock has a M&I resource of 17 Mlbs at 0.12% U3O8. Though the size and grade are low relative to certain deposits in the Athabasca basin, they are attractive for an ISR operation due to low OPEX / CAPEX.

ISR Resources	Measured	Indicated	M & I	Inferred
Pounds	14,285,988	2,836,159	17,122,147	712,624
Tons	5,419,779	1,968,443	7,388,222	645,546
Avg. GT	0.733	0.413	0.655	0.324
Avg. Grade (% U <sub>3</sub> O <sub>8</sub> )	0.132%	0.072%	0.116%	0.055%
Avg. Thickness (ft)	5.56	5.74	5.65	5.87

Non-ISR Resources	Measured	Indicated	M & I	Inferred
Pounds	857,186	407,851	1,265,037	114,858
Tons	709,748	387,942	1,097,690	113,489
Avg. GT	0.392	0.338	0.372	0.3225
Avg. Grade (% U <sub>3</sub> O <sub>8</sub> )	0.060%	0.053%	0.058%	0.051%
Avg. Thickness (ft)	6.48	6.43	6.46	6.42

Although the recent technical report stated that a recovery rate of 85% is achievable, the PEA used a conservative 80% recovery rate.

Source: Company

Dewey Burdock is divided into two areas - Dewey and Burdock (four miles apart). AZZ is planning to have a **Central Processing Facility (CPP) in Burdock, and a satellite facility in Dewey**, to be constructed in year seven of operations after mining out Burdock's resource. The CPP (which will be built over four years) will contain ion exchange circuits, an elution circuit, a precipitation circuit, and a washing / drying / packaging circuit capable of producing 1 Mlbs per year. The satellite facility will include an ion exchange circuit, and resin transfer systems; processing will be done at the CPP.

**A PEA completed in Q4-2019 was based on a 16 year mine life producing a total of 14 Mlbs.** A key highlight is its low Initial CAPEX of \$32 million, and a low cash operating cost of \$10.46 per pound. **The study returned an AT-IRR of 50%, and an AT-NPV at 8% of \$148 million at a price of \$55 per lb uranium.**

AT-NPV at 8% of \$148M and AT-IRR of 50%

Summary of Economics			
	Pre-U.S. Federal income tax at \$55/lb	Post-U.S. Federal income tax at \$55/lb	Units
Initial CAPEX	\$31,672	\$31,672	(US\$000s)
Sustaining CAPEX	\$157,682	\$157,682	(US\$000s)
Direct Cash OPEX	\$10.46	\$10.46	\$/lb U <sub>3</sub> O <sub>8</sub>
U.S. Federal Income Tax	\$0.00	\$3.39	\$/lb U <sub>3</sub> O <sub>8</sub>
Total Cost per Pound U <sub>3</sub> O <sub>8</sub>	\$28.88	\$32.27	\$/lb U <sub>3</sub> O <sub>8</sub>
Estimated U <sub>3</sub> O <sub>8</sub> Production <sup>1</sup>	14,268	14,268	Mlb U <sub>3</sub> O <sub>8</sub>
Net Earnings	\$372,738	\$324,352	(US\$000s)
IRRes	55%	50%	-
NPV <sub>8%</sub>	\$171,251	\$147,485	(US\$000s)

Mine Life	16 years (incl. 2 year ramp-up)	
Annual Production	1.0 Mlbs/yr	Initial capital costs of US\$31.7m is 'sector leading' for a project of this size
LOM Production	14.3 Mlbs	Lowest quartile life of mine uranium C1 cash costs
Initial Capital Costs	US\$31.7M (US\$2.22/lb)	US\$10.46/lb
Cash Operating Costs	US\$10.46/lb	Pre-tax IRR of 55% at US\$55/lb long-term uranium price (note: post-Federal tax IRR of 50%)
- Plant and well field operation	US\$7.58/lb	
- Restoration / de-commissioning	US\$1.17/lb	
- Site management / overhead	US\$1.71/lb	
Local Taxes & Royalties	US\$5.15/lb	Strong project economics even at low uranium prices; pre-tax IRR and NPV of US\$26.6m and 17%, respectively, at US\$35/lb long-term uranium price
Sustaining Capital Costs	US\$11.05/lb	
Pre / Post Tax NPV8% <sup>1</sup>	US\$171.3M / US\$147.5M	
Pre / Post Tax IRR <sup>1</sup>	55% / 50%	

Source: Company

As with most projects, the NPV and IRR are highly sensitive to uranium prices. **At current uranium prices, the PEA returned an AT-NPV at 8% of \$27 million; in line with the current EV of AZZ.** However, as presented later in the report, the consensus long-term forecast for uranium is \$55 per lb.

