

# **Uranium Energy Corporation (UEC)**

### This Uranium Miner is Radioactive

We are short shares of Uranium Energy Corporation, a "fast growing" \$1.2 billion uranium miner that has indeed exhibited a blistering growth rate since its entry into the uranium business in 2005, but on the wrong metric – shares outstanding, the company's best-selling product, which have grown by an astounding 10x over that time. Revenue from selling mined uranium has been much less consistent, first making an appearance in Fiscal 2012 and last seen in Fiscal 2013.

Over the course of the last two uranium bull markets – in 2006-7 and 2010-11 (the latter abruptly cut short by the Fukushima accident) – UEC *completely* failed to exploit the run-up in prices, only belatedly mustering a meager half million pounds of mined uranium – unprofitably and inconsistently – between 2012-2013. While we're presently optimistic on uranium prices and believe that they need to rise to meet continued demand growth, we don't expect UEC – or its shareholders – to be any more successful this time around.

UEC has spent the last few years acquiring uranium deposits with both its expensive stock as well as cash raised by issuing its expensive stock. As we dug into UEC's deposits, we discovered that the resource edifice is just a façade. Of the company's stated 140Mlb of estimated resources in the US, *none* can be mined profitably at current uranium prices. A quarter requires conventional mining in Arizona, which is unlikely to pass profitability or environmental hurdles this century, while the rest can only be mined in-situ where low recoveries mean that less than two thirds are retrievable. Finally, only about a quarter of the resources will be economically viable even at the much higher uranium prices optimists assume will be needed to balance the market in coming years.

Meanwhile, UEC's Canadian resource portfolio – acquired last year in two transactions worth a combined \$350 million – is comprised of 5 significant assets. Like its US-based projects, none can be mined profitably at current uranium prices. Additionally, in two of them, UEC's resource estimate is overstated by 50-100%; one is too small to mine conventionally unless uranium prices triple; one was acquired for \$150 million after the informed seller marked it down to zero; and the final one is operated by Cameco, which has suggested that production will probably not get going for another 12-15 *years* (though it could take longer depending on the trajectory of the uranium price). We estimate that UEC's underlying assets are worth just over \$350 million *at best*, which is about 30% of its current market capitalization.

UEC's market capitalization, and its success in selling almost *half a billion dollars' worth of stock over the last 20 years* (excluding its initial public offering), are a testament to the triumph of the company's prolific use of paid stock promotion. Outlets shilling for UEC have spanned a wide range – from media companies founded by UEC's CEO Amir Adnani and owned by his family members to much less savory conspiracy-theory purveyors that urge their "clients" to beware of the Deep State Globalists and listen – <u>simultaneously</u> – to both Adnani and...Steve Bannon. Neither is UEC's involvement with these disreputable hawkers some sort of youthful indiscretion of its microcap past – UEC was last disclosed as paying hundreds of thousands of dollars for this kind of publicity *just last month*. These shenanigans make a lot of sense if UEC's management team believes – as do we – that the fundamentals just don't exist for real investors to be interested in the company: when you look beneath the surface of this uranium miner, there's not much there.

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### I. Investment Highlights

**UEC** is managed more like a penny-stock pump-and-dump than a legitimate mining company. Since it entered the uranium business in 2005, UEC has mined and sold a grand total of about half a million pounds of uranium, all from the small Palangana project it still owns in Texas, and all between 2012-2013. Instead of mining, a lot of effort at UEC has been expended on selling stock – \$465 million of it since, but not including, its IPO – which has been the only way to generate cash in the absence of any functional operating business. Before its recent rise to the billion dollar club, UEC languished in microcap territory for almost the entirety of its existence, during which it spent large sums – millions of dollars and hundreds of thousands of issued shares – to promote its stock to retail investors through questionable paid stock promoters. Some of these – like Blender Media and Brazil Resources – were "media service companies" actually founded by UEC's CEO Amir Adnani. The style of promotion was laid out in a 2015 lawsuit, the facts of which UEC did not even bother denying:

Uranium Energy paid, "directly or indirectly, approximately 30 different entities to publicize its stock" with a "massive promotional campaign" involving at least 40 online advertisements. The third-party promoters released these advertisements in "waves" in four different months: June 2013, May 2014, November 2014, and April 2015. Each advertisement was styled using the "guise of widely circulated 'newsletters' and 'alerts' authored by seemingly objective analysts and observers" when, in fact, "the information came, directly or indirectly, from Uranium Energy." Each advertisement relayed positive information about Uranium Energy's stock, encouraging readers to invest. In short, the amended complaint alleged a scheme to "pump" the stock price...

Some of these promotions worked, others didn't. What should concern shareholders is that UEC *still does it*. In June of last year, and with a market capitalization of about \$1.2 billion, UEC entered into a wide-ranging agreement with Gold Standard Media (GSM) – an extremely questionable network of conspiracy-theory promoting media affiliates – that would cost over half a million dollars in cash and shares and would have GSM promote stories encouraging investors to bet on uranium through UEC stock. More recently, UEC paid CarbonCredits.com \$200,000 to promote UEC stock to CarbonCredits' readers from October 2022 through February 2023. For context, UEC spent \$620,000 in capital expenditures in all of fiscal 2022, even as it told investors that the Burke Hollow project was being ramped up for production (which would require *a lot more* capex). If UEC fancies itself a legitimate miner, why does it continue to operate as if it's a dubious microcap?

The projects in UEC's two "Hub & Spoke platforms" are comprised of low-quality overstated uranium deposits that are unlikely to be mined profitably any time soon. The most noticeable promotional trick UEC plays – on both retail and institutional investors – is in its resource claims. The idea is to show a huge number of "pounds in the ground" across its project portfolio, a quantity that's often compared by sell-side analysts to a miner's market value as a heuristic to assess valuation. UEC discloses total estimated resources of 266Mlb of uranium (excluding its recent acquisition of the Canadian Roughrider project from Rio Tinto, which would



add 58Mlb to that number). In the US, it boasts of 134Mlb across a variety of projects in Texas, Wyoming, and Arizona. But even a cursory look at the composition of resources shows that the number is a joke. 37 million of those pounds are conventional deposits in Arizona which are unlikely to be mined in the next century given their extremely small size (for a conventional project) and the environmental issues involved (especially in a region where conventional mining hasn't been attempted in 75 years, during which time the population of nearby Phoenix has grown by almost 20x).

The Texas and Wyoming resource estimates are not quite as ridiculous, but they're still wildly inflated. UEC's Wyoming "hub & spoke" system is comprised of 12 different projects with 81.2Mlb of estimated uranium. Of those, *maybe* 4 – with 54Mlb of nameplate uranium – are economically viable under even the most optimistic view of the equilibrium uranium price over the medium term. Of these 4, two (Irigaray and Christensen Ranch) were estimated by prior owners to have a combined 6.6Mlb of economically recoverable resource at \$60/lb uranium compared to their 15.6Mlb total estimated resource; another (Ludeman) was estimated to have *no economically recoverable resource* at \$60/lb uranium (compared to its 11Mlb nameplate figure); and the other (Reno Creek) is actually a collection of 5 smaller deposits, 3 of which (containing about 30% of the entire project's 27.5Mlb in estimated resource) are too small to be mined economically. The 54Mlb headline number also fails to account for in-situ mining in Wyoming's particular geology, through which resources are only 55-65% recoverable as a percentage of their estimated quantities. In total, of UEC's 81Mlb in Wyoming, we estimate that less than a quarter will be recoverable, and even that will require uranium prices almost 50% higher than they are at present.

UEC's Texas hub & spoke is a lot smaller than in Wyoming, containing about 19Mlb of estimated uranium. But similar to Wyoming, about 25% of the resource – 4.5Mlb – is in 2 separate projects that are too small to mine profitably (Palangana and Salvo). Another project – Goliad with 7.6Mlb of uranium resource - hasn't been touched in 9 years and UEC has disclosed no plans for going forward with the project, possibly due to the environmental controversy that erupted over it in 2012 and 2014. The last project in the Texas hub & spoke -Burke Hollow – has recently been described by UEC as on the cusp of production, but the only recent construction on the project has been the drilling and casing of a few dozen monitoring wells. There's a lot more construction to be done and equipment to purchase – header houses, injection wells, extraction wells, and building the satellite plant – before any uranium is taken out of the ground, and it will likely take 2 years to realize any production even if UEC got started today. Considering the cost of UEC's prior production stint in Texas though – a half a million pounds at Palangana between 2012-2013, which cost close to \$60/lb to extract if you include mineral property expenditures – it's unlikely that Burke Hollow can be mined for a profit any time soon with contract uranium prices at the \$50 level. We therefore expect that it will probably be a lot longer than 2 years before any mining cash flows are realized at Burke Hollow, and even then, the profits are likely to be negligible.

In summary, if you exclude economically hopeless projects, projects with environmental issues, and the uranium resources that are logistically unlikely to be retrievable, UEC's seemingly



impressive 134Mlb of uranium resources in the US is realistically a much more trivial 25Mlb, none of which is economically feasible at the current time.

#### UEC's Canadian mining projects are worth a lot less than what it recently paid for them.

The Canadian uranium projects – all of which have been acquired by UEC in the last year in two separate transactions totaling about \$350 million – are similar to the US-based projects: the nameplate resource total claimed by UEC is a relatively large 175Mlb, spread across 5 different projects, but the reality is much less impressive.

Projects in Canada's Athabasca basin are generally conventional mining projects that require hundreds of millions of dollars of initial capital investment before a single pound of uranium is extracted from the ground. Technical consultants and geologists specializing in the Athabasca have told us that at current uranium prices, a uranium mining project needs a minimum of 150-200Mlb in estimated resources to be economically viable. To put UEC's Canadian portfolio in context, its largest project comes in at 62Mlb in estimated resources. In public – as expressed by Cameco – and in private, uranium producers and geologists agree that for medium sized projects (i.e., those in the 100Mlb range) to be economically viable, uranium prices need to remain *durably* over \$70/lb. "Durably" matters because, as we've heard from everyone involved in the Athabasca basin, it takes 8-10 *years* from when a project is set in motion to when the ore begins to come out of the ground. Smaller projects with less than 50Mlb – such as UEC's Horseshoe Raven and Christie Lake – will need uranium prices that remain *durably* much higher than \$70/lb. Considering the current \$50-55/lb range, these projects are as good as worthless on a net-present-value basis.

