



20 November 2018

**Share data**

Shares - m (basic/fully diluted*)	137.6m / 148.3m
52-week high/low	C\$0.20 / C\$0.45
Free float	73%
3M average daily volume	122,070
Market capitalisation (US\$m)	34
Net debt (cash) (US\$m)	7
Enterprise value (US\$m)	41
Dividend yield	0.0%
Fair Value (C\$)**	0.68

GAC valuation	C\$m	C\$/sh
BST (49%)	78	0.39
DASA DSO (90%)	24	0.12
DASA Standalone (90%)	21	0.11
Net cash (debt)	9	0.05
<b>NAV**</b>	<b>133</b>	<b>0.68</b>

\*Fully diluted, only post 2018 raise

\*\*Fully diluted, post both raises

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Source: Arlington Group, Bloomberg

# Global Atomic Corporation

Global | Mining | TSX-V:GLO

## Underappreciated cash flow generator

Many investors believe that Global Atomic Corporation (GAC) is a uranium project developer in Niger. And, indeed, it is. But that is only one part of what GAC does and we believe that investors are unaware of the fact that GAC's other business, a share in an EAF dust processing plant in Turkey, is cash flow positive and is undergoing an expansion which should make it considerably more cash flow positive.

GAC owns a 49% share in Befesa Silvermet Turkey, SL (BST), an EAF dust processor which produces up to 28Mlb per annum of payable zinc and which is undergoing an expansion to c.60Mlb pa capacity. We believe that this operation is being discounted by investors and represents considerable valuation upside.

### BST under-appreciated by the Market

We believe that the 49% share in BST, which we value at C\$76m using a 10% discount rate is under-appreciated by the market. We forecast that the expanded operation could yield annual EBITDA (GAC share) in excess of C\$17m and dividends of c.C\$10m per annum from 2020E onwards.

### Early start up Uranium-DSO potential

While the company has recently released a PEA for the DASA uranium project in Niger that supports a 4-7Mlb pa project at AISC of US\$28.51/lb (excl. royalty) for initial capex of US\$320m we believe that its early start-up DSO, toll-treating project should be the focus.

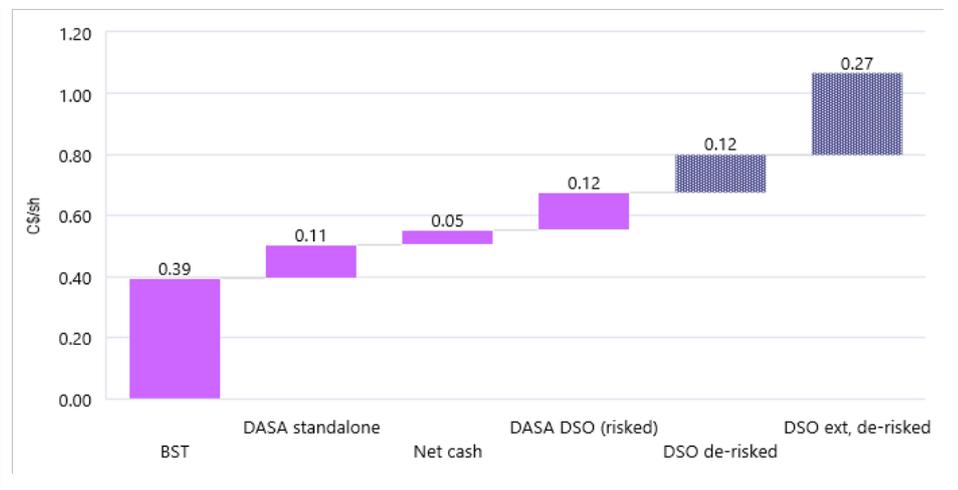
### DSO has significant value potential

The DSO project could start production in 2021 for an upfront capex of US\$35m and would involve toll-treating of ore. We believe that raising US\$35m would be viable, and we value the DSO project at C\$24m using a 10% discount rate and applying a 50% risk discount. We also note potential to extend the 5-year term of the project which would be valuation-accretive.

### Significant valuation upside

Our sum of the parts valuation uses risk adjusted DCFs for the company's three projects, which yields a total valuation of C\$133m. We fully dilute the number of shares to account for the potential for equity offerings to part-fund DASA DSO and ongoing studies, which yields a risked valuation of C\$0.68/sh. We see valuation upside from de-risking DASA and extending mine life up to C\$1.06/sh.

### Global Atomic Corporation sum of the parts\* (valuation upside in blue)



Source: Arlington Group estimates. \*Fully diluted

Prepared by Arlington Group Asset Management Limited

See important disclosures at end of this report

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## Investment Summary

Global Atomic Corporation (GAC) is a TSXV-listed company providing a unique mix of a prospective uranium development project in Niger and a cash flow generating EAF dust processing plant in Turkey, which produces zinc in concentrate.

The company was formed by the merger of Global Atomic Fuels Corporation and Silvermet in 2017.

The zinc operation, Befesa Silvermet Turkey, SL (BST), is held 49% by GAC, with Befesa, a global metallurgical company with operations in aluminium slag recycling and steel dust recycling, holding the balance. It has capacity to process 60Ktpa of EAF dust, which in 2017 yielded 28Mlb of payable zinc in concentrate. It is currently undergoing an expansion which should take capacity to 110Ktpa (c.60Mlb pa of zinc). We forecast that this could yield an annual EBITDA in excess of C\$34m on a 100% basis and a dividend payable to GAC of c.C\$11m per annum.

The DASA uranium project, located in Niger, is a development-stage underground mine project on which the Company has just published a PEA. The PEA supports production of 4-7Mlb pa of U3O8 over a 15-year mine life with All-in Sustaining Costs of US\$28.51/lb (excl. royalty), for upfront capex of US\$320m. The government of Niger will have a 10% free-carry interest in the project.

However, given the high capital cost of the project, it is our view that the company should focus on its early-start-up, low cost alternative for DASA, based on toll treatment of Direct Shipping Ore (DSO).

Management believes that the DSO project could be built for only US\$35m and that it would fulfil GAC's commitments under its Mining Agreement with the Niger government. In 2017 it signed a framework agreement with Orano Mining (formerly Areva) regarding toll-treating of ore at its Arlit mill, 80km north of DASA. The MOU was for a minimum of 100Ktpa of ore at a minimum grade of 1000ppm for five years although the Company's most recent assumptions are for 360Ktpa of ore at 3698ppm U3O8.

The biggest risk that we see for GAC is the expiration of its DASA exploration permit. The permit is due to expire on 29 January 2019, but Management is confident that, with feasibility studies underway, it can extend the permit for 12 months, giving it enough time to apply for and be granted a mining permit. Other risks are with regards to the uranium pricing environment and any geopolitical risks associated with operations in Turkey or Niger.

We value GAC using a Sum of the Parts valuation based on DCFs for the three projects, for BST at a 10% discount rate, for DASA DSO at a 10% discount rate and applying a 50% risk discount and for DASA Standalone at a 12% discount rate and with a 75% risk discount. This yields a NAV of C\$124m.

We believe that GAC will need to raise c.US\$13m of equity for the DASA DSO project (assuming that it can access debt funding for the rest of the capital requirement), which at current prices (C\$0.35) would equate to the issuance of an additional 45.7m shares. Factoring in the recent equity raise, there are currently 137.6m shares in issue, on a fully-diluted basis we use 196m shares, which makes our **risk-adjusted NAV for GAC C\$0.68**.

We note significant upside potential were the company to extend the mine life of the DASA DSO project. In our scenario analysis we model a 15-year mine life scenario which would take our risk-adjusted NAV for the project to C\$50m (C\$0.26/sh) more than double its current level which would take our risk-adjusted NAV to C\$0.81/sh (fully diluted).