Pre-income tax NPV and IRR Sensitivity to Alternative Uranium Price Scenarios

Uranium price scenario	NPV	IRR
US\$35/lb	US\$26.6m	17%
US\$40/lb	US\$62.8m	28%
US\$45/lb	US\$98.9m	37%
US\$50/lb	US\$135.1m	46%
US\$55/lb (base case)	US\$171.3m	55%
US\$60/lb	US\$207.4m	64%
US\$65/lb	US\$243.6m	72%
US\$70/lb	US\$279.7m	80%
US\$75/lb	US\$315.9m	88%

Source: Company

### Regulatory and Permitting

Dewey Burdock is the first uranium ISR facility to submit permit applications in South Dakota. **Note that neighboring states, Wyoming and Nebraska, have active ISR operations.**

In 2014, AZZ received a 'Source and Byproduct Materials' License (a key permit for ISR operations) from the U.S. Nuclear Regulatory Agency (NRC). The remaining significant permits/licenses are:

- Final Class III and Class V Underground Injection Control (UIC) permits for ISR injection and deep disposal, respectively, are expected in the near-term; updated draft permits were issued by the U.S. Environmental Protection Agency (EPA) in August 2019.
- Water right permit, ground water disposal plan, and a large scale mine permit from the South Dakota Department of Environment (DENR); these applications have been deemed complete and recommended for approval by DENR staff. The final permits are on hold subject to completion of federal regulatory permits (NRC and EPA), and hearings with public participation.

### Permits / Licenses



Final Source & By-product Materials License

- Issued April 2014 and in good standing



UIC Class III  
UIC Class V

- Revised draft permits issued in August 2019
- Addressed majority of company's comments on initial draft permits
- Public comment period closed
- Working with EPA to obtain final permits



Ground Water Disposal Plan  
Water Rights Permit  
Large Scale Mine Plan Permit

- Applications complete and recommended for approval by South Dakota DENR staff
- South Dakota permit hearings for final approval commenced in late-2013, continuance ordered until completion of federal regulatory approvals (NRC and EPA)

Source: Company

Awaiting remaining permits to commence construction

In August 2020, the company raised \$1 million in loans (12% p.a. due February 2021) from certain shareholders to fund financial assurance bonds. This funding is required before the EPA can issue the final Class III and Class V permits.

**Although a uranium mill was previously located at the town of Edgemont, some opposition of the project exists.** Primary concerns include protection of historic and cultural resources, impact of ground water quality, and risks associated with spills from transportation of loaded resin and yellowcake uranium. The Atomic Safety and Licensing Board (“ASLB”) has ruled in favour of AZZ and NRC on all of these issues. In December 2019, AZZ announced that the ASLB **issued a decision in favor of the company and NRC**, which indicated that the project will not impact the historic and cultural resources of local tribes.

We note that the same communities challenging the development of Dewey Burdock have also been unsuccessfully challenging Cameco’s Crow Butte for some time. Also, another ISR uranium mine in Wyoming is 90 miles away.

Another positive for AZZ is the U.S. government’s support for the uranium sector. Recently, the United States Nuclear Fuel Working Group (“NFWG”) released a report outlining strategies to restore the U.S.’s nuclear energy leadership. Among a number of initiatives, three points, relevant to AZZ, stood out to us:

- The U.S. government plans to purchase uranium from domestic producers to build a reserve. The Trump government has requested for an annual allocation of US\$150 million for a 10-year period, totaling US\$1.5 billion, to establish the reserve.
- Streamlined regulatory reform for uranium extraction.
- Fund water treatment technology for uranium mining and in-situ recovery.

**Based on the above, we speculate that the probability of Dewey Burdock moving ahead is high contingent on a recovery of uranium prices. Currently, management is almost exclusively focused on advancing the permitting process, while evaluating project-financing options.**

#### **Other Projects in AZZ’s Portfolio**

In addition to Dewey Burdock, AZZ has nine other projects in the U.S.; five listed below and four additional in Wyoming, Utah and Colorado.

*Supportive U.S.  
government will  
benefit permitting*



**Other Projects**

Project	Gas Hills Project	Juniper Ridge Project	Centennial Uranium Project	Aladdin Uranium Deposit	Dewey Terrace Project
Ownership	100%	100%	100%	100%	100%
Location	Historic Gas Hills uranium district (100+ Mlbs historic production) in Wyoming	Southwest Wyoming	Northeastern Colorado	Northeastern Wyoming	Wyoming / potential satellite to Dewey Burdock
Resource	4.73 Mlbs at 0.098% Indicated + 2.53 Mlbs at 0.054% Inferred	6 Mlbs at 0.058% Indicated + 0.2 Mlbs at 0.085% Inferred	10.4 Mlbs at 0.09% Indicated + 2.3 Mlbs at 0.09% Inferred	1.04 Mlbs at 0.11% Indicated + 0.1 Mlbs at 0.12% Inferred	91 holes with 129 intercepts with average eU308 grade of 0.062% and an average thickness of 7.4 feet
PEA		BT-NPV @ 8% of \$27M, BT-IRR of 26% (\$65 /lb uranium) / Initial CAPEX of \$37M, Cash Cost of \$40/lb	BT-NPV @ 8% of \$52M, BT-IRR of 18%/ Initial CAPEX of \$71M, Cash Cost of \$35/lb, LOM Production of 9.5 Mlbs		

Source: FRC / Company

**Four of the remaining nine projects have resource estimates, and two have completed PEAs.**

In addition to moving Dewey Burdock into production, AZZ is focused on the ISR potential of its Gas Hills project. Similar to Dewey Burdock, the project hosts uranium mineralization in sandstone-hosted roll fronts. The company has also completed hydrological studies, which indicate that permeability and surface conditions are suitable for ISR uranium mining. In the past few months, the company announced that analysis of historical data has expanded the known mineralization.