Beyond their small size and the length of time they would take to develop, the major Canadian projects listed by UEC come with a litany of red flags:

- Roughrider a uranium deposit in the eastern Athabasca that UEC acquired from Rio Tinto for \$146 million in October of last year. Its 58Mlb resource estimate was published by Hathor in 2011 before being acquired by Rio, which promised to re-evaluate the project upon taking ownership. Rio did conduct a reevaluation, but never published it or publicly discussed its findings. It did, however, subsequently write down the \$640 million Hathor acquisition to zero before finding a buyer UEC that has no experience with mining Athabasca.
- Shea Creek is 51% owned by Orano (the former AREVA), the project's operator. UEC discloses 47Mlb of uranium as its (49%) proportional share of resources at Shea Creek, which implies a project total of about 96Mlb. But that number is based on a technical report partly authored by geologists at UEX, through which UEC obtained its stake in Shea Creek. The project's actual majority owner, Orano, estimates the project resources at 62Mlb, 35% lower than UEX's biased estimate, with the difference resulting from more realistic technical assumptions regarding the minimum grade of economically viable ore. Orano's estimate also indicates that half the resource base is merely "inferred" rather than a higher-confidence estimate of "measured" or "indicated" resources. Shea Creek also happens to be on the western side of the Athabasca basin, 150 miles away from where all the currently-operating projects are located. The western Athabasca presently has nothing in the way of mining, milling, or transportation infrastructure, which means that Shea Creek would require



- an *incremental* hundreds of millions of dollars of investment to get going. Orano has shown minimal interest in the project, and doesn't even list it in its annual mining reviews.
- Horseshoe Raven is a project with 37Mlb of estimated uranium resource 100% owned by UEC. As with Shea Creek, an examination of the technical assumptions underlying the resource estimate shows that a more realistic resource estimate is about 50% lower. At that size, we wouldn't expect Horseshoe Raven to be economically viable for decades.

Christie Lake, with 17Mlb of resources – all in the "inferred" category – is even smaller than Horseshoe Raven and therefore close to worthless on an NPV-basis. Millennium, meanwhile, is 70% owned by Cameco giving UEC an attributable 15.8Mlb of uranium resource at its 15% stake. With about 105Mlb of estimated resource, none classified as proven or probable reserves, Cameco has said that it's currently in no rush to begin the permitting process on Millennium, so in a best case scenario UEC will see cashflows coming from 1-1.5Mlb of uranium annually beginning in 12-15 years. This is UEC's *best* Canadian asset, and yet the current value of the project for UEC is negligible.

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UEC may have been able to promote its way to a \$1.2 billion market capitalization, but there's very little of substance in the company's resource base to substantiate that valuation. Only a fraction of its US-based ISR projects will be economically viable or physically retrievable in the coming decade, while its Canadian projects are all troubled by some combination of structural lack of scale, overstated and/or uneconomic resources, uninterested operating partners, and decade-plus lead times. We expect that it's only a matter of time before UEC rightfully returns to the relative irrelevance that's a hallmark of promotional micro-cap mining companies.



# II. The Uranium Context: A Primer on Uranium Mining and its Structural Undersupply

Capitalization	Financial Results							
Share price (\$)	\$ 3.19		FY	2021	FY	2022	٦	ΓTΝ
Fully diluted shares (mm):		Revenue						
Shares outstanding	375.2	Inventory liquidation	\$	-	\$	23	\$	67
Dilutive impact of Warrants	0.6	Mined Uranium		-		-		-
Dilutive impact of Options	4.4	Operating Income	\$	(18)	\$	(23)	\$	(4)
Restricted Stock	0.8							
Total	381.0							
Fully diluted market cap (mm)	\$1,215							
Less: net cash	40							
Enterprise value	\$1,176							

Uranium, in the large quantities in which it's mined across the globe (about 150Mlb annually), has a single end-use: generating power. The nuclear fuel cycle starts with mining uranium out of the ground and milling it into uranium oxide  $(U_3O_8)$ , which is dried and stored in drums as a concentrate often referred to as yellowcake. This point in the fuel cycle is the end of the line for UEC, which stores and sells yellowcake as its final product. Larger miners like Cameco have the capabilities to go a few steps further in the fuel cycle, refining uranium oxide into uranium dioxide or uranium trioxide, then converting it into uranium hexafluoride, which is shipped to uranium enrichment facilities. The enriched uranium is made into fuel pellets for use in nuclear reactors.

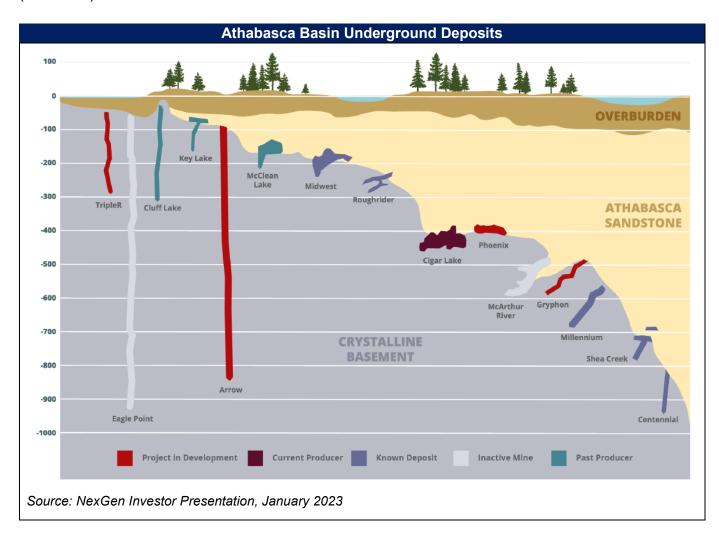
Uranium to be mined can be found in <u>all kinds of deposits</u>. UEC's projects in the US are all sandstone uranium deposits that are mined through in-situ leaching (ISL, also known as in-situ recovery, or ISR), while their recently acquired projects in Canada are all <u>unconformity</u>-related deposits in the Athabasca basin, which have historically been mined conventionally.<sup>1</sup>

Conventional mining is probably what you think of when you think of "mining." The open-pit version of conventional mining is characterized by collecting ore – soil or rock – easily accessible on the surface of a particular area or region. The underground version of conventional mining, which is relevant for Canadian uranium deposits, is characterized by the building of a usually complex infrastructure that includes a system of tunnels and shafts to access ore that's buried underground and then brought to the surface for refining. In the case of uranium mining in the Athabasca, underground mining is somewhat complicated by the two

<sup>&</sup>lt;sup>1</sup> The geological details here are beyond the scope of this summary and we discuss them below when relevant.

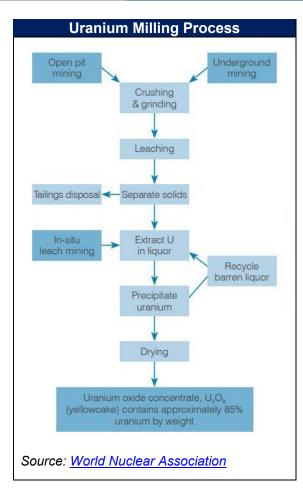


different layers that hold the uranium: the sandstone layer at the surface, which is made up of relatively porous rock, and the basement layer, which is made up of harder and less porous rock. Some of the most significant deposits in the world – including Cigar Lake and MacArthur River, both operated by Cameco – sit right on the unconformity, where the sandstone meets the crystalline basement, and contain uranium-rich ore in both the sandstone and basement layers (see below).



Conventionally mining these deposits requires years of exploration, environmental planning, regulatory approval, and usually close to a billion dollars (sometimes more) of *initial* capital expenditures to build out the underground infrastructure before a single ton of ore is removed from the ground. The initial expense is positively correlated to the depth of the deposit (the deeper, the more expensive the infrastructure is to arrange) and also depends on its placement within either the sandstone or basement layer (or both). The porosity of sandstone actually makes it more difficult to mine and therefore more expensive, and a deposit ensconced within *both* layers can be more expensive still (requiring differing mining and buildout methods for each kind of rock). Even within the basement layer, the actual rock in which the uranium is contained can be more or less amenable to mining depending on its consistency.

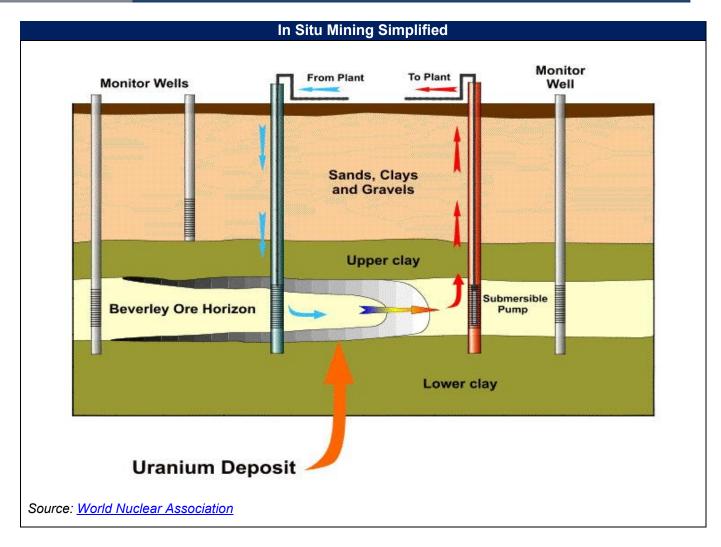




Ore that's brought back to the surface is then milled (see on the left): first, the ore is crushed and ground, then leached in tanks with an acid (or alkaline, depending on the ore) solution (known as a lixiviant) that dissolves the uranium oxides. The uranium-rich solution is filtered and chemically processed (this is where the "ion exchange" – IX – process occurs) to extract the uranium, after which it's precipitated and then dried into vellowcake. The rock and soil left over from this process called tailings – require careful attention from the miner given its potential environmental impact, and a major part of the regulatory process is dedicated to settling on an environmentally acceptable tailings management strategy that will also be agreeable to the local indigenous population. It's also worth noting that the mill itself can cost \$300 to \$500 million depending on both the quantities and qualities of the ore it can process. On the eastern side of the Athabasca basin there are currently 3 major mills, two operated by Cameco and one by Orano. In combination, the three mills are licensed to process about 70Mlb annually.