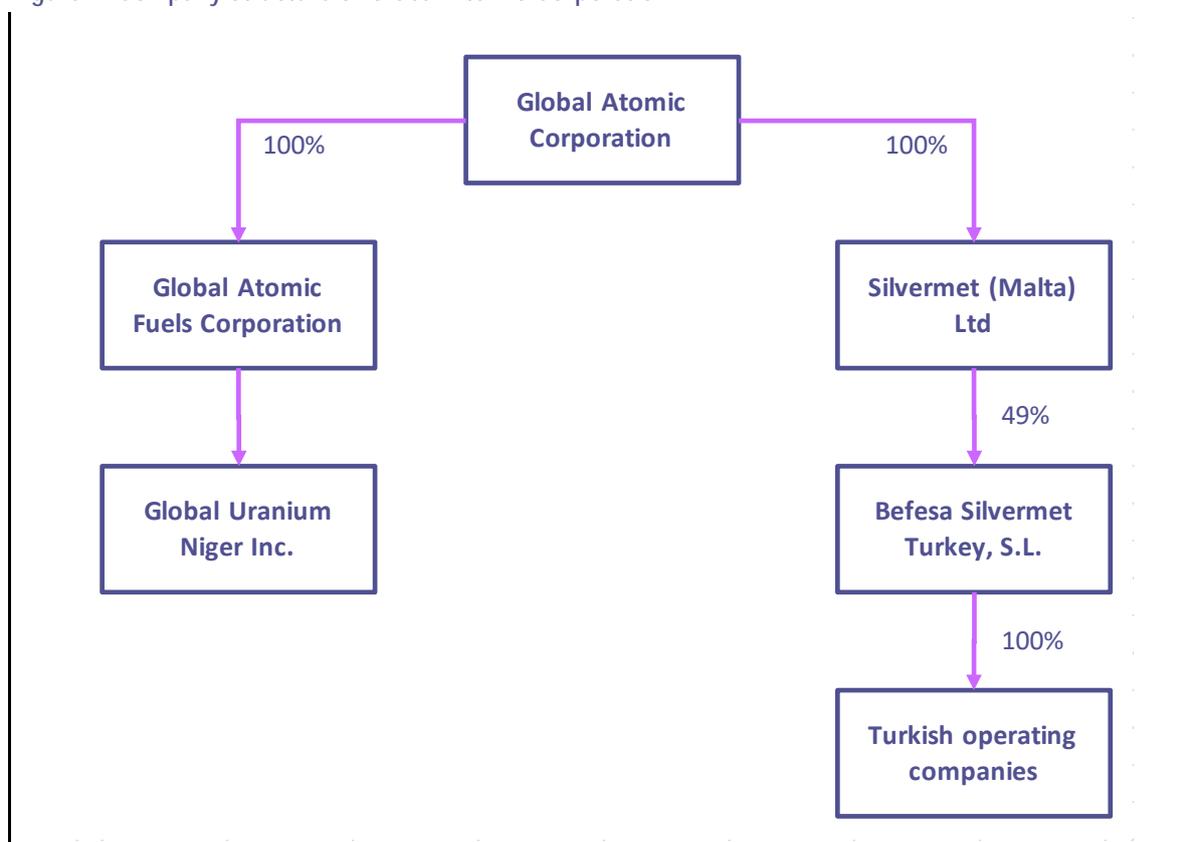
## Company description

Global Atomic Corporation (GAC), formed by the merger in 2017 of Silvermet Inc. with Global Atomic Fuels Corporation, comprises two extremely different business units.

It is perhaps most well-known for its DASA uranium project in the Republic of Niger, which boasts an NI43-101 compliant Indicated contained resource of 64.8Mlb @ 3068ppm eU3O8, with an additional Inferred resource of 48.4Mlb @ 2600ppm.

But it's other business unit, judging by the stock's current market capitalisation, is not well-recognised by investors. The company holds a 49% interest in a JV processing EAF dust in Turkey to make zinc. The operation currently produces 30+Mlb pa of zinc in concentrate and is mid-way through an expansion to 60Mlb per annum. It is cash flow positive and generating dividend income for GAC.

Figure 1: Company structure of Global Atomic Corporation



Source: Company data

## Company history

2005: Global Atomic incorporated as Global Atomic Fuels Corporation.

2005: Silvermet enters an agreement to earn an interest in the Tufanbeyli zinc oxide project in Turkey. Although the project is abandoned in 2008 it led to investigation by management of the Waelz kiln process for separating zinc from zinc oxide.

2006: Silvermet begins feasibility studies to develop Waelz kilns to process EAF dust from the Turkish steel industry as well as zinc oxide.

2007: Adra Emoles 3 and 4 uranium exploration blocks in Niger, totalling 1000km<sup>2</sup>, granted to Global Atomic Fuels Corporation.

2009: Silvermet acquires 100% of a 60Ktpa Waelz kiln facility at Iskenderun, Turkey for US\$7.7m. Facility closed due to GFC but Silvermet starts operations in May 2009.

2009: NI43-101 compliant resource estimate yielded resource of 27.9Mt @ 821ppm eU3O8 for the Adrar Emoles concession.

2010: Silvermet restructures its exposure, bringing in Befesa (a Spanish company that operates Waelz kilns throughout Europe and Korea) as a JV partner to form a JV known as Befesa Silvermet Turkey (BST). As part of the deal Befesa invests US\$10m in the plant and acquires a 51% stake in the JV and a direct 10% stake in Silvermet. Befesa becomes the operator of the Iskenderum plant (BSI).

2011: Ongoing exploration drilling identifies a new high-grade deposit (DASA) at the Adrar Emoles concession.

2012-16: Various plans to expand the JV by building additional plants or expanding the Iskenderum plant from 60Ktpa to 110Ktpa are mooted and then put on hold as the Turkish steel industry enters a downturn.

2013: Maiden MRE of 24.1Mt @ 1559ppm eU3O8 for the DASA project including both Open Pit and Underground projects. 120,000m of drilling completed.

January 2017: Updated resource for the DASA project open pit with Indicated Resources of 3.7Mt @ 2608ppm eU3O8 and Inferred Resources of 7.7Mt @ 2954ppm eU3O8.

July 2017: MOU signed with Orano Mining (formerly Areva Mining) for sale of 100Ktpa of DSO for a five-year term from the DASA project at a minimum grade of 1000ppm eU3O8 delivered to Orano's processing plant at Arlit, 80km north of DASA.

December 2017: Silvermet and Global Atomic agree to merge by way of an acquisition of Global Atomic by Silvermet.

May 2018: GAC announces expansion of BSI to take EAFD throughput to 110Ktpa from 60Ktpa, taking zinc production to 55-65Mlb pa of zinc. Cost of project estimated at US\$26m with construction expected to be completed by September 2019.

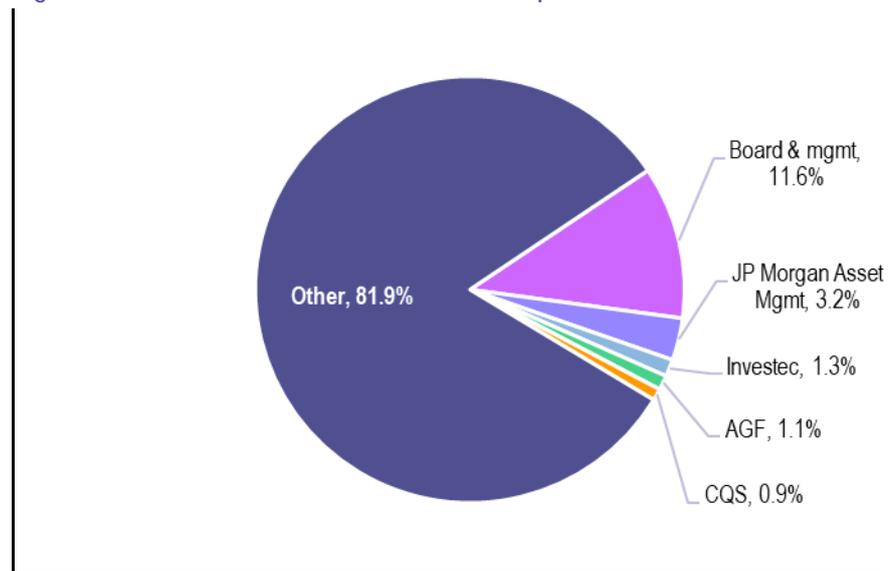
June 2018: Updated resource published for the DASA project (open pit and underground) with Indicated Resources of 9.59Mt @ 3068ppm eU3O8 and Inferred Resources of 8.44Mt @ 2600ppm eU3O8. Plans to publish PEA in Q3/18.