Immediate plans for AZZ’s remaining projects are:

- **Gas Hills Project:** complete an updated resource estimate, continue to evaluate ISR development options, and potential to transform Gas Hills into a satellite deposit for Dewey Burdock. The two projects are approximately 400 km apart.
- **Dewey Terrace Project:** continue analysis of historical data with a goal of identifying additional uranium mineralization.

**Upcoming Catalysts:**

The following chart highlights management’s key plans / milestones.

- **Finalization of permitting at Dewey Burdock**

One of the preeminent undeveloped ISR projects in the USA

- **Renewed focus on ISR amenability at Gas Hills**

Focused on growing ISR-amenable pounds in a historic uranium district

- **Identification and quantification of uranium mineralization at Dewey Terrace**

A potential satellite project to Dewey Burdock

- **Platform for further consolidation**

Source: Company

### Management and Directors

Management and directors own 8% of the outstanding shares of AZZ.

#### Share Ownership

Management / Directors	Shares	% of Total
Blake Steele, CEO / President	7,312,396	3.7%
John Mays, COO	275,000	0.1%
Glenn Catchpole, Chairman (Independent)	1,828,326	0.9%
Matthew O’Kane, Independent Director	1,197,599	0.6%
Sandra MacKay, Independent Director	769,434	0.4%
Joseph Havlin, Independent Director	1,905,310	1.0%
Todd Hilditch, Independent Director	2,336,568	1.2%
Delos Cy Jamison, Independent Director	513,987	0.3%
<b>Total</b>	<b>16,138,620</b>	<b>8.1%</b>

Source: Management Information Circular

Brief biographies of the management team and board members, as provided by the company, follow:

#### Blake Steele - President and Chief Executive Officer

Mr. Steele joined the company in October 2014 as the Chief Financial Officer and subsequently took on the additional roles of President and Corporate Secretary, prior to becoming President and Chief Executive Officer. Prior to serving as the Chief Financial Officer of Azarga Resources, Mr. Steele worked at SouthGobi Resources (part of the Ivanhoe Mines Group) as Director of Finance and prior to that as Manager, Corporate Development. Mr. Steele began his career with Deloitte & Touche, where he worked in both the audit and financial advisory practices. Mr. Steele graduated from the University of British Columbia with a Bachelor of Commerce degree. He is a Chartered Accountant and Chartered Business Valuator in Canada.

Management and directors own 8%

**John Mays - Chief Operating Officer**

Mr. Mays brings more than 20 years of engineering experience in the uranium industry, focusing on ISR mining in both the US and internationally. He has experience in all facets of ISR mining spanning from design, construction, and operation of ISR uranium mines. From 2006 until joining Powertech Uranium, Mr. Mays served as the Chief In-situ Mining Engineer at UrAsia's three ISR projects in Kazakhstan, and later Uranium One. Prior to joining UrAsia, he held the position of Senior Mining Engineer with Searles Valley Minerals of Trona, California. Mr. Mays also held the position of Superintendent of Well Field Construction for Power Resources Inc on both their Smith Ranch and Highland Uranium Project in Douglas, Wyoming. Mr. Mays holds a Bachelor of Science Degree in Chemical Engineering and Petroleum Refinement from the Colorado School of Mines. John Mays is a licensed professional engineer in South Dakota and Colorado.

**Doris Meyer - Corporate Secretary**

Doris Meyer gained her early experience in the mining industry as Vice President, Finance of Queenstake Resources Ltd. from 1985 to 2003 and Corporate Secretary until 2004. She was the Chief Financial Officer and Corporate Secretary of AuEx from 2004 to 2010, and she played an integral role in the discussions and dealings between AuEx and Fronteer that ultimately led to the acquisition of AuEx by Fronteer. Since 1996 Doris has owned and served as President of Golden Oak Corporate Services Ltd. Doris serves as an officer and/or director of several mining companies that trade on the exchanges in Canada, London and the USA.

**Dan O'Brien - Chief Financial Officer**

Dan O'Brien is a Canadian Chartered Professional Accountant with many years of experience working with junior resource companies. Dan works for Golden Oak and serves as Chief Financial Officer for a number of publicly listed exploration companies trading on the TSX and TSX Venture exchanges. Dan was previously a senior manager at a leading Canadian accounting firm where he specialized in the audit of public companies in the mining and resource sector.