Uranium deposits in Wyoming and Texas, where UEC's US-based projects are located, are very different from those in the Athabasca. Whereas the latter ore grades are in the 2-20% range, ore grades in the US-based deposits are in the 0.02-0.1% range. The deposits in the US also tend to be located underground within sandstone layers that are highly porous. As a result, the mining here is done "in situ" – literally in the ground. The ISL process begins with strategically surrounding as much of the deposit as is economically feasible with injection wells, through which an alkaline-based solution is pumped into the deposit. The idea is to replicate the first few conventional milling steps on the ore while it's still in the ground. As the lixiviant solution makes its way through the porous sandstone, it picks up the uranium and is then extracted by a system of extraction wells that are strategically arranged within the deposit. The extracted solution is then processed the same way the "pregnant" uranium-rich solution is processed in the Athabasca mills, resulting in stored yellowcake.





Because the uranium extraction is done in the actual ground, there are some unique considerations involved in mining uranium in-situ. From an environmental perspective, there are no tailings to manage so the environmental impact is theoretically minimized, which partly explains how UEC and its management have claimed the ESG mantle for the company's operations. Unfortunately, that oversimplifies the environmental impact because in-situ miners have to make sure that the lixiviant they're pumping into the ground doesn't seep outside the bounds of the deposit, especially if there's a possibility that they'll end up in aquifers that supply potable water for farming or drinking. In theory, that means that in-situ mining is usually restricted to deposits that sit on top of some non-porous geological layer (so that contaminated water doesn't seep *downward*). It also means that miners must set up monitoring wells around their injection/extraction wells to ensure that any contaminated liquid doesn't seep *laterally* outside the bounds of the deposit area. In practice, a particular deposit's geology is rarely so manageable and environmental impacts can be ambiguous (and therefore contentious).

Leaching the uranium while it's still under the ground also affects recovery rates. In a conventional setting, the entirety of the ore can be soaked in lixiviant and mineral recovery rates can approach 100%. In-situ, there are two primary mitigants to realizing high rates of recovery.



First, the arrangement of the wells can be optimized, but it can almost never be arranged economically such that it captures 100% of the deposit (underground deposits are not neatly and symmetrically arranged after all). Moreover, "sweep efficiency" is never 100% because the lixiviant can never traverse all of the underground ore, and the extraction wells can never pick up all of the pregnant solution. As a result, miners evaluating the economic feasibility of a project in an in-situ setting will typically assume recovery rates in the 55-75% range. In the case of UEC, this is important because its nameplate resource estimates are not comparable to resource estimates in a conventional setting because a significantly smaller proportion of resources are actually retrievable for in-situ projects. Of course, that hasn't stopped the company from touting its headline resource estimates and even implying that recovery rates are comparable to conventional deposits.

A final consideration for in-situ projects in the US is that the actual deposit quantities are a lot smaller than those in Athabasca. These can still be economically profitable to mine because the initial capital expenditures required for in-situ mining are a fraction of those required to mine conventionally. Rather than requiring the build-out of a durable long-term underground infrastructure, in-situ projects require drilling holes, inserting wells, and constructing header houses on the surface to which those wells are attached. The header house complex is equipped to manage the flows of liquids being injected and extracted at the deposit site and monitor their composition. While a central processing plant (CPP) is still required to process the pregnant uranium solution, there's no need to build out the capability to crush and grind and soak hundreds of tons of ore *daily*, and the uranium concentrations are a lot lower, which means that safety expenditures can be commensurately lower. The price tag on an in-situ CPP therefore runs in the \$50-100 million range rather than the \$300-500 million range in Athabasca. UEC owns two such facilities — one in Irigaray, Wyoming and the other in Hobson, Texas, each of which can process about 1.5 million pounds of uranium annually.

In the case of UEC's Wyoming and Texas projects, the deposits are geographically dispersed within about 100 miles of each respective CPP, which necessitates the construction of a satellite plant at each deposit location. The satellite plant does the processing up to and including the IX stage, at which point the uranium is "stored" on resin beads and transported to the CPP for final processing into yellowcake. The geographic dispersion is an important aspect of UEC's resource base because it means that each deposit (and some individual projects are themselves composed of a few disparate deposits) requires the \$10-15 million expenditure on a satellite plant, which raises the bar quite significantly on the economic viability of small deposits.

### Uranium is Structurally Undersupplied and the Price Has to Increase

A full discussion of the supply/demand balance in uranium markets is outside the scope of our discussion of UEC. The broad contours of the situation can be summarized as follows:

<sup>&</sup>lt;sup>2</sup> The World Nuclear Association's <u>description of in-situ mining</u> has a short explanation of the different kinds of well patterns that optimize the quantity of uranium extracted within the system.



- Uranium production from mining is expected to reach about 130-140Mlb in the current calendar year, increasing to 170-180Mlb over the next 3 years from major re-starts (brownfield) of mine production that was shuttered in the post-Fukushima uranium bear market.
- "Secondary supply" uranium reprocessing and re-enrichment of nuclear "leftovers" will
  probably provide about 25Mlb annually, though that's expected to decline by 5-10% by the
  end of the decade.
- Reactor demand is expected to be about 180-190Mlb of uranium in the current year, and is
  expected to increase at a low single digit rate as more reactors go online (primarily in China)
  over time.

The structural imbalance in the market is reflected in the expected undersupply of about 30Mlb in the current year, lessening to 15-20Mlb annually as brownfield restarts come back online. Current inventories will probably be able to satisfy that imbalance, but while global inventories are presently estimated to stand at about 3 years of current demand, that's the lowest level of inventories in 15 years. Add into the mix the recent popularization of financial products (ETFs and operating companies) whose sole purpose is to hold physical uranium for investment purposes, and there's the possibility that the imbalance could get markedly worse at least temporarily. That could be reflected in spikes in the spot market, which will almost certainly be short-lived given the existence of the inventory buffer (at a high enough price, utilities will part with their current inventory and contract for future deliveries to make up for short term sales on spec). But the combination of a structural supply shortfall and declining inventories makes us optimistic regarding the prospect of the uranium price increasing from the current \$50/lb level over the next few years.

Commodity bull markets have historically created opportunities to invest in best-of-class operators dedicated to extracting those commodities. In the uranium space, there's little doubt that Cameco and Kazatomprom are the public markets "pure play" investments that meet that description. We also expect that NexGen and, to a lesser extent, Denison, will meaningfully contribute *profitably* to global production in coming years. But commodity bull markets also tend to create opportunities for less reputable characters with structurally unprofitable projects to sell delusional stories to unwitting investors. UEC has been doing this with uranium almost since it was founded about 20 years ago. But with the most recent run-up in uranium prices, which began in March of 2020 and accelerated with last year's Russian invasion of Ukraine and the interest in less-carbon-intensive energy production, UEC's stock price has increased by more than 7x and its market capitalization by about 16x. That compares to a doubling of the uranium spot price and a 60% increase in uranium contract prices. UEC remains a company still run by the same promotional management team, though, with a slightly newer but still low-quality asset base, almost none of which we expect will be mined profitably at any point in the current uranium upcycle.



# III. UEC and its Management Have an Embarrassing History of Stock Promotion that They Continue to Pursue

UEC management would like investors to believe that the company is a serious player in the uranium mining arena. But it isn't. In fact, UEC in its early years could be best characterized as a penny stock promotion. As we discovered, the company and its management – particularly CEO Amir Adnani – haven't really shed that baggage.

UEC was founded in 2003 as "Carlin Gold" and switched into the uranium business one year later. Adnani, who co-founded the company and took over the reigns as CEO in early 2005, also founded Blender Media in 2004, together with his father in law, Alan Lindsay, who happened to be the chairman of the board at UEC for the decade up to 2015 (at which point he resigned). Blender was "a Vancouver-based company that provides strategic marketing and financial communications services to public companies and investors in the mineral exploration, mining, and energy sectors" according to UEC's 2007 10-K. Those services seem to have emphasized stock promotions to retail investors, and Forbes described Blender in 2013 as "an investor relations firm catering to speculative Vancouver mining companies." Though UEC's disclosures explain that Amir's direct involvement in Blender ceased in 2006, his family members took over the company and UEC has paid Blender millions of dollars in cash and shares over the last 15 years in "general and administrative expenses," which according to this 2015 lawsuit, were comprised of stock promotions.

In recent years, UEC has diversified its promotional efforts:

- In early 2021, UEC <u>appeared</u> on the "Bell2Bell" podcast produced by InvestorBrandsNetwork (IBN), a stock promotion outfit that works with <u>dozens of penny</u> stocks. UEC paid IBN about \$60,000 for the opportunity.
- In July of 2021, O/M Partners <u>featured Amir</u> on its "6 Minute CEO" YouTube series. O/M
   advertises itself to public companies as a "marketing consultancy in the business of starting
   conversations with investors" that has "amassed a data base of 35,000 mainstream retail
   and institutional investors." We couldn't find an explicit disclosure regarding just how much
   UEC paid for this marketing.
- On June 2, 2022, UEC entered an agreement with Gold Standard Media (GSM), a kind of affiliate network of "doom and gloom" penny-stock promoting media. In return for about 83,000 UEC shares plus reimbursement of all marketing expenses, GSM would promote UEC as an investment across its network. UEC-themed material has appeared on GSM affiliates like <a href="SHTF Plan">SHTF Plan</a> (which <a href="recommends UEC shares">recommends UEC shares</a> to fend off Russia and China teaming up to create a new reserve currency), Future Money Trends (exhorting investors to "LISTEN TO STEVE BANNON AND THE LEGENDARY AMIR ADNANI!"), Crush The Street (with helpful technical analysis of UEC's stock chart), and Wealth Research Group (which

<sup>&</sup>lt;sup>3</sup> While UEC's motion to dismiss was granted, UEC didn't object because the allegation wasn't *true* but because its actions weren't "materially misleading" and didn't obviously cause any losses.