October 2018: PEA for DASA project released, supports 15 year project producing 4-7Mlb pa of U3O8 at AISC of US\$28.51/lb (excl. royalty) for initial capex of US\$320m.

### *Shareholder structure*

GAC is a listed company which trades on the TSX Venture exchange with symbol GLO. It has 137.6m shares in issue as well as 5.3m warrants (of which none are currently in the money) and 10.7m options (all of which are currently in the money).

Figure 2: Share structure of Global Atomic Corporation



Source: Company data

## Befesa Silvermet Turkey (49% share)

The company holds a 49% share in Befesa Silvermet Turkey (BST), a holding company for the Turkish operating companies.

Silvermet acquired an existing Waelz kiln in Iskerenderun, Turkey in Autumn 2008 for US\$7.7m. The facility had a nominal capacity of 60Ktpa of EAF dust but had suffered from a lack of funding. Operations were started at the plant in May 2009. US\$3.5m of the investment was supplied by Cooper Island Investments in exchange for a 41.5% stake in the operations.

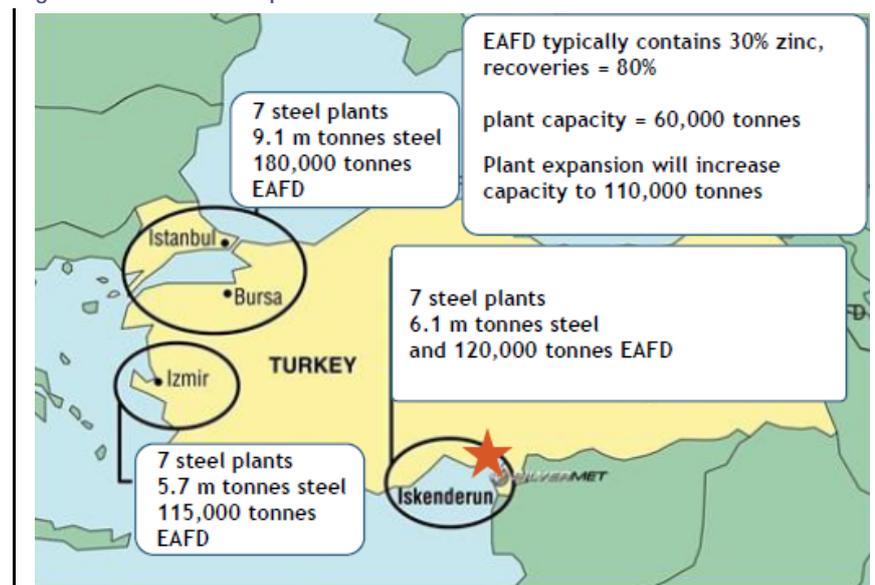
In October 2010 a JV was established with Befesa whereby Befesa acquired a 51% interest in the operations (partly via the buyout of Cooper Island) and took a 10% direct shareholding in Silvermet. Befesa invested US\$10m, US\$4m of which was used to buy out Cooper Island, and became the operator of the JV.

Weakness in the Turkish steel industry, and a decline in the availability of EAF dust, led to the shelving of expansion plans and it is only in the past two years that the company has decided to go ahead with the plan to expand capacity to 110Ktpa of EAF dust.

### Location

The operation is located at Iskerenderun on the south east Mediterranean coast of Turkey.

Figure 3: Location of operations



Source: Company data

### Turkish steel industry

70% of Turkish steel production comes from Electric Arc Furnaces (EAF). The Turkish EAF industry is concentrated in three areas; Istanbul, Izmir and Iskerenderun. There are a number of EAF dust processing facilities in Turkey:

- A facility operated by Cinkom with a 230Ktpa capacity built in the 1970s;
- An Erbosan facility located in Kayseri with 35Ktpa capacity;
- The BSI facility with current capacity of 60Ktpa which was built in 2008;

- A Marzinc facility in Karabuk with 200Ktpa capacity, owned by a group of Istanbul steel producers;
- A Turmex facility in Izmir, built in 2017 and with 110Ktpa capacity.

Given that roughly 20kg of EAF dust is produced per tonne of steel, we estimate that c.450Ktpa of EAF dust is produced by the Turkish EAF industry at 70% capacity utilisation and up to 800Ktpa of dust at full capacity utilisation. Full capacity utilisation is dependent on export demand for Turkish steel.

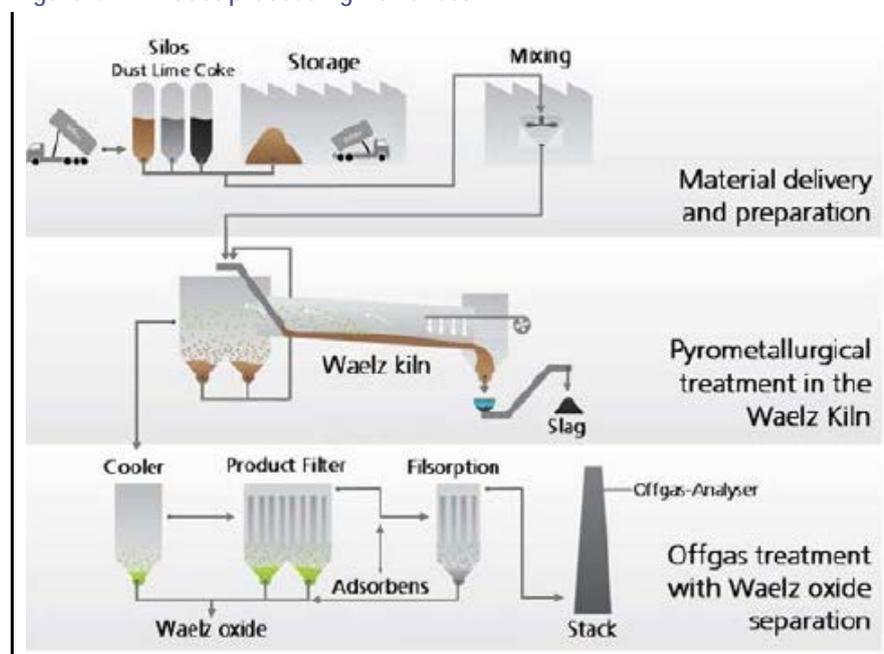
In the region of the plant there are seven EAF steel mills which generally produce c.120Ktpa of dust. There is a further EAF mill under construction by Tosyali which is expected to produce in the region of 40Ktpa of dust, meaning that there will continue to be available supply of raw material for BST, in our view.

### EAF dust processing

The Waelz process is a method used to recover zinc from metallurgical waste (in this case EAF dust) using a long, slightly inclined and refractory-lined rotary kiln.

The kiln is fed with pellets containing a mixture of EAF dust (c.22% average zinc), carbon (coke and athracite) and lime at a temperature of c.1200°C. As the feed material slowly moves down the kiln, volatile elements, mainly zinc, are transformed to gas and elements are oxidised to form a so-called Waelz oxide (WOX). WOX is captured and cooled and further processed with soda-ash to produce double-washed WOX, which is sold as a zinc concentrate (with a 65-70% zinc concentration) to smelters.

Figure 4: EAF dust processing flowsheet



Source: Company data

Although costs per unit are not disclosed, we understand that raw material costs (dust, coke, lime, soda ash) are c.60-70% of onsite operating costs.

Coke and anthracite are imported from the Ukraine (priced in US dollars) while all other raw materials are purchased locally and prices in Turkish Lira.