**Glenn Catchpole - Non-Executive Chairman**

Mr. Catchpole was a member of the Board of Directors and the Chief Executive Officer of Uranerz Energy Corporation ("Uranerz") from March 1, 2005 until June 18, 2015 when the company was sold to Energy Fuels Inc. for more than \$150 million creating the largest integrated uranium producer in the United States. Mr. Catchpole is a licensed engineer who holds an M.S. in civil engineering from Colorado State University. He has been active in the uranium solution mining industry since 1978, holding various positions including wellfield engineer, project manager, general manager and managing director of several uranium solution mining operations. In 1988 Mr. Catchpole joined Uranerz U.S.A., Inc. and Uranerz Exploration and Mining and became Director of Regulatory Affairs, Environmental Engineering and Solution Mining. Mr. Catchpole's responsibilities included the monitoring and oversight of the environmental and regulatory aspects of two large uranium mines in Canada and the operational aspects of one uranium solution

mine in the United States. In 1996 Mr. Catchpole was appointed General Manager and Managing Director of the Inkai uranium solution mining project located in the Republic of Kazakhstan (Central Asia). In 1998 Cameco Corporation acquired Uranerz U.S.A. Inc., and Mr. Catchpole continued his post at the Inkai Project for Cameco. Mr. Catchpole spent six years taking the Inkai project from acquisition through feasibility study, joint venture formulation, government licensing, environmental permitting, design, construction and the first phase start-up.

**Joseph Havlin - Independent Director**

Mr. Havlin has been a director of the company and audit committee chair since October 2014 and a director of Azarga Resources since 2012. Currently, Mr. Havlin is Vice President Finance with Wyo-Ben, Inc., a bentonite miner and manufacturer of drilling fluids and other bentonite based products as well as a line of drill fluid recycler and reclaimer equipment. Mr. Havlin was also a Director of eBullion, Inc., a gold and silver trading company listed on the US Over the Counter market, from 2012 to 2016. Previously, Mr. Havlin was a director of Black Range Minerals Limited, a uranium exploration and technology company listed on the Australian Stock Exchange, from March 2014 to September 2015. Mr. Havlin is a US CPA with over thirty years' experience holding senior operations and financial management positions in mining, manufacturing and other industries in both public accounting and private industry.

**Todd Hilditch - Independent Director**

Mr. Hilditch is a director of Sailfish Royalty Corp., a TSXV listed gold royalty company. He is the former President, Chief Executive Officer and a Director of Terraco Gold Corp., from 1996-2019, prior to the acquisition by Sailfish of Terraco. Until 2010, Mr. Hilditch was President, Chief Executive Officer and a Director of Salares Lithium Inc., which was acquired by Australia based Talison Lithium Limited, the world's largest lithium producer and a TSX listed company prior to it being taken over in a \$840 million take-over bid transaction. Mr. Hilditch is the President and owner of Rock Management Consulting Ltd., a private mining management services and consulting company. Over the past 20 years, Mr. Hilditch has been responsible for capital raising, negotiating, acquiring and the directing of all other aspects of managing a public company. He holds a Bachelor of Science degree from Rensselaer Polytechnic Institute in New York State.

**Delos Cy Jamison - Independent Director**

Mr. Jamison currently is the founder and principal at the Jamison Group, LLC, which specializes in complex land and resource exchanges, involving Federal assets. From 1994 to 2009, he was a founder and principal at Jamison and Sullivan, Inc., which represented local government and business interests that were before the Congress and the Executive Branch. From 1989 to 1993, he served as National Director of the Bureau of Land Management, overseeing nearly 1/8 of the Nation's surface estate and approximately 600 million acres of mineral estate.

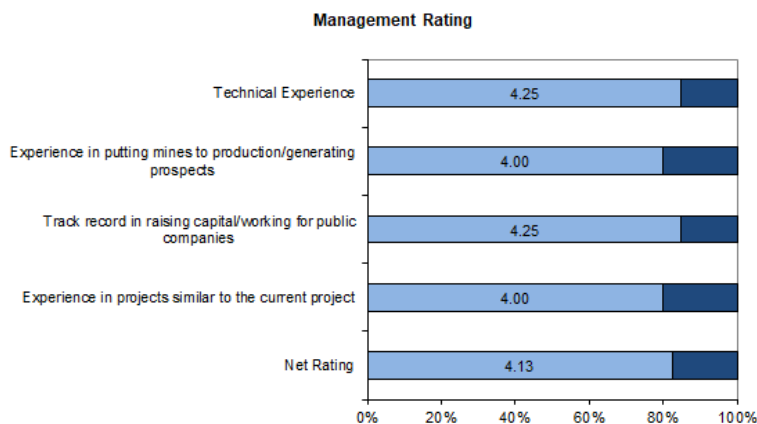
**Sandra Mackay - Independent Director**