<sup>&</sup>lt;sup>4</sup> Though the absolute dollars involved were negligible in the last disclosed fiscal year (2022) at \$9,000, UEC paid Blender \$98,000 in FY 2020 and \$77,000 in FY 2021.



- <u>pitched UEC</u> as simultaneously a "top growth stock" *and* a "deep value opportunity"). The GSM disclaimer helpfully notes that it has "been previously compensated by Uranium Energy Corp for agreements that have since expired."
- The agreement with GSM also allows GSM to outsource some of the promotional services, which UEC would reimburse. The variety of GSM disclosures suggests that other outfits that promoted UEC stock with GSM as an intermediary include Morris Media (<u>five times at a cost of almost \$100,000</u>), SGT Report (<u>three times</u> at the bargain price of about \$12,000, which makes sense considering that <u>UEC pitches</u> get published alongside headlines like "The Zionist Cabal's Bloodlust for WW3"), Luke Rudkowski (who leads the infamous <u>We Are Change</u>), and several other small-time penny stock promoters.<sup>5</sup>
- Most recently, UEC paid media company CarbonCredits.com \$200,000 "for a 4 month period beginning on 10/12/2022 to publicly disseminate information about Uranium Energy Corp., via digital communications." An ESG-themed stock promotion company, CarbonCredits is published by Steen Rasmussen, who's also a VP of Special Situations at Katusa Research, another stock promoter that sells a "premium research newsletter" and other content from Marin Katusa. Marin has a long history of promoting UEC, even featuring Amir and UEC at his "Silver & Gold Summit" in 2019 in a panel titled "Uranium Wars." Katusa last pitched UEC in his Real Vision "Masterclass on Natural Resource Investing." Bringing the UEC stock promotion history full circle, Katusa was also once featured in a panel about US Energy Policy, along with Adnani and UEC chairman Spencer Abraham, sponsored by none other than Blender Media, all of which seems like too much to be a coincidence.

Needless to say, spending millions of dollars (and granting hundreds of thousands of shares) on stock promotion through disreputable self-dealing penny-stock scammers is not the province of companies with respectable operating businesses.

UEC's management team is also heavily involved in two other mining companies, which also make use of the services of most of the stock promoters listed above:

- Uranium Royalty Corporation (URC) "the first and only pure play uranium royalty company" according to its website. URC was founded by Adnani, who is the current chairman, and lists UEC as its initial shareholder and strategic partner (UEC owns 15 million shares). Scott Melbye, who holds the executive VP position at UEC and has spoken on its behalf on the conference circuit, is also the CEO of URC. URC theoretically functions as a portfolio of uranium mining royalties and uranium-related equities, but in reality most of its value comes from its ownership of actual uranium and fractional royalty claims on two of the largest North American uranium mines. It also owns small royalty claims on some UEC projects, but as we discuss in this report, there really aren't any UEC projects that are worth much.
- Goldmining Inc (GLDG) a gold mining <u>company</u> that "is acquiring and advancing gold projects in the Americas." GLDG was founded in 2010 by Adnani, who was its sole

<sup>&</sup>lt;sup>5</sup> The links all lead to different GSM disclaimers concerning UEC, with each disclaimer listing at the bottom the contractors paid for promotional services and (sometimes) the amounts paid.



executive chairman until this past January, at which point the chairman role was split, with Adnani still occupying a Co-Chairman position. Goldmining has not generated a dollar of revenue since its founding, though it *has* tripled its shares outstanding in that time, at least partly by selling a lot of stock, which is the only consistently positive number on its cashflow statement. A look at the historical revenue estimate trajectory at GLDG shows that it has long been a mining company just on the cusp of generating revenues, but has unsurprisingly never actually reached that point.

Both of the companies are small and generate no revenues (outside the very small royalty revenue stream at URC). Both have almost no real operating business to speak of and both have issued an enormous number of shares over relatively little time, most of which are owned by retail investors, the kind targeted by stock promoters. The lack of actual operations hasn't stopped them from spending millions of dollars in G&A, professional fees, consulting fees, "investor communication and marketing expenses," management and directors' fees, and stock-based compensation – \$11 million in the last 5 years at URC and \$29.5 million at GLDG.

The situation is not that different at UEC, which has also generated almost no revenue at all in the last 5 years besides the sale of uranium that it bought to keep as inventory in storage. While total compensation over the last 5 fiscal years for this "performance" was egregious at about \$40 million, Adnani's personal take is comically exploitative: between FY 2018-2022, Adnani raked in \$8.6 million in comp – almost a quarter of the entire company's payroll. If that weren't enough for a company with "operations" that mostly consisted of drilling exploratory holes in Texas and Wyoming, Adnani receives part of his compensation through his "services corporation," Adnani Corporation, which has an ongoing automatically-renewable agreement with UEC to receive \$38,500 per month (\$462,000 annually) for "providing various consulting services to the Company which are in addition to his duties and responsibilities as our President and Chief Executive Officer." The catch here is that if UEC should ever choose not to renew its agreement with Amir, it has to essentially pay him a third of everything he's ever earned under this services agreement, plus allow all his shares to vest immediately. That's a generous golden parachute for a mining CEO whose company has barely ever mined anything.

# UEC CEO Amir Adnani's Reputation in the Uranium Business Reflects the Company's Promotional History and Overrated Assets

Amir's generous self-devised compensation, his dubious stock promotion deals, and his involvement in other promotional stock-selling operations masquerading as mining companies would come as no surprise to uranium industry participants. Through various interviews we conducted with other uranium industry executives and directors, we discovered that Amir's reputation within the uranium industry was sullied by years of sour deals and, in many cases, the feeling that Adnani "stretched the truth on [UEC's] promotion."

6

<sup>&</sup>lt;sup>6</sup> According to Bloomberg, 12% and 8.5% of URC's and GLDG's shares, respectively, are held by institutions.



Uranium industry participants, for example, were surprisingly well aware of UEC's history of promotional shenanigans. One company director with experience in mining M&A told us that the common perception was that after making a stock-based deal with UEC

[UEC's stock price] all of a sudden shoots up and...nothing public would suggest that this is something that should have happened...And in many cases more than once...and it's just given us a sour taste... if you want to do a deal with us, let's do it straight...Let's not agree to a deal and then all of a sudden your share price makes the deal nothing near what it was when we originally talked about it...I'm talking about things that change within a day... that's one of the things that's affected quite a number of the folks in the industry... he may well not have pushed that sort of thing himself, but it may have been something that most of us really don't have a clue of how, why that sort of thing would happen and happen on a regular basis.

Equity analysts with experience in the micro-cap arena are a lot more familiar with such coincidences than industry executives. The focus on promoting UEC's stock rather than its business has also historically fed into the kind of acquisitions that UEC has made. One competitor described UEC's deal history as follows:

They picked up all sorts of properties that will never be mined, but they got resources on them and, and pushing how good they are for having the resource position...I think almost any junior company is gonna have things where they feel the necessity to try to pump up the resource position as much as they can knowing that some of that is probably never going to be mined but trying to make sure that they're keeping up with the Joneses...and I think that's one of the things that's happened with Amir and his approach to things that he seems to have overdone it more than most people have.

In other words, Adnani was more concerned with what his resource statement would say with respect to quantity of uranium resources than with the ability to mine the resource profitably. To a large degree, that kind of attitude plays into the mining industry sell-side focus on MV/lb, or market value per pound of uranium resources, a popular valuation heuristic in the mining business. That focus has led to Adnani "really [building] the company up on overpaying for a lot of properties" according to one industry consultant with whom we spoke. While the junior mining business isn't exactly filled with long term value-driven executives, on the margin UEC was even *less concerned* with its ability to be able to mine the resources it would acquire. As a result, it overpaid for inferior assets with overstated resources, or with resources that would be logistically and financially burdensome to mine, but with an eye towards driving the stock price based on nameplate resource figures.

A director at a US-based competitor told us that Adnani's more recent actions show that "he's kind of shifted himself from being purely promotional to having things that he can actually do something with. And now, that's the real question most of us have in our mind: is he going to be able to really make that happen now?" As we discuss in the following section, there's no way to



get over the past at UEC. A decade's worth of stock issuance for acquisitions that padded the resource disclosures could be overlooked in the context of the uranium bear market: no one expected any mining to occur. But now that the uranium price has cooperated, investors will expect the pounds in the ground to be realized as profits. They're going to be sorely disappointed.