### Product marketing

Marketing of zinc concentrate to smelters is carried out by Befesa and all sales are in US dollars.

### Development schedule and assumptions

The JV is in the process of expanding capacity at the plant from 60Ktpa of EAF dust to 110Ktpa. The cost of the expansion is US\$26m, of which we expect US\$11m to be spent in 2018E, with the balance in 2019E. Most of the funds are due to be financed from existing cash but we forecast that the JV will need to access up to C\$6m by extending its existing credit lines.

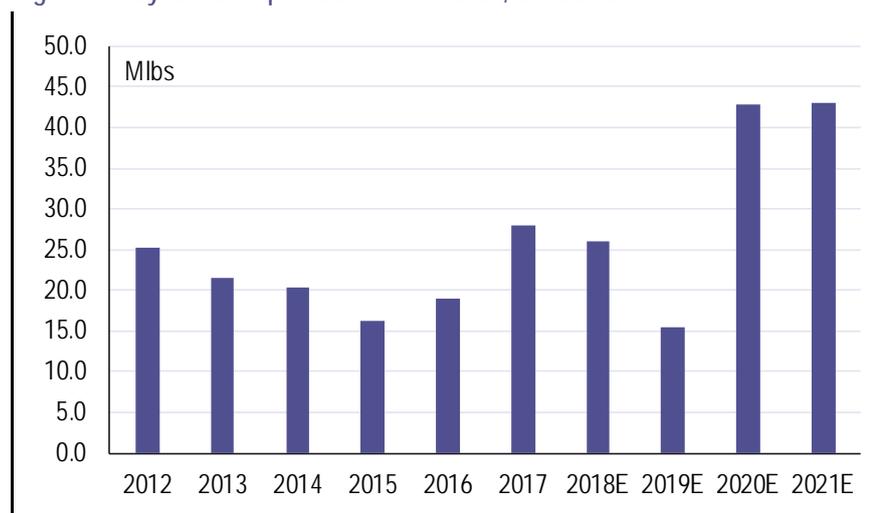
The plant is expected to have to be taken off line for 4-5 months in 2019E prior to the start-up of the new capacity.

Given that detailed cost data is not supplied, we have modelled future operations and cash flows based on the following factors:

- **Operating rate** – While an operating rate of over 100% was achieved in 2017 and 2018 is on-track for a strong result as well, we believe that an operating rate of 90% is more reasonable for long-term forecasting.
- **Zinc in concentrate grade** – We have assumed 70% for the zinc in concentrate grade (5-year range: 67-71%) and assume that the JV gets 85% payability on contained zinc.
- **Variable margin of 70%** – We assume a fixed cost base of c.C\$3m with other costs being variable and we forecast a long-term variable margin of 70% post-expansion (5-year range: 56-70%).

We value the project utilising a DCF at a 10% discount rate. Although the plant is in operation and therefore should merit a lower discount rate, we believe that its geographical location in Turkey, a country which is undergoing significant political upheavals, justifies a higher discount rate.

Figure 5: Payable zinc production from BST, 2012-21E



Source: Arlington Group estimates

## DASA Uranium project (90% share)

The DASA uranium project is located in the north central part of the Republic of Niger in West Africa. The country is landlocked with nearest neighbours being Algeria and Libya to the north, Burkina Faso and Benin to the west and Nigeria to the south.

The exploration camp is located c.100km north of the capital Agadez and 10km east of the N25 highway, which is accessible via a sand piste. The region is largely desert with an arid intermediate climate.

The project area is traversed by a 132kV powerline and, while there are no permanent surface water sources available, there are several underground aquifers at depths from 300-500m. There is a large pool of unskilled labour and, given that the Orano (ex-Cogema) uranium operations are also in the area, there is also access to skilled labour.

### *Mining legislation in Niger*

The DASA project is part of the Adrar Emoies 3 Mining Agreement, dated 25 September 2007. Exploration permits and Mining permits are granted within the provisions of a Mining Agreement, negotiated with the Ministry of Mines. Mining Agreements cover a period of up to 20 years, consisting of the Exploration period (three years plus two three-year renewals) and the first 10-year validity period of a mining permit. The Mining Agreement can then be renegotiated at each subsequent renewal.

The Exploration Permit for Adrar Emoies 3 was granted on 8 February 2008 for the first three-year period. On 16 August 2010 the Exploration Permits for each of the company's six Mining Agreements was extended as part of a force majeure provision with the first three-year renewal of Adrar Emoies 3 received on 17 January 2013 with the second received on 29 January 2016.

Upon completion of a FS, the holder of a Mining Agreement is required to apply for a Mining Permit. A separate Niger Mining Company must be established to hold each Mining Permit and the government is granted a 10% free carry in the share capital of the Niger Mining Company. At the time of the formation of the Niger Mining Company the Republic of Niger has the option to subscribe for an additional up to 30% in the Niger Mining Company but if it fails to act at this time it loses the right. The additional up to 30% share is not a free carry and the Government needs to pay a proportionate share of capital required.

A large-scale Mining Permit is valid for 10 years and may be renewed for five additional five-year periods.

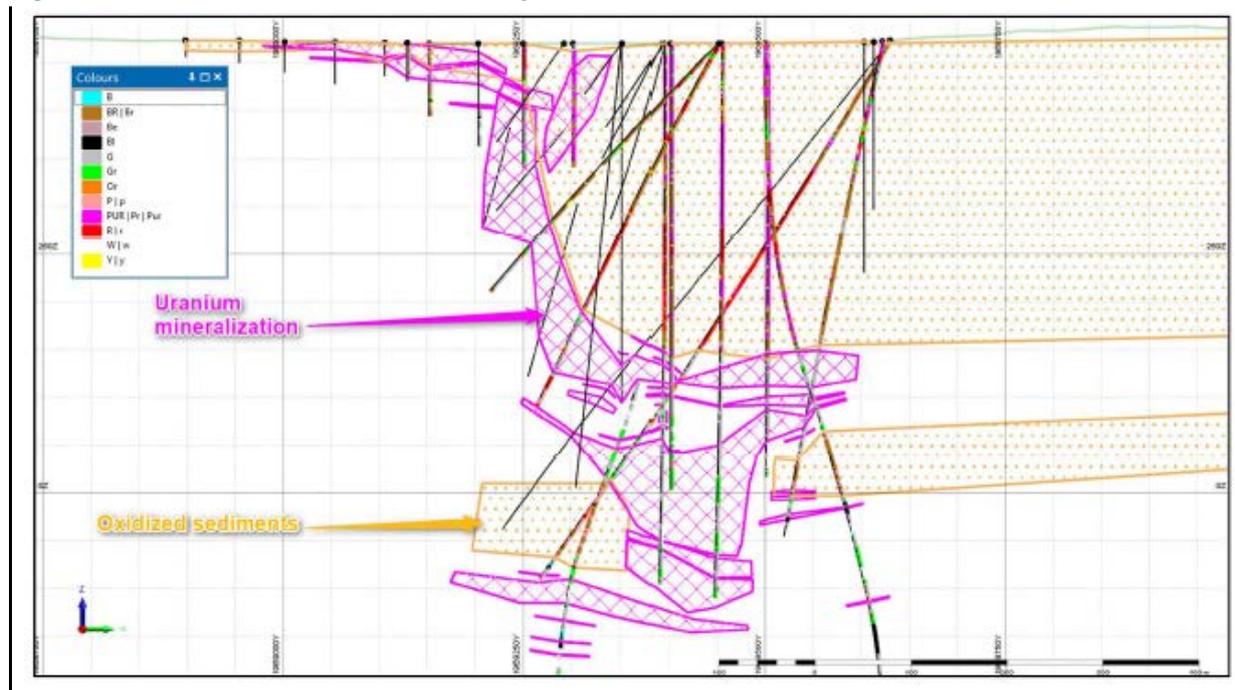
In addition to its free-carry interest and optional additional investment the Government of Niger also receives a royalty which is calculated on a sliding scale depending on mine gate profitability. The royalty is between 5.5% and 12% of revenues.