Sandra MacKay is Vice-President, Legal & Governance, E-Comm Emergency Communications for British Columbia Incorporated since June 2019. Prior to this Ms. MacKay served as General Counsel and Chief Information and Privacy Officer to the Provincial Health Services Authority since July of 2014. Ms. MacKay has over 25 years of experience as a corporate commercial lawyer to clients in the private sector. Ms. MacKay was Senior Vice President, Legal with Uranerz Energy Corporation from 2009 to 2014. Ms. MacKay was Vice President Legal of Aker Chemetics, an international engineering technology company, from 2006 to 2009, and General Counsel 1996 to 2002. Ms. MacKay was corporate counsel to QLT Inc., a dual-listed biotechnology company 2002-2006 and Senior Legal Counsel at Chevron Canada Limited 1987-1995. Ms. MacKay practiced law at the firm of Lawson, Lundell from 1983-1987 before joining their client Chevron Canada. Ms. MacKay is a graduate of the University of British Columbia Law School.

**Matthew O’Kane - Independent Director**

Mr. O’Kane is the Managing Director of Comet Resources Limited and is a Non-Executive Director of Pursuit Minerals Limited, both listed on the ASX. He was the CFO of a large private commodities trading firm in Hong Kong from August 2014 to August 2016 and was the CFO of Celsius Coal Limited from May 2013 to August 2014, an Australian coal mining company listed on the Australian Stock Exchange. Prior to joining Celsius Coal Limited, Mr. O’Kane was the CFO of SouthGobi Resources Limited, a coal production and development company listed on the Toronto Stock Exchange and the Hong Kong Stock Exchange, from July 2011 to November 2012 and the VP Commercial Operations and Investor Relations of SouthGobi Resources Limited from January 2011 to June 2011. From 2006 to January 2011, Mr. O’Kane was the Finance Director and Executive Director of Volvo Car Australia Pty Ltd., a fully owned subsidiary of Volvo Cars Sweden.

**Our net rating on the company’s management team is 4.1 out of 5.0 (see below).**



Source: FRC

The company's board has six members, all are independent. The following table shows our analysis of the strength of the company's board.

**Strength of Board**

	Poor	Average	Good
Six out of six directors are independent			X
All six directors hold shares of the company			X
The Audit committee is composed of three board members, all are independent			X
The Compensation committee is composed of three board members, all are independent			X

Source: FRC

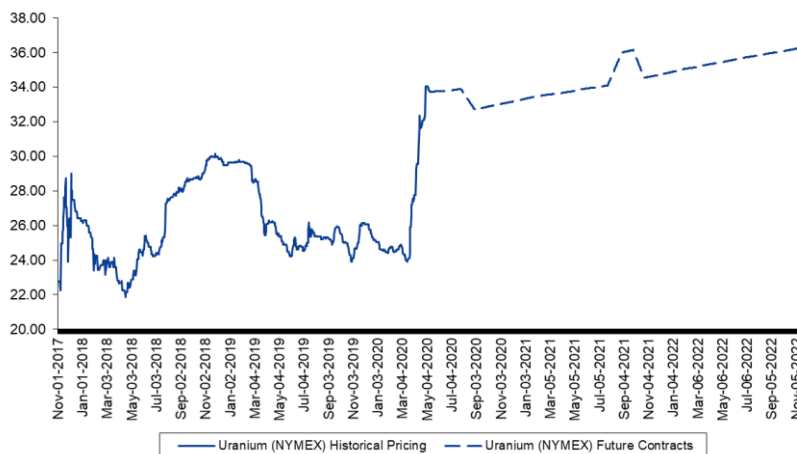
Independent board in place

**Outlook on Uranium**

Uranium prices are up 38%, from US\$24 / lb on March 23, 2020, to the current price of US\$33 / lb.

**Spot and Futures Prices**

Uranium (\*UX) (NYMEX)



Source: S&P Capital IQ

Uranium prices up 38%

The significant run in price was primarily due to the following key supply disruptions announced by major uranium producers due to COVID-19.

- Cameco (the second largest producer in the world) decided to suspend operations at its Cigar Lake uranium mine on March 23, 2020. Cigar Lake accounts for 100% of Canada's production.

- Major producing mines in Namibia also paused their production in March.
- Kazatomprom (the largest producer in the world) lowered its 2020 guidance from 50 Mlbs to 42 Mlbs.
- Production at BHP’s (ASX: BHP) Olympic Dam project (which accounted for 6% of global production in 2019) is expected to decline 11% YoY in 2020

The following image shows global production by region. Canada and Africa (where production is completely suspended) had accounted for 33% of global uranium production in 2019. **The market consensus is that 2020 production will be down 13% YoY in 2020.**