### IV. UEC's Mining Projects in the US are Materially Less than Meets the Eye

Uranium Energy Corporation Resource Summary – United States									
	Nameplate Resources (Ibs U308, mm)						Retreivable Economically		
	Total  Measured Indicated Total M&I Inferred Resources						Viable Resources*		
	Measured	Indicated	Total M&I	Inferred	Resources	\$60/lb	\$70/lb		
Wyoming									
Reno Creek	12.92	13.07	25.99	1.49	27.48	13.08	13.08		
Irigaray	-	5.90	5.90	0.14	6.04	6.60	10.16		
Christensen Ranch	-	9.60	9.60	-	9.60	0.00	10.10		
Moore Ranch	3.21	-	3.21	0.04	3.25	-	-		
Ludeman	5.02	4.70	9.71	1.26	10.97	-	7.13		
Allemand-Ross	0.42	0.04	0.46	2.50	2.96	-	-		
Barge	-	4.36	4.36	-	4.36	-	-		
Jab/West Jab	2.34	0.39	2.73	1.71	4.44	-	-		
Charlie	-	3.10	3.10	0.99	4.09	-	-		
Clarkson Hill	-	-	-	1.11	1.11	-	-		
Nine Mile Lake	-	-	-	4.31	4.31	-	-		
Red Rim	-	1.14	1.14	1.54	2.68	-	-		
Total Wyoming	23.90	42.30	66.20	15.09	81.29	19.68	30.38		
Texas									
Burke Hollow	0.12	2.21	2.32	4.86	7.18	5.39	5.39		
Goliad	2.67	3.49	6.16	1.50	7.66	-	5.75		
La Palangana	-	0.64	0.64	1.00	1.64	-	-		
Salvo	-	-	-	2.84	2.84	-	-		
Total Texas	2.78	6.34	9.13	10.20	19.33	5.39	11.13		
Arizona									
Anderson	-	32.06	32.06	-	32.06	-	-		
Workman Creek	-	-	-	5.54	5.54	-	-		

Source: UEC Investor Presentation, Kerrisdale estimates and analysis

UEC organizes its US-based assets around two "hubs," one in Wyoming and one in Texas. Each hub is anchored by a central processing plant (CPP), which is surrounded by in-situ

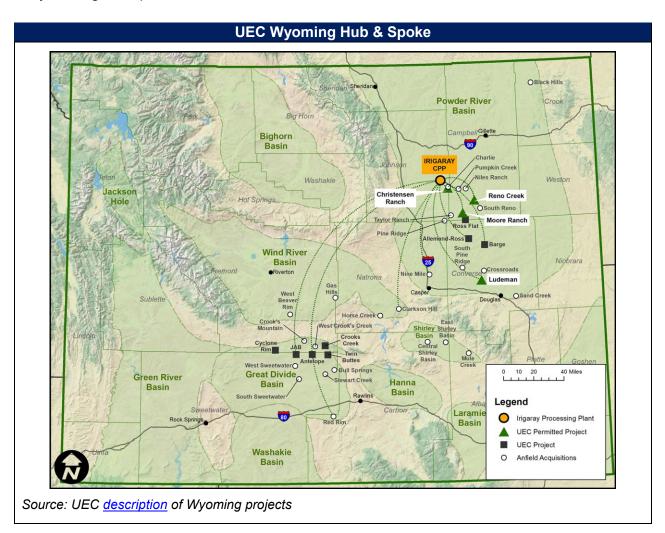
<sup>\*</sup> We assume 65% recoveries in Wyoming and 75% recoveries in Texas. We use historical disclosures about economic viability where available. In the absence of a historical estimate, we assume a 5Mlb threshold for economic viability.



uranium mining projects, the production of which would be trucked to the plant and turned into yellowcake. The projects are comprised primarily of the following:

- Reno Creek Part of the Wyoming hub & spoke (see the map below), Reno Creek is UEC's largest single project in the US at 26Mlb of measured and indicated (M&I) uranium resource and 1.5Mlb inferred.
- Willow Creek Also part of the Wyoming hub & spoke, Willow Creek is the former name for what UEC splits into two projects – Irigaray, with 6Mlb M&I, and Christensen Ranch with 9.6Mlb M&I (both have negligible inferred resources).
- Texas Hub & Spoke This is comprised of 4 projects with a total resource base of 9.1Mlb M&I and 10.2Mlb inferred.

A closer look at these projects and the underlying assets reveals that there's a lot less to these than meets the eye. The uranium "pounds in the ground" might look nice on UEC's Resource Summary page, but as we explain below, *none* of these resources can be mined profitably at current prices, and even at substantially higher uranium prices aren't worth very much. Most will likely never go into production.





**Reno Creek:** Reno Creek was acquired by UEC in 2017 for \$27 million from a private equity firm that owned the predecessor company, AUC, which had conducted and published a <u>preliminary feasibility study</u> (PFS) on the project in 2014. Some relevant information from that PFS includes:

- AUC estimated that recoveries on mining Reno Creek would be no higher than 75%, which means that the 27.5Mlb resource estimate is more realistically 20Mlb of uranium.
- The after-tax NPV of the Reno Creek project at an 8% discount rate and \$65/lb uranium price was estimated to be \$150 million. Adjusting for processing capacity, that's probably closer to \$170 million.<sup>7</sup>

But the PFS published by AUC contained assumptions that are laughable in the current environment. For one, the NPV model was built in 2014 and assumed \$34/lb *all-in* costs for the project. While \$34/lb may have made sense in the 2014 context, more recent all-in cost estimates are substantially higher. For example, a 2021 <u>feasibility study</u> by Peninsula Energy for their Lance project (also in Wyoming's Powder River Basin) expected all-in costs of \$45/lb, which is already obsolete given the inflationary pressures that have built up in the mining space since then. An experienced geology consulting firm with whom we spoke – and one that has analyzed some of UEC's Wyoming projects in the past under prior ownership – told us that all-in costs at the current time are likely to be north of \$50/lb and that most US ISR miners would need at least \$70/lb contract prices to comfortably put their projects in production.

Additionally, several geologists with whom we spoke, as well as multiple recent estimates we reviewed (including those published by Peninsula), all suggest that 75% in-situ recoveries are a best-case scenario and that 55-65% is a much more realistic expectation. Finally, consider that Reno Creek is a project that contains 5 separate deposits (as <u>detailed</u> by UEC). Each of the deposits would require its own satellite processing plant costing \$10-15 million. That puts the Bing and Pine Tree deposits, and probably the Moore deposit, completely out of economic reach,<sup>8</sup> which also might be why none of the owners through which these deposits have passed, *including UEC*, has ever bothered to secure the permits to mine them.

The likely lower recoveries and smaller deposit base than assumed by the 2014 Reno Creek PFS imply a retrievable resource of about 13Mlb. At an all-in cost of \$50/lb and \$65/lb uranium prices, the NPV of the project falls to about \$70M, and that's if UEC restarted the production process today by ordering supplies, beginning construction of the satellite processing facilities, and building up the staff that will be required to mine 1.3Mlb per year. We've seen no sign of

<sup>&</sup>lt;sup>7</sup> The 2014 PFS assumed \$50M in capex to build a CPP, but UEC acquired a CPP in the U1 acquisition (which we discuss below) and so Reno Creek will likely require at least two satellite processing facilities, which will cost approximately \$30M.

<sup>&</sup>lt;sup>8</sup> At \$10M and 60% recovery rates, the additional cost per pound would be \$18 for the uranium produced at Bing, \$12 for Pine Tree's production, and \$4 for Moore's. Deposits of this size are already an iffy proposition given the difficulty in justifying the fixed cost infrastructure necessary to mine them.



any of that in UEC's financial statements, nor has uranium reached contract prices even close to \$65/lb.

<u>Willow Creek:</u> The project formerly known as Willow Creek (now separated into Irigaray and Christensen Ranch) was obtained by UEC in its December 2021 acquisition of Uranium One (U1). That transaction, which cost UEC \$131 million, \$20 million of which is presently an outstanding environmental liability, also brought with it several other "projects" that UEC lists in its resource summary, but which are largely worthless in our view (see below). There are two transactional data points that shed light on the value of the combined Irigaray and Christensen Ranch projects:

- The entire Willow Creek project including both the Irigaray and Christensen Ranch deposits, as well as the Irigaray central processing plant (CPP) were first acquired by U1 in August of 2009 for \$35 million. Considering that the CPP was worth \$20 million back then, the inferred value of the uranium deposits was approximately \$15 million, despite the resource estimate for the projects having already been publicly disclosed<sup>9</sup> and uranium contract prices hovering in the \$65/lb range, substantially higher than where they stand today.
- When Rosatom acquired U1 in 2013, the <u>proxy statement</u> included a valuation break-down across all the company's assets with the Willow Creek NPV coming in at \$32 million assuming \$60/lb uranium and \$74 million assuming a price in the low \$70s. As with Reno Creek, cost inflation has been substantial since that time, and there's no question that those NPVs are much lower today, perhaps even negative, even at uranium prices significantly higher than the current lows-\$50s.

Another data point to consider, and which helps explain the low valuation accorded to Willow Creek over the last 15 years, is that in <u>Uranium One's 2021 Q1 report</u>, filed as part of Rosatom's Russian security filings, the company reported that at a \$60/lb uranium price, only about 6.6Mlb of the 15.5Mlb of nameplate resources at Willow Creek could be retrieved economically.<sup>10</sup> It also assumed that recoveries would be in the 55-65% range.

<u>Other U1 deposits:</u> Besides Willow Creek, UEC obtained several other deposits in its U1 acquisition. These include:

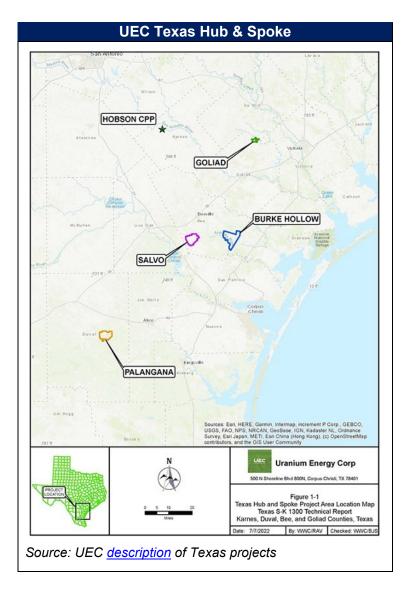
Ludeman – 9.7Mlb of M&I and 1.3Mlb inferred. While Ludeman is theoretically part of the
Wyoming hub & spoke, it's actually 120 miles away by road from the Irigaray CPP, which will
add at least a few dollars per pound of cost for any uranium retrieved there. In the Rosatom
2013 proxy, Ludeman isn't even considered valuable enough to merit an NPV assessment
and here too the expected recoveries disclosed in the 2021 securities filings are 55-65%.

<sup>&</sup>lt;sup>9</sup> In a May, 2008 Nuclear Regulatory Commission filing of Areva's

<sup>&</sup>lt;sup>10</sup> We suspect the reason for this might be that most of Irigaray, the smaller of the two deposits at 5.9Mlb of M&I uranium, is on federal land and would require a lengthy permitting process (which has never been fully undertaken). At a recovery rate of 60%, the 3.5Mlb are not worth the time and initial capital expenditures, which makes Christensen Ranch and its 9.6Mlb of resources at a ∼60% recovery rate the only valuable uranium contained in the overall project.