### *Geological setting*

Uranium mineralisation in Niger occurs in the sandstone units of the Tim Mersoï basin, however not always in economic concentrations and tonnage.

In the project area, and indeed elsewhere in Niger, uranium is often structurally controlled, occurring in lenses contained within northeast-southwest trending paleo channels. Mineralisation is controlled by zones of oxidation, either from surface or associated with groundwater circulation.

Figure 6: Uranium mineralisation controlled by zones of oxidation, cross section



Source: Company data

Uranium deposits hosted by sandstones make up c.30% of the world’s known uranium resources and contain up to 500Kt of uranium with average grades between 0.1-0.5% U.

### Exploration and resource

GAC started drilling on the Adrar Emoles 3 property in 2010. To date 1006 holes have been drilled for a total of c.134,600m.

The most recently released resource update was in June 2018 when a NI43-101 compliant resource totalling 18.02Mt at 2849ppm eU3O8 was published for both underground and open pit zones.

Figure 7: June 2018 NI43-101 compliant resource statement

Category	Tonnage Mt	eU3O8 ppm	Contained metal Mlb
Indicated Open Pit	7.08	3,251	50.8
Indicated Underground	2.50	2,553	14.1
<b>Total Indicated</b>	<b>9.58</b>	<b>3,068</b>	<b>64.8</b>
Inferred Open Pit	0.26	1,135	0.7
Inferred Underground	8.18	2,647	47.7
<b>Total Inferred</b>	<b>8.44</b>	<b>2,600</b>	<b>48.4</b>
<b>Total</b>	<b>18.02</b>	<b>2,849</b>	<b>113.2</b>

Source: Company data

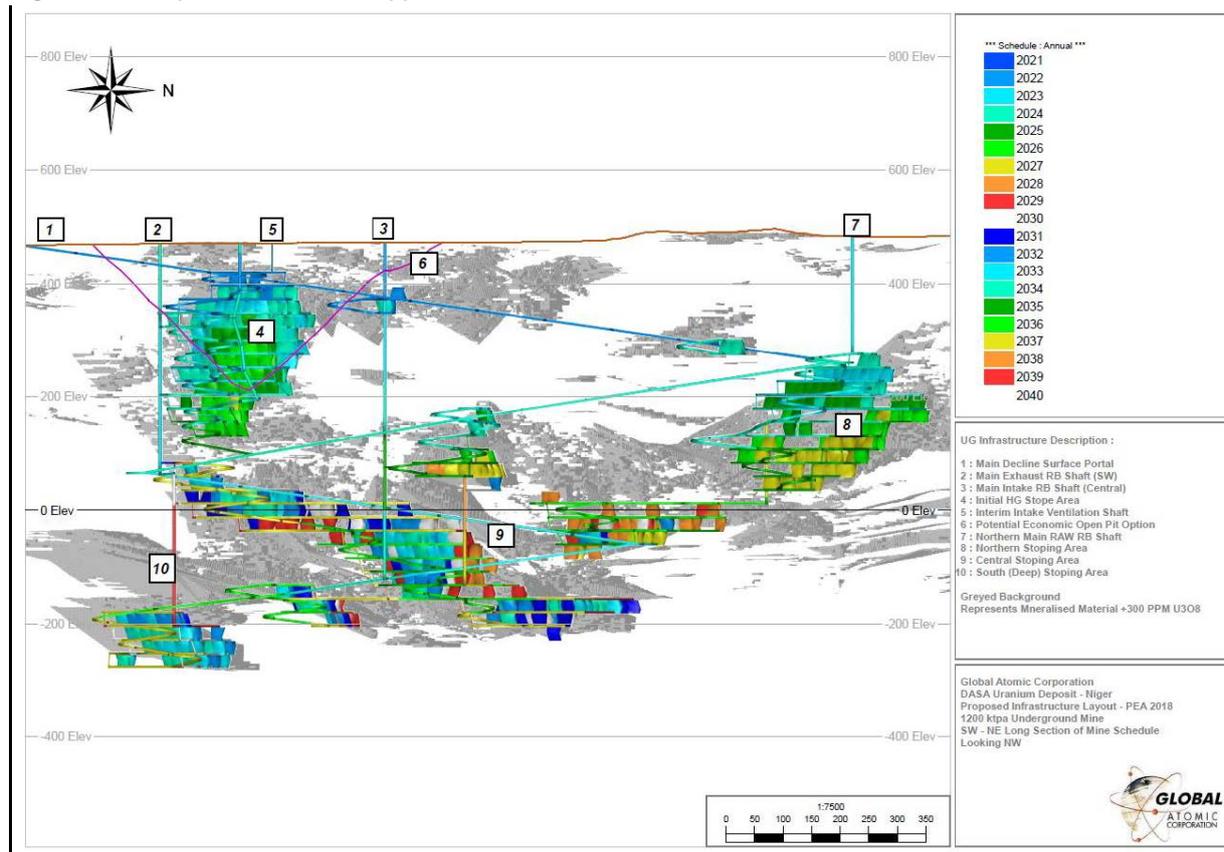
### PEA for DASA standalone

GAC published a PEA for the DASA project in October 2018. It envisages the development of an underground mine using a sub-level blast retreat and backfill mining method. Access would be via decline and standard trackless underground mining equipment would be utilised. The PEA envisages a two-stage approach:

- **Stage 1 (years 1-6):** Focus on high grade areas with 4,000ppm U3O8 feed and running at a 900Ktpa mining rate. Blending of mineralised material will be managed by stockpiling to control feed grade to the processing plant.
- **Stage 2 (years 7+):** Feed grade falls to 1,800ppm U3O8 with a 1,200Ktpa processing rate. Management hopes that additional drilling will identify further high-grade areas to extend mine life.

The figure below identifies intended mining targets (coloured) with the grey-shaded areas representing mineralisation which is not included in the mine plan.

Figure 8: Mine plan schedule (900ppm cut-off), October 2018 PEA



Source: Company data

### Processing and recovery

Mineralised material from the mine will be crushed to 200mm and then milled to a 106 micron particle size using a SAG (semi-autogenous grinding) mill. It will be slurried and then pumped to a series of leach tanks where it is mixed with sulphuric acid to leach out the uranium.

It is intended that the mine will have its own sulphuric acid plant and will simply purchase sulphur.