**Uranium Supply - Demand**



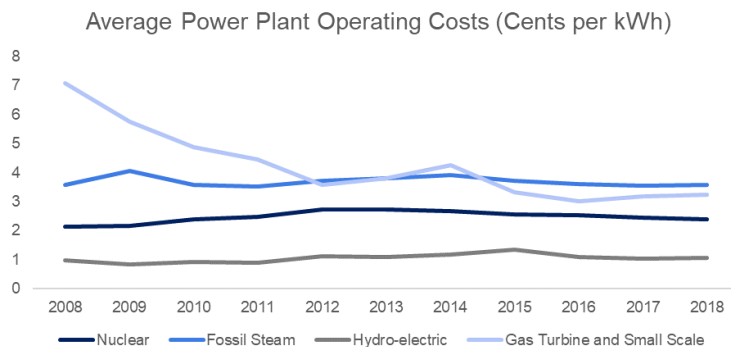
Source: Cameco

**On the demand side, power generation accounts for 99% of the global demand for uranium.** As of July 2020, 439 nuclear power reactors were in operation worldwide, totaling 389.5 GW(e) in net installed capacity, down 1.3% from December 2019. Uranium mine production satisfied 79% of the global demand (176 Mlbs) in 2019; the remaining were met by stockpiles.

As a result of the pandemic, the demand for uranium will be impacted by lower demand for electricity. The U.S. Energy Information Administration (“EIA”) estimates power generation in the U.S. will decline 3% YoY in 2020. Although nuclear power in the U.S. is currently facing competition from natural gas, which is currently at historic low prices, and from renewable sources, nuclear power continues to grow in the developing world as a **base load, carbon-free and low operating cost** source of power (see chart below).

Expecting a 13% YoY decline in global production in 2020

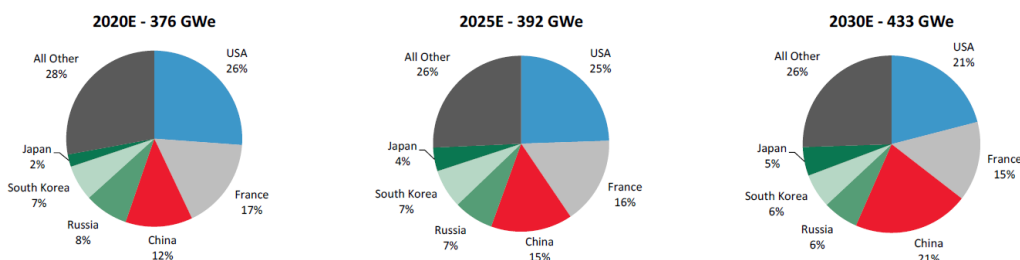
EIA estimates 3% decline in electricity consumption in 2020



Source: EIA, FRC

The following chart shows the expected increase in global nuclear power capacity.

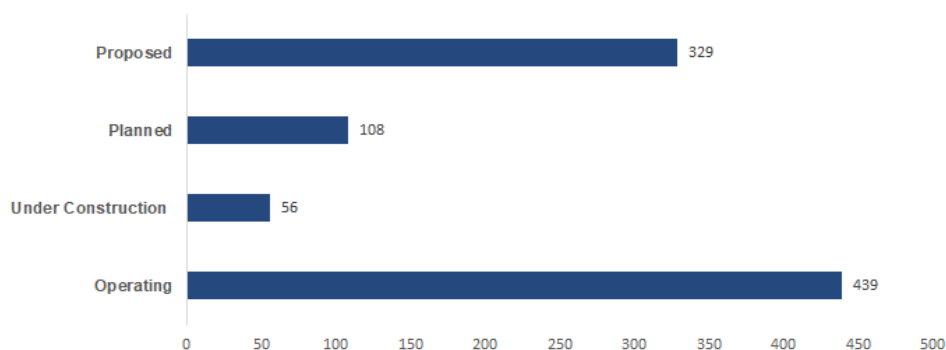
**Nuclear Power Generation Capacity by Country**



Source: UxC, Scotiabank

As per International Energy Agency’s policies, nuclear power generation capacity growth is expected to grow 25% from 2015 to 2040. The planned and under-construction reactors will bring the total number of existing reactors to 603, a 37% increase. More than half of the reactors under construction are expected to come online in two years.

**Number of Reactors as of July 2020**



Source: WNA, FRC

Based on the above, we are expecting a 50 Mlbs primary supply deficit in 2020, up from 37 Mlbs in 2019. Taking secondary supplies into consideration, the total deficit will increase from 11 Mlbs in 2019, to 26 Mlbs in 2020.



2020 to have a primary supply deficit of 50 Mlbs

	2019	2020*	% Change from 2019
Uranium Demand	176.6	171.3*	-3%
Primary Production	139.5	121.0	-13%
Secondary Production	26.0	24.0	
Primary Production as % of Demand	79.0%	70.6%	
Primary Supply Surplus (Deficit)	-37.1	-50.3	
Primary + Secondary Supply Surplus (Deficit)	-11.1	-26.3	
All Supply as % of Demand	94%	85%	