- Whatever Willow Creek might be worth, Ludeman must be worth a lot less as no construction has ever taken place at the site of the project and its remoteness makes it a lot more expensive to mine. The U1 filings, in specifying uranium mineral reserves that it expected would be economically viable at \$60/lb, had Ludeman at *zero*.
- Moore Ranch, Allemand-Ross, Barge, Jab, Charlie, Clarkson Hill, Nine Mile Lake, Red Rim this is the hodgepodge of projects acquired in the U1 deal, none of which are permitted, and none of which have a total resource estimate (including measured, indicated, and inferred pounds) of over 4.4Mlb. Like Ludeman, they're supposed to be part of the Wyoming hub & spoke system, but they're all isolated enough that they'd require their own satellite processing plants. The likelihood that they'll ever be mined is close to nil in our view. In total, that's 15Mlb in M&I and 12.2Mlb of inferred uranium that UEC can boast about but that also happen to be worthless.



**Texas Hub & Spoke:** This collection (see above) is made up of 4 projects, 2 of which – La Palangana with 1.6Mlb of mostly inferred uranium and Salvo with 2.8Mlb of only inferred



uranium – are small enough to be ignored because they're probably never going to be mined profitably. The other two are:

- Burke Hollow, which UEC has touted as "the newest & largest ISR wellfield being developed in the US," though at 2.3Mlb M&I and 4.9Mlb inferred, it's still pretty small. At the recent TD Securities Global Mining Conference, UEC's management claimed that it could mine its Texas deposits at an all-in cost of \$35/lb, thereby "making money today." We think that's delusional: the "all-in" costs to mine Palangana in 2012-2013 were \$35/lb according to UEC's filings from those years. But UEC's mineral property expenditures on Palangana during those years, which were comprised of expenditures relating to "permitting, property maintenance, exploration and pre-extraction activities" brought the cost-per-pound up to \$58. Considering that there was minimal exploration or pre-extraction activity at Palangana in those years, we think it's highly misleading to exclude those mineral property expenditures from the per-pound mining costs. Now add a decade's worth of inflation to that \$58/lb and we think it's highly unlikely that UEC can generate any fair return on mining its Texas deposits at a uranium price less than \$75/lb. All of this means that the current asset value of Burke Hollow (and Goliad, see below) is negligible.
- Goliad, with 7.6Mlb of resources (6.1Mlb M&I and 1.5Mlb inferred) is very far from any production. The last activity at Goliad was in 2014, when UEC drilled 34 holes for exploration purposes. Based on UEC's disclosures over the years, recovery rates for Goliad will be lower than for Burke Hollow, and as of the most recent filings, UEC "intends to continue the care and maintenance of the Goliad Project Area." In other words, there are no plans for production any time soon. That's probably because while the Goliad deposits aren't in densely populated locales, there are farm owners and others in the area who have challenged UEC and raised environmental concerns. In 2009, Goliad county sued UEC claiming that the company was negligent in managing its mining operations thereby contaminating the water supply. Though that case was dismissed for technical reasons, UEC's legal disclosures indicate that there are still outstanding claims with respect to the Goliad project that have now been in limbo since 2014.

The Texas hub & spoke is also relevant because in its investor presentations and conference appearances, UEC management consistently intimates that uranium production at Burke Hollow is right around the corner. At the TD Securities Global Mining Conference in late January, Executive Vice President Scott Melbye asserted that at Burke Hollow

we've started the production startup and development in the first wellfield...We've already put in the monitor well ring, which is the ring of wells around above and below the ore body that established the baseline that we [are] regulated against and we operate against. So that's the first step in our production area one. The only infrastructure that needs to go on -- there is a very simple ion exchange column that extracts uranium from solution, attaches to resin beads. And that loaded resin is then trucked to Hobson...There's a 20,000-acre ranch. We've identified 7, 8 million lbs. When we're done following this trend over that 20,000-acre ranch, if we don't have double, three times, that'll be surprised in terms of resources.



It's hard to overstate how misleading Melbye's description is, on a few different fronts. First, it's quite an exaggeration to say that the completion of a monitoring well ring is the beginning of "production startup and development" in a wellfield, especially considering that *no actual production monitoring equipment was installed*. UEC's November 17<sup>th</sup> press release mentions that the only thing that's been completed is baseline sampling and a production-area pump test. To say that "the only infrastructure that needs to go on" is a "very simple ion exchange column" is both wrong and distorted. Those "ion exchange columns" – in other words, a full satellite plant – are costly (\$10-20 million price tag) and take time to construct. Additionally, UEC needs to purchase equipment to build and install header houses, injection wells, and extraction wells. This kind of equipment is in short supply according to everyone on the ground with whom we spoke, and it also requires assembly and installation. It's going to be about two years before anything is extracted from the ground even if all this were set in motion today.

Even more absurd is Melbye's contention that UEC plans to do more exploration at Burke Hollow and by the time it's done, they'll have 2-3x the quantity of estimated resources. Aside from the extremely questionable (both legal and operational) judgement involved in guiding towards a resource number *before exploration of a particular area is even commenced*, it also ignores the simple reality that can easily be confirmed by looking at the 2017 Burke Hollow technical report which was prepared by UEC's own geologists: the overwhelming majority of the land mass that makes up the Burke Hollow lease has been subject to exploratory drilling. The major geological uranium trends have already been discovered, and the idea that some multiple of the current resource estimate will miraculously be discovered *in between drill holes that already came up empty* strikes us as delusional.

To sum up, that short digression on Burke Hollow by UEC's management in January is a microcosm of what we think is wrong with the company: stretching the truth, overstating resources, understating investment requirements, and misguiding investors with questionable promises and assumptions.

• • •

What are UEC's US-based ISR projects worth? The only projects with a potential future are Christensen Ranch, Burke Hollow, and parts of Reno Creek. That's a total retrievable uranium resource of about 25Mlb that would only be worth producing if contract uranium prices could reach, and be sustained at, levels that are 50% higher from where they stand now. Even if that kind of price increase were to occur, it's going to take a few years, and even then, the NPV of these projects won't exceed \$150 million. Even if you add the \$100 million asset value of UEC's two central processing plants (and it's unclear why the Texas CPP should be worth much considering the paucity of projects in the area that could feed the mill), there's simply no way this poor excuse for a mining portfolio is worth anywhere near the \$800 million price tag we think the market is assigning it.



# V. UEC's Canadian Projects are Comprised of Low-Quality Deposits with Overstated Resources That Aren't Going to be Mined in the Next Quarter Century

Uranium Energy Corporation Resource Summary – Canada								
	Nan	neplate Re	esources (	lbs U308	3, mm)			
			Total	Adjusted	Viable at			
	Measured	Indicated	Total M&I	Inferred	Resources	Resources*	\$70/lb? (Y/N)	
Shea Creek	-	33.18	33.18	13.78	46.96	30.52	N	
Horseshoe Raven	-	37.43	37.43	-	37.43	17.06	N	
Millennium	-	11.42	11.42	4.36	15.78	15.78	Y	
Christie Lake	-	-	-	16.84	16.84	16.84	N	
Roughrider	-	17.21	17.21	40.73	57.94	?	N	
Total Nameplate:					174.95			
Total Realistically			15.78					

Source: UEC Investor Presentation, Kerrisdale estimates and analysis

At this time last year, UEC's entire valuation rested on the trivial US projects described in the previous section. Then, in June, UEC offered to acquire the Canadian junior uranium miner UEX Corporation for C\$0.43 per share – a greater than 50% premium to its pre-announcement price. The deal – valued at about \$185 million (USD) – was comprised entirely of UEC stock and would result in UEX shareholders owning 13.7% of the combined company. In response to an opaque counter-offer for UEX by Denison, UEC raised its bid slightly and agreed to purchase UEX for about \$200 million, or 14.2% of the combined company. The acquisition, which closed in August, conveniently allowed UEC to approximately double its nameplate resources - from approximately 138Mlb to 255Mlb – at the cost of a mere 15% of its market cap. Just a few months later, on October 12th, UEC agreed to acquire the Athabasca-based Roughrider project from Rio Tinto for \$145 million (\$80 million in cash and the rest in UEC stock). The acquisition added 17Mlb of uranium in the "indicated" category and another 40Mlb of inferred resources. Based on a thorough analysis of the technical geological reports related to these Canadian projects, as well as discussions with several experienced Athabasca geologists, we believe UEC's Canadian assets are worth less than half the \$350 million they invested to acquire them. These resources are unlikely to be mined over the next uranium cycle, and that's before accounting for overstated resources and the low-quality nature of the deposits.

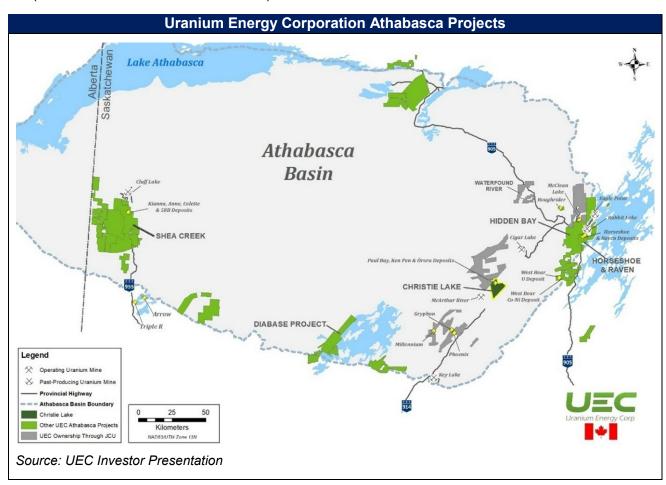
More than 90% of the value of UEC's Canadian "operation" is tied up in just a few projects:

 Horseshoe-Raven, which is 100% owned by UEC with a resource estimate of 37.4Mlb (indicated) and acquired in the UEX deal.