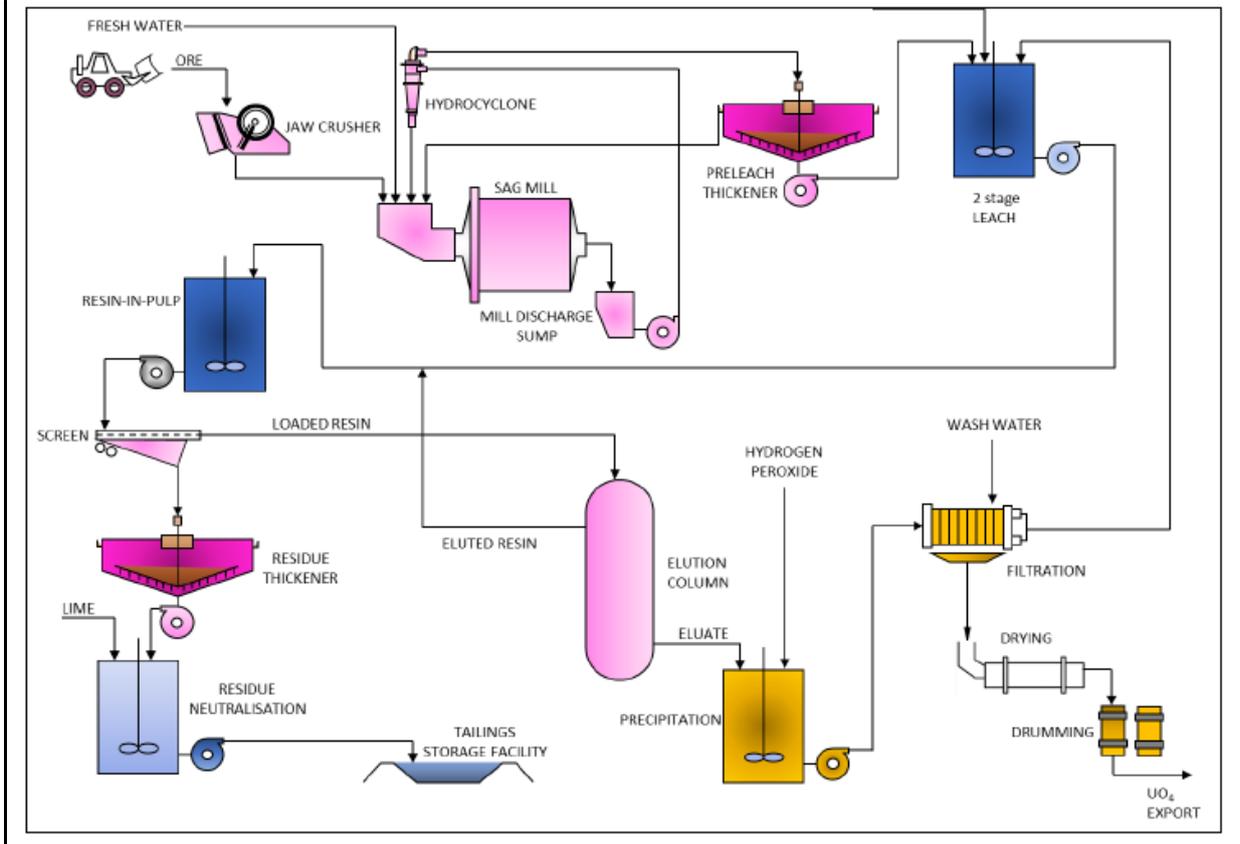
The slurry mixed with sulphuric acid is then pumped to resin tanks where soluble uranium is adsorbed onto resin beads. The barren slurry is neutralised with lime and pumped to a tailings dam for storage.

The slurry-resin mix is then screened and the uranium removed from the resin using sulphuric acid. It is then pumped to the refining stage where hydrogen

peroxide is introduced to precipitate the uranium as uranyl pentoxide (UO<sub>4</sub>) also known as yellowcake. The mixture is filtered, dried and packaged into drums for export.

Overall process recovery is modelled at 84.3% although this is likely to improve with additional testwork, according to management. Other similar mines have recovery rates in the range of 90-95%.

Figure 9: DASA process flowsheet, October 2018 PEA



Source: Company data

The plant will be run from grid power and will utilise water from local boreholes.

**Forecast costs**

Total construction costs for the DASA standalone project are cited in the PEA at US\$319.9m (including a 25% contingency). The largest part of this total is the mill, forecast at US\$141m, with mine development and surface infrastructure making up the bulk of the rest of the capex.

Figure 10: PEA capex breakdown

US\$m	PEA
Mine development	49.5
Mill	141.2
Surface infrastructure	45.4
Other costs	19.8
Contingency (25%)	64.0
<b>Total</b>	<b>319.9</b>

Source: Company data

We note the potential for capital intensity to fall if higher metallurgical recovery is attained as the project progresses through the feasibility stage.

At this stage management forecasts US\$137m of sustaining capital over the 15-year mine life.

The PEA forecasts mining costs at US\$12.26/lb U3O8 (US\$53.25/tonne) based on an owner-operator model. Process costs are calculated at US\$10.80/lb of which 66% are likely to be reagents.

Figure 11: PEA opex breakdown

	US\$/t Processed	US\$/lb U <sub>3</sub> O <sub>8</sub>
Mining	\$53.25	\$12.26
Processing	\$46.92	\$10.80
Transport and Marketing	\$6.52	\$1.50
G&A	\$8.28	\$1.91
<b>Cash Operating Cost</b>	<b>\$114.96</b>	<b>\$26.52</b>
Sustaining Capital	\$8.63	\$1.99
<b>All In Sustaining Cost</b>	<b>\$123.59</b>	<b>\$28.51</b>

Source: Company data

### *Early-startup DSO potential*

In the PEA, management has flagged an “Alternate Mining Strategy” (AMS) based on a MOU signed with Orano Mining (formerly Areva) in July 2017. Under the MOU high-grade material could be sold to Orano for toll-treating.

Because no process plant or associated infrastructure would need to be built and, indeed the volume of material mined would be less than for the Standalone mine, the capital requirement for such a project would be significantly lower and, indeed, Management forecasts it at US\$35m.

Under the MOU there would be potential to ship 360Ktpa of material (containing c.2.8Mlb of U3O8 grading 3698ppm) over a 5-year contract.

While details of the agreement still need to be negotiated between the companies, Management has indicated that mining costs would be in the region of US\$10.94/lb U3O8. GAC would likely assume responsibility for trucking and Orano would charge for processing, profit and onward transport, with a correction for recovery.

We choose to model this project on a payability basis at this stage and forecast a 70% payability for uranium produced from the operation.

Management believes that such an operation would satisfy its requirements under Niger’s mining laws and that it could permit the AMS by Q4/19 with ramp development beginning in early 2020.

### *Permit risk*

We note an issue with permit risk for the DASA project. The current permit for the exploration phase runs out on 29 January 2019. Management is, however, confident (based on discussions with the Niger government) that this can be extended for a year because feasibility studies are underway.

It expects to realise feasibility studies by June-July 2019 and believes it will take 4-6 months to obtain a mining permit, which should allow the project to be

permitted before the exploration permit expires. However, we note that any delay to this timetable could raise the risk of the company losing the exploration permit for DASA.

## DASA: Next cab off the rank?

Interest in uranium project developers has shrunk significantly in recent years as the uranium price has continued to drift down and many projects, scoped at higher uranium prices, have become uneconomic. However, what is exciting about the DASA DSO project, in our view, is that it looks very viable at uranium prices just a little higher than today's spot prices, and it can be brought into production very quickly. That, in our view, makes it unique among current project developers.

An analysis of current uranium development projects (ex-Kazakhstan) confirms that the grade of the DASA project makes it the most high-quality project in the world, outside Saskatchewan.

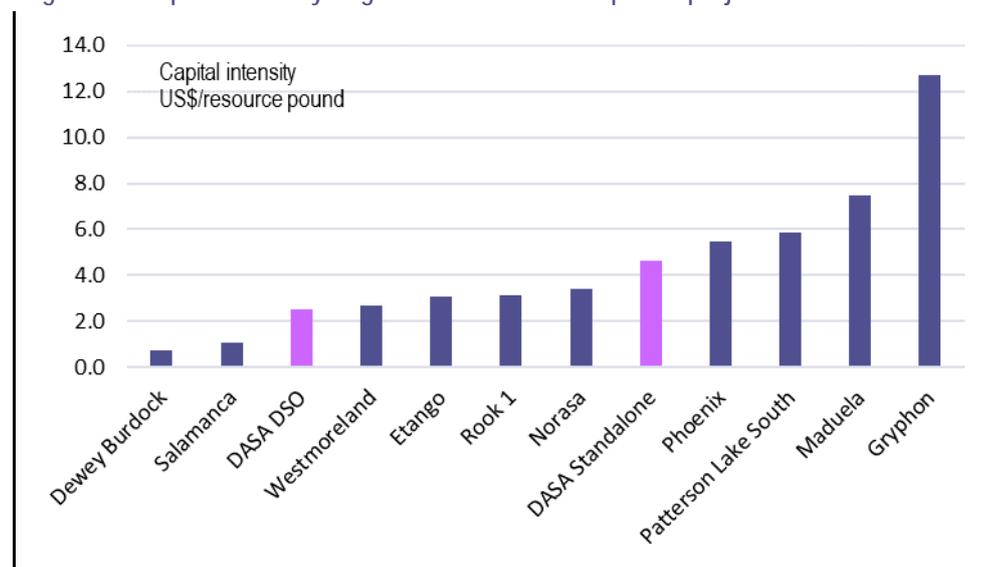
Figure 12: Global uranium development project per group comparison