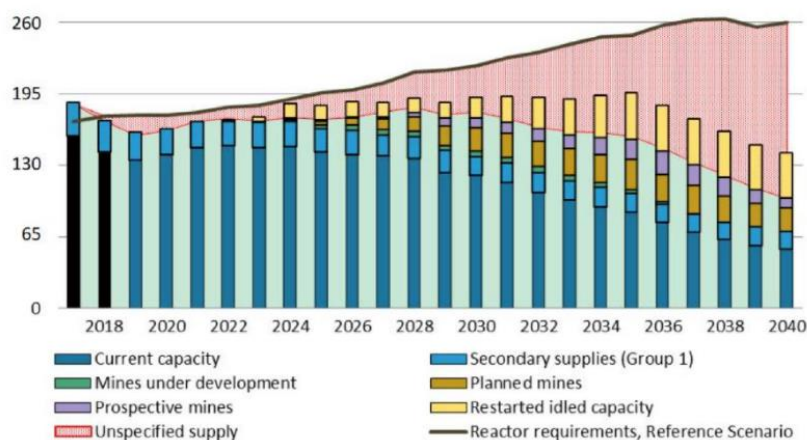
Source: FRC, WNA, UxC, TD Securities

\* Based on 3% decline in global electricity consumption

Source: FRC

Based on current supply and demand projections, the market is estimated to be in a deficit over the long-term.

**2018-2040 Uranium Supply & Demand**  
(WNA Reference Scenario, mln lbs. U<sub>3</sub>O<sub>8</sub>)



Source: Cameco, UxC, GoviEx, WNA

We maintain our positive long-term outlook on uranium prices based on the following key factors:

- Nuclear energy is a dependable and clean power source.
- Uranium has no direct substitute for use in nuclear power plants.
- A major concern regarding the supply of uranium is that it typically takes over 10 years from discovery to production for a uranium mine.
- Significant decline in exploration / development spending.
- Although capital costs of nuclear power plants are high, nuclear plants tend to have lower operating costs per unit of electricity produced (compared to other plants).
- Prices need to be much higher in order to incentivize idled and new projects to come online. Based on our review of the multiple advanced stage undeveloped projects globally, we estimate that the average uranium price used for their economic studies was US\$57 /lb.

Consensus long-term price forecasts are shown below:

Favorable short-term and long-term outlook

Uranium Price Forecast (\$/lb)	Q4-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
S&P Capital IQ (Consensus)	\$34.00	\$35.00	\$39.25	\$40.00	\$43.50	\$50.00	\$47.89	\$51.03	\$51.69	\$54.73

## Financials

At the end of Q1-2020, AZZ had cash and working capital of \$0.07 million and -\$1.05 million, respectively. We estimate the company had a burn rate (G&A) of \$76k per month in Q1-2020. The following table summarizes the company's liquidity position.

Financial Position		
(in US\$)	2019	Q1-2020
Cash	\$184,447	\$74,156
Working Capital	-\$630,518	-\$1,048,798
Current Ratio	0.25	0.08
LT Debt / Assets	-	-
Monthly Burn Rate (incl.G&A)	-\$96,224	-\$76,383
Investing Activities (exploration and development)	-\$1,214,848	-\$182,303
Cash from Financing Activities	\$2,249,616	\$245,089

Source: FRC / Company

Raised C\$1.6M in April 2020

In April 2020, AZZ **completed a C\$1.6 million financing** at C\$0.15 per unit. Each unit consisted of a common share and half of a full warrant (exercise price of C\$0.20 for three years).

**Stock Options and Warrants** - We estimate the company currently has 16.4 million options (weighted exercise price of \$0.20) and 13.64 million warrants (weighted average exercise price of C\$0.27 per share) outstanding. 4.48 million options are currently in-the-money, implying a potential to raise up to C\$0.36 million.

## Valuation

The following table shows the Enterprise Value ("EV") to resource ratios of uranium juniors. **As shown below, the average EV of uranium juniors is \$1.46 / lb versus \$0.60 for AZZ.**

### Key Junior Uranium Companies

	Location	Net Resource (Mlbs)	EV (\$M)	EV / Resource (\$ / lb)
Ur-Energy	U.S.	25	\$101	\$4.00
NexGen Energy Ltd.	Athabasca Basin, Canada	302	\$713	\$2.36
Denison Mines Corp.	Athabasca Basin, Canada	151	\$279	\$1.85
Peninsula Energy	U.S.	35	\$54	\$1.55
Fission Uranium Corp	Athabasca Basin, Canada	119	\$142	\$1.20
<b>Azarga Uranium</b>	U.S.	44	\$26	\$0.60
Laramide Resources	U.S.	69	\$40	\$0.58
Global Atomic	Africa	145	\$77	\$0.53
GoviEx	Africa	125	\$65	\$0.52
<b>Average</b>				<b>\$1.46</b>

• Net Resource = 100% Measured and Indicated and 50% Inferred Resources

Source: Various Companies / S&P Capital IQ / FRC

Our **Discounted Cash Flow (“DCF”) valuation on Dewey Burdock** is \$81 million. Our model inputs are inline with the PEA, but at a higher discount rate of 11.6% (vs the PEA’s 8%). Although we have used the same long-term uranium price of \$55 per lb, prices used in the initial years are lower as per the consensus forecasts shown below.