<sup>\*</sup> For Shea Creek and Horseshoe-Raven, we adjust the resource estimate based on objective technical estimates made by third parties. For Roughrider, Rio Tinto has spent years delineating the resource but has mysteriously chosen not to publish the results.



- Shea Creek, also acquired in the UEX transaction and which is 51% owned and operated by Orano, formerly known as Areva. According to a <u>technical report</u> published by UEX last year, the Shea Creek deposit is estimated to hold 67.6Mlb of indicated uranium resources and 28Mlb of inferred resources, which puts UEC's 49.1% portion at about 47Mlb (33.2Mlb indicated and just under 14Mlb inferred).
- Millennium, 70% owned by Cameco, and 30% owned by JCU, which is itself a 50/50 joint venture owned by UEC (formerly UEX) and Denison. Millennium is listed by Cameco as containing 76Mlb (indicated) and 29Mlb (inferred), putting the resources attributable to UEC at 15.7Mlb (11.4Mlb indicated and 4.3Mlb inferred).
- Christie Lake, 82.8% owned (and fully operated) by UEC, but which is an extremely small and early-stage project. Christie Lake contains no measured & indicated resources, but 20Mlb inferred (16.8Mlb of which is attributable to UEC).
- The aforementioned Roughrider, now 100% owned by UEC, and which contains 58Mlb (17Mlb indicated and 41Mlb inferred) of uranium.



Understanding the company's assets within the backdrop of the broader Canadian uranium mining landscape clarifies just how remote the prospects are for UEC's specific collection of assets. All of these projects are exploration-stage projects, which means that *at best*, their resources have been delineated but no infrastructure has been built to support any mining. None of the above projects have reached the stage at which their operator (whether UEX, UEC,



or the controlling partner) has commissioned a preliminary feasibility study (PFS) to assess its economic potential. In the case of Christie Lake, there are probably still a few years of exploration required to delineate the resource more accurately.

Even if these greenfield projects were greenlit today, the most advanced one (probably Millennium) would take approximately 8-10 years to begin extracting any significant pounds of uranium out of the ground. As Cameco described in February of 2018 (in an earnings call):

The new environmental assessment laws that have come in...in any event takes three years, four years to get through that process, if you get through. Construction, if it's in northern Saskatchewan, is going to take you 3 or 4 years. So you're 6 to 8 already. And then our ramp up, we thought we were pretty efficient at the Cigar Lake, our ramp up was 3 years to get to full production. So you can do the math – I mean you're talking 8, 9, 10 years just in on a normal basis.

Since then, supply chains have gotten longer but more importantly, regulatory timelines have extended. In May of 2021, Cameco stated that "on a greenfield, *it's eight to ten years before you're up and running*."

But none of these projects are even close to being greenlit. That's because, as a prominent Athabasca geologist told us,

From a conventional mining perspective – underground mine, mill, tailings management, the whole nine yards – if you're gonna start fresh, *UEX doesn't have a property in their portfolio that's anywhere close to that. It'll never get past a PFS (prefeasibility study).* The economics would never work out in any of the UEX deposits...To do a conventional mine, *you need a minimum of 150 million pounds in the ground, probably closer to 200 million pounds of resource in the ground.* If you don't have that, the economics won't work out for you. If you look at any one of UEX's properties, you're not gonna get that. It's just not gonna work.

That's consistent with Cameco's repeated assertions over the years that they would need to see long term contract prices for uranium durably maintain the \$70-80/lb range before they would begin putting the Millennium project in motion. At current long term contract prices of \$50-55/lb, small and medium-sized conventional mining projects in the Athabasca basin are a non-starter. Though we think it's possible that contract uranium prices will reach the \$70-80 level, that's going to take a few years, and those prices will have to hold for a while before uranium miners are persuaded to invest the approximate billion dollars required for a conventional project.

All this means that none of UEC's Canadian assets will be generating cashflow for 12-15 *years*, and that's the *best-case* scenario. Even assuming that these are quality assets (and as we discuss below, they're not), every dollar of project NPV (typically calculated from the start of production) discounted back over that time at a charitable 8% IRR is worth merely 30-40 cents at present.



But that framework only goes so far because it assumes that there's actually something worthwhile to discount back to the present. In the case of Millennium, that's probably true, but with respect to the rest of UEC's Canadian projects, not so much. In what follows, we summarize the results of our detailed examination of the history and technical documentation of these projects, which, along with our interviews of experienced Athabasca geologists, reveal a shoddy asset base and overstated resources.

<u>Horsehose-Raven:</u> This is the only project acquired in the UEX transaction that was 100% owned by UEX, so its fate is solely in the hands of UEC. The Horseshoe-Raven (HR) project is made up of the Horseshoe and Raven deposits on the east side of the Athabasca basin and contains, according to UEC's disclosures, 37.4Mlb of measured and indicated uranium. The average ore grades of the resources in the two deposits are 0.215% for Horseshoe and 0.117% for Raven, which are very low in the context of conventional mining projects (compare Shea Creek at 1.49%, which is about 10x the average of the entire HR project, and Millennium, which at 2.39% is about 15x).

The most recent <u>technical report</u> on the HR project, just published in December by UEC, is an SEC-compliant version of <u>the report</u> published by UEX in December of 2021. The most obvious red flag (quite common in the realm of junior miners) is that the qualified persons signing off on the report were none other than UEX's CEO, Roger Lemaitre, and two senior UEX geologists. The problem with having obviously conflicted individuals making resource estimates is that they're liable to make the kinds of underlying assumptions that result in an overly flattering picture of the reality. And indeed, the 37.4Mlb resource estimate hinges on precisely that sort of obscure but material assumption.

In delineating the resources of the HR project, the cut-off grade used for the determination was 0.05%, meaning that ore samples analyzed in the exploration phase of the project that contained a uranium concentration of more than 0.05% were included in the resource estimate. That's an extremely low number. Other conventional projects across the Athabasca basin use much higher cut-offs: the Shea Creek resource estimate (which we discuss below) uses a 0.3% cut-off; NextGen's Arrow and Fusion's Triple-R projects both use a 0.25% cut-off; and Denison uses a 0.2% cut-off for the Gryphon deposit of its flagship Wheeler River project (Gryphon is the part of the project meant to be mined conventionally). The HR technical report conveniently provides a sensitivity analysis of the cut-off assumptions, showing the enormous difference between a cutoff of 0.05% and 0.2-0.3%. At the 0.2% cutoff used by Denison, the resource estimate for the Horseshoe-Raven project would be 46% lower and at the 0.3% cut-off used for UEC's own Shea Creek project, the uranium resource estimate for Horseshoe-Raven would be more than 60% lower.<sup>11</sup>

The most obvious inference from this analysis of Horseshoe-Raven's resource estimate is that the 37Mlb estimate is grossly overstated. Using more reasonable assumptions yields a much

<sup>&</sup>lt;sup>11</sup> Our adjusted estimate in the resource summary at the beginning of this section uses a 0.25% cutoff.



lower resource estimate. But there are two other important implications: One, as UEX's report admits in the fine print, "the sensitivity analysis indicates that a large portion of the resource for the deposits are of a lower grade," which means that the project will be a lot more expensive to put into production than a different project with higher grade deposits (especially in the context of a conventional project that requires expensive tailings management). More importantly, a conventional project containing merely 15-20Mlb of uranium at such low concentrations is unlikely to ever be profitable, even at \$100/lb uranium. The odds that Horseshoe-Raven is put into production in the next 50 years are close to 0, making the project functionally worthless.

<u>Shea Creek:</u> At 33.2Mlb of indicated uranium (and 13.8Mlb inferred) attributable to UEC, the Shea Creek project is the second largest acquired in the UEX deal. As with Horseshoe-Raven, the resource estimate is based on a <u>technical report</u> partly authored and signed off by UEX's internal geologists. But there are some other wrinkles to the Shea Creek story that should give investors pause.

First, the project is 51% owned and fully controlled by Orano, which means any investment and mining decisions are made by Orano's mining segment. To get a sense of where this project ranks in Orano's vast mining collection, consider that Shea Creek is mentioned precisely *zero* times in the company's 2022 review of its mining activities. In Orano's listing of its Canadian mining licenses and permits, Shea Creek is disclosed as occupying the most preliminary stage of the licensing and permitting process: all the project has is a mineral claim, having not even progressed to the point of a surface lease agreement with the relevant Canadian authorities. The Shea Creek project is also on the west side of the Athabasca basin, 150 miles away from the infrastructure that has been built out to support all the Athabasca projects currently in production on the east side of the basin. And while NexGen is in the process of progressing its Arrow project towards production on the west side of the basin about 30 miles away from Shea Creek, the infrastructure for that project is still years away from being completed, and there's no indication that NexGen is planning on accommodating anyone else's projects with its processing mill and road network. All of this is to underscore that if a greenfield project like Cameco's Millennium is 12-15 years away from generating any cash flows, Shea Creek is further still.

If that weren't enough, UEC's resource estimate for Shea Creek – like its estimate for Horseshoe-Raven – seems wildly overstated. Because the project is majority owned by Orano, the latter has been required to consistently disclose the project's resource estimates in the "Reserves and Resources" section of its annual reports. In its 2021 report, for example, Orano reports an estimated 14 metric tons of indicated uranium for the whole of Shea Creek, which comes out to 30.9Mlb for the entire project. UEC's 49.1% stake in those resources is an indicated 15.2Mlb, less than half the 33.2Mlb that the company reports (the inferred estimate is approximately the same).

### To sum up Shea Creek:

 The project is operated by a multinational nuclear conglomerate that has shown zero interest in advancing it and for which the project comprises less than 5% of its total estimated uranium resources.



- The project is located in a remote area of the Athabasca basin and will require years of infrastructure development before progressing.
- At about 61Mlb of uranium the project is quite small (more than a third smaller than UEC's disclosures indicate) and would occupy a position on the cost curve that isn't likely to be reached for decades.

Like Horseshoe-Raven, Shea Creek is virtually worthless.