Company	Asset	Location	Mine type	Initial capex	LoM cash cost	Grade MII	Resource MII
				US\$m	US\$/lb	% eU3O8	Mlb eU3O8
Denison	Phoenix	Saskatchewan	ISR	323	3.33	19.10%	59
NexGen Energy	Rook 1	Saskatchewan	Open pit	951	6.45	2.51%	302.1
Fission Uranium	Patterson Lake South	Saskatchewan	Open pit	832	14.02	1.84%	142.5
Denison	Gryphon	Saskatchewan	Underground	623	11.7	1.80%	49
Global Atomic	DASA DSO	Niger	Underground	35	NA	0.32%	14
Global Atomic	DASA standalone	Niger	Underground	320	26.52	0.23%	69
Azarga Uranium	Dewey Burdock	US	ISR	27	18.86	0.10%	37.4
Laramide	Westmoreland	Australia	Open pit	351	23.3	0.09%	129.5
GoviEx	Maduela	Niger	Open pit	358	33.78	0.08%	47.9
Berkeley Energia	Salamanca	Spain	Open pit	96	15.39	0.04%	89.4
Bannerman Resources	Etango	Namibia	Open pit	793	37.99	0.02%	257.2
Forsys Metal	Norasa	Namibia	Open pit	433	34.72	0.02%	127

Source: Company data, Arlington Group estimates

As has been discussed, the high-grade nature of the resource opens the potential for DSO shipments and a comparison of capital intensity in US\$/resource pound shows that the DASA DSO project is in the bottom quartile for capital intensity.

Figure 13: Capital intensity of global uranium development projects

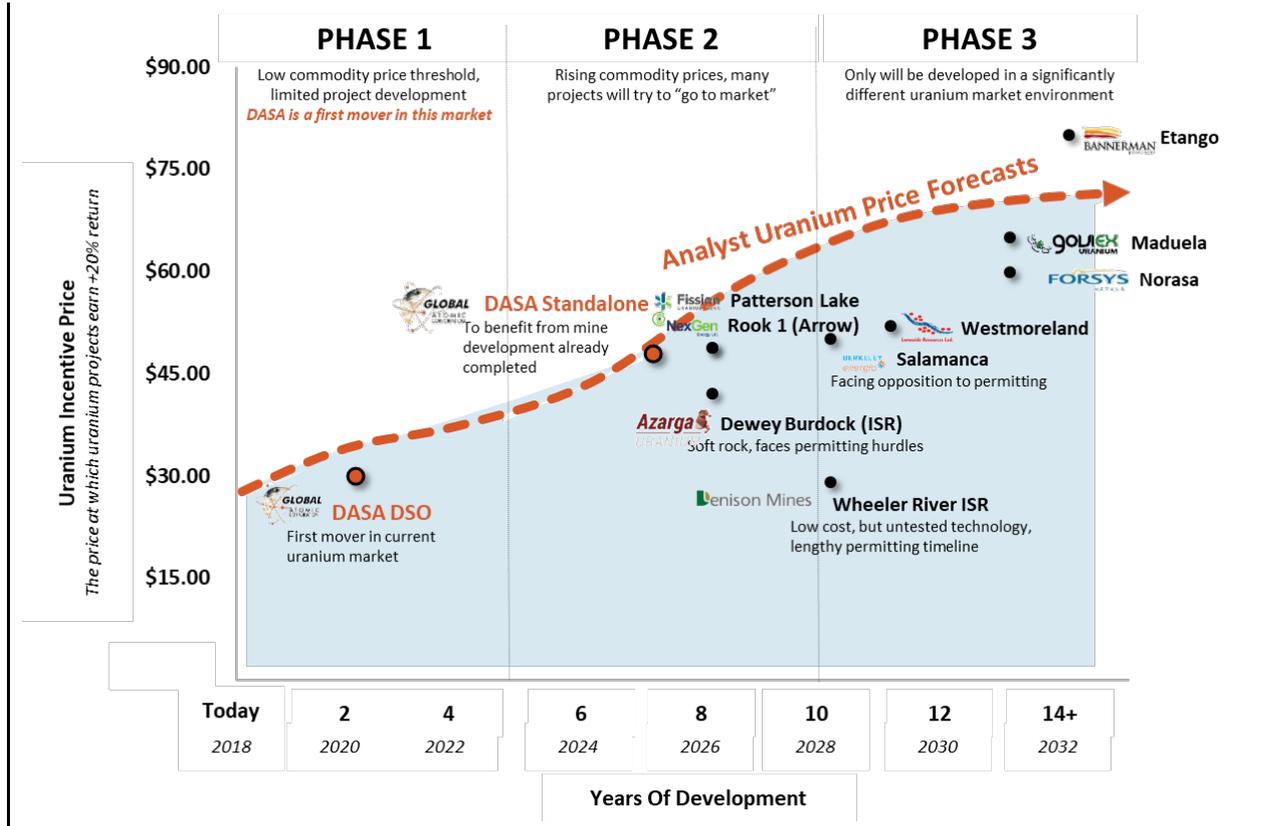


Source: Company data, Arlington Group estimates

Given this low capital intensity it is probably not a surprise then that the uranium incentive price for the DASA DSO project is one of the lowest in the market. In fact, Global Atomic calculate that the incentive price necessary for the DSO project to be developed is only US\$30/lb.

This compares extremely favourably with the rest of the uranium development projects which are currently extant and, in addition to this, because DASA DSO is such a simple project, it could be developed and in production in two years, much quicker than any of its major competitors.

Figure 14: Uranium incentive price vs potential development timeline



Source: Global Atomic Corporation

We believe that these factors set the DASA DSO project apart as a key development story into an expected uranium price recovery.

## Valuation

We value Global Atomic Corporation using a sum of the parts valuation utilising DCFs for the different project components. For the purposes of our valuation we utilise different models for the DASA DSO and the DASA Standalone project. Our key assumptions are:

- **BST:** We use a DCF for the period 2018-40E at a 10% discount rate, to reflect emerging market risk. We use an average operating rate of 89% for the forecast period, which we believe could be conservative. We forecast costs on the basis of variable and fixed costs and assume a variable margin of 70% compared to a 6-year historical range of 56-70%. We use a long-term zinc price of US\$1.10/lb.
- **DASA DSO:** We assume a 5-year life of mine plus a start-up year with capex of US\$35m and opex of US\$10.76/lb of U3O8. We forecast a flat uranium price of US\$35/lb and assume that each pound of uranium mined has a payability of 70%. Given the relatively low capex we utilise a 10% discount rate, but we apply a 50% risk discount for development and also permitting risk. We assume US\$22m of debt funding (at a 10% interest rate) and US\$13m of equity funding.
- **DASA Standalone:** We utilise the assumptions from the Company's PEA, except that we use a US\$45/lb long-term U3O8 price and a 12% discount rate to reflect the project's early stage of development, high capex and the company's lack of funds. We apply a further 75% development risk discount. We assume US\$200m of debt funding (at a 10% interest rate) and US\$140m of equity funding.

Our calculations yield a risked sum of the parts-derived NAV for GAC of C\$133m (factoring the recent equity raise). The company has a number of outstanding warrants and options, however we also factor in likely dilution from raising equity to fund DASA studies and also development equity for the DASA DSO project at the current share price. Currently we forecast a US\$22/13m debt/equity ratio which would require an additional 45.7m shares to be issued, in order to build the DSO project.

We therefore value Global Atomic Corporation at C\$0.68/share on a risked, fully diluted basis.