#### DCF Valuation - Dewey Burdock

Avg. Annual Production (Mlbs)	1
Operating Life (years)	16
LT Uranium Price (US\$/lb)	\$55
Exchange rate (C\$:US\$)	1.33
Operating Cost (LOM) in \$/lb	\$10.5
Initial Capital Cost (\$)	\$31,700,000
Discount Rate	11.6%
<b>After-Tax Net Asset Value (\$)</b>	<b>\$81,416,443</b>

Uranium Price Forecast (\$/lb)	Q4-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
S&P Capital IQ (Consensus)	\$34.00	\$35.00	\$39.25	\$40.00	\$43.50	\$50.00	\$47.89	\$51.03	\$51.69	\$54.73

Source: FRC

The following table summarizes our valuation on AZZ. In addition to our DCF valuation on Dewey Burdock, we have included our valuation on projects that have resource estimates. These projects were valued based on a comparables’ average multiple of \$1.46 per lb as presented above.

Valuation Summary	
Dewey Burdock (\$M) - DCF Valuation	\$81.42
Other Projects With Resource - Comparables Valuation	
100% M&I + 50% Inferred (Mlbs)	26
Valuation Multiple (\$/lb)	\$1.46
Fair Value of Other Projects (\$M)	\$38.12
Working Capital (\$M)	-\$0.21
<b>Fair Value of AZZ (C\$M)</b>	<b>\$158.70</b>
Shares (treasury stock method) - millions	201.97
<b>Fair Value (C\$ per share)</b>	<b>\$0.79</b>

Source: FRC

The sensitivity of our valuation to long-term uranium prices is shown below:

C\$:US\$ - 1.33	Discount Rate	Uranium Price (US\$/lb)				
		\$45.00	\$50.00	\$55.00	\$65.00	\$70.00
7.5%		\$0.90	\$0.99	\$1.09	\$1.29	\$1.39
10.0%		\$0.74	\$0.82	\$0.89	\$1.03	\$1.11
11.6%		\$0.67	\$0.73	<b>\$0.79</b>	\$0.91	\$0.96
12.5%		\$0.63	\$0.68	\$0.74	\$0.84	\$0.90
15.0%		\$0.54	\$0.58	\$0.62	\$0.70	\$0.74

Source: FRC

Based on the above, we are **assigning a fair value estimate of C\$0.79 per share**, and initiating coverage on AZZ with a BUY rating. Key catalysts for the share price include advancements in permitting at Dewey Burdock, and planned work at Gas Hills and Dewey Terrace.

## Risks

We believe the company is exposed to the following key risks (not exhaustive):

- AZZ's ability to advance its projects depends heavily on uranium prices.
- Regulatory and permitting risks.
- Exploration and development risks.
- As the company has not joint ventured its projects, it will not be able to simultaneously advance all of its projects.
- Access to capital and share dilution.

**As with most junior exploration companies, we rate AZZ shares a risk of 5 (Highly Speculative).**

**Fundamental Research Corp. Equity Rating Scale:**

**Buy** – Annual expected rate of return exceeds 12% or the expected return is commensurate with risk

**Hold** – Annual expected rate of return is between 5% and 12%

**Sell** – Annual expected rate of return is below 5% or the expected return is not commensurate with risk

**Suspended or Rating N/A**— Coverage and ratings suspended until more information can be obtained from the company regarding recent events.

**Fundamental Research Corp. Risk Rating Scale:**

**1 (Low Risk)** - The company operates in an industry where it has a strong position (for example a monopoly, high market share etc.) or operates in a regulated industry. The future outlook is stable or positive for the industry. The company generates positive free cash flow and has a history of profitability. The capital structure is conservative with little or no debt.

**2 (Below Average Risk)** - The company operates in an industry where the fundamentals and outlook are positive. The industry and company are relatively less sensitive to systematic risk than companies with a Risk Rating of 3. The company has a history of profitability and has demonstrated its ability to generate positive free cash flows (though current free cash flow may be negative due to capital investment). The company's capital structure is conservative with little to modest use of debt.

**3 (Average Risk)** - The company operates in an industry that has average sensitivity to systematic risk. The industry may be cyclical. Profits and cash flow are sensitive to economic factors although the company has demonstrated its ability to generate positive earnings and cash flow. Debt use is in line with industry averages, and coverage ratios are sufficient.

**4 (Speculative)** - The company has little or no history of generating earnings or cash flow. Debt use is higher. These companies may be in start-up mode or in a turnaround situation. These companies should be considered speculative.

**5 (Highly Speculative)** - The company has no history of generating earnings or cash flow. They may operate in a new industry with new, and unproven products. Products may be at the development stage, testing, or seeking regulatory approval. These companies may run into liquidity issues and may rely on external funding. These stocks are considered highly speculative.

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The distribution of FRC's ratings are as follows: BUY (67%), HOLD (8%), SELL / SUSPEND (25%).

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