<u>Other UEC assets:</u> Besides Horseshoe-Raven and Shea Creek, UEC acquired the following projects in its UEX acquisition:

- Christie Lake 83% owned by UEC and with 20Mlb of inferred uranium, Christie Lake is still
  in the exploration stage, as UEC will be trying to upgrade its resource assessment from
  inferred to indicated. At 20Mlb, Christie Lake is a tiny resource and has no chance of
  incentivizing the 3-5 years of construction and hundreds of millions of dollars in capital
  expenditures required to put it into production on an independent basis.
- Millennium at 105Mlb of estimated resources, UEC owns 15% of this project, which is majority owned and operated by Cameco. As discussed previously, Cameco has no intention of going forward with Millennium any time in the near future. If it ever does, the approximate 1-1.5Mlb in annual uranium production attributable to UEC will be a rounding error. Using the two publicly traded single-conventional-project Athabasca-based miners for comparison (NexGen and Fission), we estimate that Millennium as a whole is worth approximately \$200-250 million, implying a value for UEC's stake of about \$35 million.<sup>12</sup>

<sup>12</sup> NexGen's market value – currently \$1.8 billion – is predicated almost entirely on its Rook I project located on its Arrow deposit, which contains 336Mlb of U3O8 resources, 240Mlb of which have been determined to be probable reserves. The technical report for the project estimates a \$5.8 billion pre-tax NPV at \$65 uranium and the project is currently in motion, having completed a feasibility study and submitted an Environmental Impact Statement (EIS), with production expected to begin in 2027-2028.

Fission's market value – currently \$325 million – is predicated almost entirely on its PLS project located on its Triple-R deposit, which contains 130Mlb of U3O8 resources, 94Mlb of which are classified as probable reserves. The technical report for the project estimates a \$1.45 billion pre-tax NPV at \$65/lb uranium, and has completed a feasibility study but has not yet reached the stage of environmental review. At best, PLS might begin production circa 2029-2030.

Nexgen's market value per pound of resources (MV/lb) is about \$5.35 while Fission's is about \$2.50. That is almost wholly a function of

- 1) NexGen's expected per-pound profitability: the cost to bring an Athabasca project online is more or less fixed (at about \$1 billion presently). The Arrow deposit has 2.6x the resources of Triple-R and thus benefits from significant operating leverage, which explains why its NPV is 4x as large.
- 2) NexGen's significantly more advanced timeline for production (having already jumped over at least some of the potentially difficult environmental hurdles, it's probably at least 2-3 years ahead of PLS).

Millennium has fewer resources than Triple-R, is much farther behind in its development, and is expected to have a significantly higher cost structure than either Rook I or PLS due to the fact that it's located a lot deeper in the ground and covered with a much thicker layer of sandstone (Triple-R has no sandstone cover and Arrow has very little – see the chart on page 8).



- Kiggavik UEC owns just under 17% of this Orano-controlled project, which contains a total of about 108Mlb (indicated) of uranium. While UEC's proportional 18Mlb of M&I uranium might be worth something, the project is at best stuck in regulatory purgatory having been <u>denied approval</u> by Canada's Minister of Indigenous and Northern Affairs in mid-2016. Though Orano has invested a lot of time and money into the project, the odds that it goes into production over the coming cycle are miniscule.
- Wheeler River Though UEC's stake in Denison's Wheeler River project is small, it's
  probably the only Canadian project in the UEC portfolio that will actually go into production
  within a decade. Considering that Denison's market capitalization is about \$825 million and
  that the Wheeler River project comprises about 80-90% of that value, UEC's 5% stake is
  worth about \$35 million.

**Roughrider:** As mentioned previously, Roughrider is a Canadian project UEC acquired from Rio Tinto late last year in a completely separate transaction from the UEX acquisition. While Roughrider tends to have a better reputation than anything in the former UEX portfolio because its ore grades are higher, it's still a small conventional project at 58Mlb of uranium (17.2Mlb indicated and 40.7Mlb inferred) that would require much higher uranium prices to make it viable.

There's also some circumstantial evidence that both the resource quality and the mining degree of difficulty is much worse than its high-grade 58Mlb reputation, which comes courtesy of a 2011 preliminary economic assessment (PEA) of the project by then-owner Hathor. Soon after the publication of that report in September of 2011, Rio Tinto offered to acquire Hathor – whose sole asset was the Roughrider project – for \$640 million, at a time when the long term contract price of uranium was \$63/lb. That was substantially higher than the \$520 million that Cameco had bid for Hathor at the time, which Cameco insisted made more sense than Rio's overly optimistic reliance on the PEA.

Of course a lot has happened since then: uranium prices are lower, regulatory barriers to mining have become much tougher, and costs have increased substantially. But most importantly, Rio Tinto's commentary on Roughrider over the years suggests that the prospects for the project were greatly overstated by Hathor:

- Right after the acquisition, Rio announced that "The resources of Hathor are currently being reviewed under Rio Tinto standards and will be published in due course."
- In early 2013, Rio <u>said</u> it "has commenced an environmental baseline programme for the Roughrider Project and engagement with local communities and stakeholders is also well under way."
- Just a year later Rio <u>disclosed</u> that "An exploration programme is under way that is focused
  on obtaining orebody knowledge and a better appreciation of geotechnical, hydrological and
  hydrogeological conditions." It also disclosed an ongoing "order of magnitude" (OOM) study,
  which would potentially be used to support the decision to undertake a preliminary economic
  assessment that would supersede the one conducted by Hathor in 2011.
- The result of the OOM study was never published but some hint could be gathered in its consequences, revealed in Rio's <a href="2015">2015</a> annual report: A write-down of all intangible assets related to the Hathor acquisition, an amount that totaled (pre-tax) \$250 million.



• Over the next two years, Rio disclosed a continuation of its exploration program for Roughrider, which culminated in 2017 with a complete write-down of Roughrider to *zero*.

Now, it's true that contract uranium prices were in the low \$30s in early 2017, but for a mining company to write down a mining asset to zero after 5 years' worth of exploration and study, and disclose *nothing* with respect to its findings, suggests that whatever it found wasn't very flattering. For context, NexGen's market capitalization fluctuated between \$600 million and \$1 billion over 2017, and Fission's corresponding range was \$200-\$330 million. Yet Rio thought that Roughrider was *worthless*. We'd also note that Rio sold Roughrider to UEC – a company without a shred of experience mining Athabasca – for \$150 million, half of which they received in inflated UEC stock, in the midst of a uranium bull market in which both the per-pound spot price and the contract price had risen to the mid-\$40s. We think that says a lot about Rio's assessment of the viability of the project.

Another way to think about Roughrider is that even if the 2011 assessment published by Hathor was entirely confirmed, a comparison to Fission's PLS/Triple-R and NexGen's Rook-I/Arrow would suggest a fair value of approximately \$80 million. But given the fact pattern of Rio's conspicuous silence concerning its exploration of the deposit and its subsequent complete write-off, we think it's fair to assume that the Hathor assessment was severely deficient. We also think that Roughrider will almost certainly *not* go into production over the forthcoming uranium cycle given its small size, disadvantageous position on the cost curve, and UEC's complete lack of experience in Athabasca conventional mining. As with other UEC acquisitions, the evidence suggests that \$150 million was a substantial overpayment.

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Taken together, while UEC spent \$350 million (including stock) to purchase its Athabasca assets, it's hard to see how they're worth any more than about \$150 million *at most*, comprised primarily of Roughrider, Wheeler River, and Millennium. The rest of the assets are just speculative junk.

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<sup>&</sup>lt;sup>13</sup> See our analysis of NexGen's Rook I and Fission's PLS in the preceding footnote. Roughrider is a *decade* behind Fission's PLS in its development timeline and contains less than half the estimated resources of the underlying Triple-R deposit. Just the effect of time on the present value of the project would result in a ~50% reduction in Fission's \$325 million valuation, while the lower resource estimate would result in a further halving. The resulting \$80 million fair-value estimate would be downright charitable considering it wouldn't even account for the substantial level of deleveraging vis-à-vis the project's initial capex.



### VI. Conclusion

Uranium Energy Corporation Fair Value Estimate						
	٧	imated alue mm)				
United States						
Willow Creek	\$	45				
Reno Creek		70				
Burke Hollow		30				
Central Processing Plants		100				
Envrionmental Liability		(20)				
Total US Assets	\$	225				
Canada						
Millennium	\$	35				
Roughrider		80				
Wheeler River		35				
Total Canadian Assets	\$	150				
Liquid Assets						
Cash	\$	40				
Uranium Inventories Uranium Purchase		31				
Commitments		32				
Equity Investments		36				
Total Liquid Assets	\$	139				
Capitalized G&A and Care & Maintenance	\$	(150)				
UEC Fair Value	\$	364				
Per Share	\$	0.96				
Source: Kerrisdale estimates and analysis						

The chart to the left details our fair value estimate for UEC. We exclude deposits that we consider functionally worthless because they have, in our view, no chance of being mined for uranium profitably in the next few decades. Even some of the deposits on this list have a pretty good chance of fitting that description (for example, the Irigaray deposit at Willow Creek or Roughrider in the Athabasca). We also generously give UEC credit for two central processing plants that likely will not run remotely close to their licensed capacity. Still, we estimate that UEC is worth less than a third of its current \$1.2 billion market capitalization.

How is UEC's market value so thoroughly disconnected from the company's underlying asset value? Partly due to CEO Amir Adnani's relentless drive to - successfully - promote UEC stock to retail investors who don't know better. In our opinion, Uranium Energy Corp isn't really a company designed to mine and deliver uranium energy; rather, it's a vehicle built to fool unscrupulous investors into buying massively overvalued shares of a stock promotion principally intended to enrich Adnani and insiders. Management's modus operandi has been to pursue a stream of overpriced "accretive" acquisitions with the aim of increasing UEC's nameplate uranium resources. These might seem substantial to the targets of paid stock promotions but, as we explored at length, massively overstate the uranium UEC can hope to actually extract from its deposits. In that context, it easy to understand why CEO Adnani continues to run UEC like a promotional microcap stock: because it's supposed to be one.



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