Figure 15: GAC risked valuation

Project	Share	Status	Discount rate	NPV / C\$m	Risk discount	NAV / C\$m	NAV* / C\$/sh
BST	49%	Operating	10%	78	0%	78	0.39
DASA DSO	90%	Evaluation	10%	49	50%	24	0.12
DASA Standalone	90%	Evaluation	12%	85	75%	21	0.11
Cash						11	0.05
Debt						-1	-0.01
<b>Total</b>						<b>133</b>	<b>0.68</b>

Source: Arlington Group estimates. \*Fully diluted for current and DASA DSO equity raise

### *DSO upside potential*

While we know that the Orano agreement is nominally for five years of toll-treating, we understand that it is for five year, *minimum*, and there may be potential to extend the term somewhat. We also believe that the DSO project

provides a much more digestible project for a company of the size of GAC than the Standalone project.

Therefore, we decided to run a scenario analysis based on an extension of the length of the agreement with Orano Mining. In our analysis we examine the potential to extend the life of the DSO project to 15 years, from the originally-mooted 5 years.

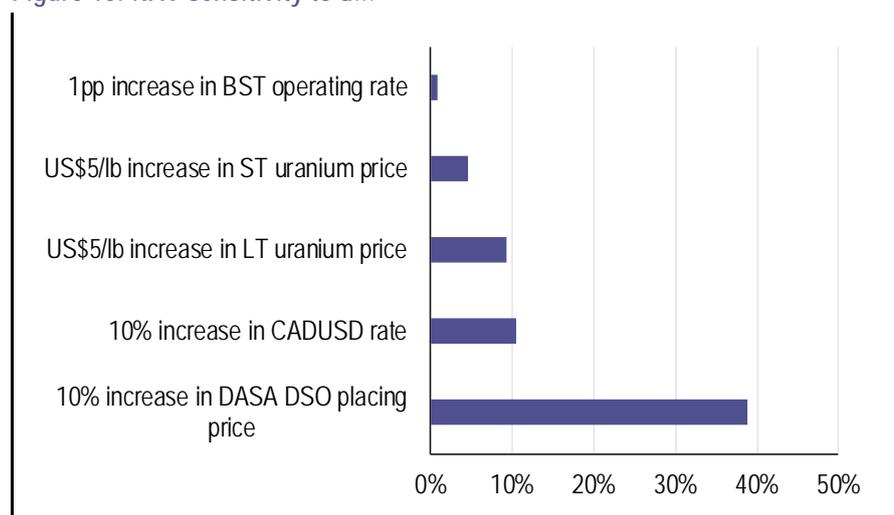
Given the need to invest in further mine development and the likelihood that haulage distances would grow over the life of a 15-year operation we have inflated the mining cost LoM to US\$10/lb (US\$8.75/lb) and increased our estimated sustaining capex.

Notwithstanding this, our calculations suggest that an extended version of the DASA DSO project would have a NAV of C\$101m and C\$50m on a risked basis, more than double our current valuation, and equivalent to C\$0.26/sh on a fully-diluted basis.

### Sensitivities

Key sensitivities are shown below:

Figure 16: NAV sensitivity to a...



Source: Arlington Group estimates

### Catalysts and Risks

#### Catalysts

- In our view, the major catalyst for GAC stock price performance is likely to be a recovery in uranium prices. Each US\$5/lb increase in our ST uranium price for DASA DSO would result in a 7% increase in our risked NAV and the same increase in our long-term uranium price would result in an incremental 11% increase in our risked NAV, taking it up by 18% altogether.
- Government approval for the exploration licence at DASA to be extended to January 2020 would remove short-term risks for the company.
- Successful completion of feasibility studies on schedule lowers the risk that the company could lose the DASA exploration licence.
- Granting of a mining permit on schedule would also lower risks.

- Further feasibility studies which improve metallurgical recoveries at DASA are also likely to be positive.
- Successful completion of the BST expansion project would also be positive.
- Positive zinc price performance will also support BST profitability.

#### Risks

- In our view the major risk would be for the company to not be granted an extension of its exploration rights for the DASA project. Given the c.US\$35m spent on the project so far and the fact that we value the DASA projects on a risked basis at C\$28/sh, comprising 37% of our risked NAV, the loss of the licence would have a significant impact on our valuation for GAC.
- In addition to this identified risk, any delays to completion of feasibility studies that would result in delays to application for the mining permit, could also result in loss of the permit for the company.
- The lack of expected recovery in the uranium price would be negative for the stock.
- As with any operating company, there are operational risks associated with the running of BST and any outages could impact profitability and hence our valuation.
- We also highlight delays in the BST expansion project which could be an issue.
- Inability to raise funds (equity and debt) for the DASA DSO project would also be a negative.
- As is normal for a company with operations in emerging markets, geopolitical risk is also a concern.

## Board and Management

**Stephen Roman, Chairman, President & CEO**, is an entrepreneur/financier involved in the resource industry for over 35 years and he has successfully identified, financed, developed, and brought into commercial production a number of mining and oil and gas projects. His past experience includes acting as a director and senior officer of Denison Mines Limited, Lawson Mardon Group, and Zemex Corporation and he led the privatisation of two major petrochemical companies in Central Europe. In recent years, he has financed and developed emerging junior exploration companies. He was Founder, Co-Chairman and Director of Gold Eagle Mines Ltd., which was acquired by Goldcorp Inc. for \$1.5 billion in August 2008 and is currently Chairman and CEO of Harte Gold Corp. He holds a Bachelor of Arts degree from the University of Guelph, Ontario in the field of Geology and Geography.

**Rein Lehari, CFO**, has been the CFO of GAC since 2017. Prior to that he was Vice President of Corporate Development and was instrumental in the acquisition of the Turkish plant in 2008-09. He is also the CFO of Harte Gold Corp. He was a Partner in the Corporate Finance group at PricewaterhouseCoopers LLP until 2002, where he specialised in the area of valuations, litigation and transaction support.

**Paul Cronin, Director**, is a mining and finance industry executive with 30 years' experience. He is currently CEO and Managing Director of Black Dragon Corp. a publicly listed gold exploration company and a Director and Founder of Adriatic Metals plc, an ASX-listed company with polymetallic projects in Bosnia and Herzegovina. Prior to this he was CEO of publicly listed Anatolia Energy Limited; a uranium exploration company with projects in Turkey which were developed and the company sold at a substantial premium to market, and Vice President at RMB Resource Fund where he originated, structured and managed debt and equity investments on behalf of the fund.

**George Flach, Director**, is a professional geologist with over 30 years' experience in the mineral exploration industry with significant exploration discoveries including the 5Moz Tarkwa Gold Mine and 3Moz Bogasu Gold Mine in Ghana, West Africa. He has served as Director & Vice President Exploration of the Company since 2005 and is responsible for exploration programs on the Company's properties.

**Derek Rance, Director**, is a Professional Engineer and principal of Behre Dolbear & Company Inc. a global mining industry consultancy. His previous experience includes acting as President and COO of Iron Ore Company of Canada, Mine Manager at the Dickenson Mine, Red Lake, Ontario, President and CEO of the Cape Breton Development Corporation and serving on the board of directors of a number of public companies including Gold Eagle Mines Ltd.

**Richard Faucher, Director**, is a retired Professional Engineer trained in metallurgical engineering. He has had extensive experience in the management of large mining and metallurgical projects and has held senior management positions in several large mining companies and metallurgical projects including serving as Vice-President, Brunswick Mining & Smelting, for Noranda Inc. and, President and General Manager Falconbridge Dominicana, a large nickel mine.

**Asier Zarraonandia Ayo, Director**, is the CEO of Befesa Zinc S.A.U. a world leader in electric arc furnace dust recycling. Formerly a senior manager, auditor and

consultant with Arthur Anderson specialising in M&A in the industrial sector, he joined Abengoa Befesa in 2001. From 2001 to 2004, he was the CFO of Befesa Aluminum Waste Recycling and from 2004 to 2006 managed the financial controlling operations for the Abengoa Group. Since 2006 he has been the Chief Executive Officer of the Befesa Steel and Galvanised Waste Recycling Business Unit. He has a degree in Economics from Basque Country University.

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