



**INDUSTRY UPDATE** June 22, 2022

## US Uranium: Current Status & Future Potential

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The US (the world's largest user of nuclear power) draws from ~25% of global installed capacity for ~20% of its power needs. The US' nuclear power facilities generate ~55% of the nation's carbon-free electricity. Despite this reliance on nuclear power for its current and future energy needs < 1% of the country's uranium oxide requirements is mined locally. This US supply / demand imbalance begs the question — With the recent improvement in uranium prices and the beginnings of actions by the Biden Administration in support the Country's domestic nuclear industry, which companies/projects are best positioned to satisfy — if only partially — the U.S.' need for domestically produced U<sub>3</sub>O<sub>8</sub>?

In this report, we review eight companies which we believe are best positioned to grow US domestic uranium production.

### Historical US Uranium Production

- ▶ The US has a history of small-scale uranium production, via **conventional** open pit or underground mining methods. Recent production is mostly from **solution mining** also known as in-situ leaching (ISL) or in-situ recovery (ISR).
- ▶ **Canada and Kazakhstan rank as the US' largest providers of uranium oxide (U<sub>3</sub>O<sub>8</sub>)** each providing ~22% of the country's annual requirements with Russia (~16%), Australia (~11%), Uzbekistan (~8%) and Namibia (~5%) providing the remainder.
- ▶ **Uranium production last peaked in 2014 (~4.9M lb. U<sub>3</sub>O<sub>8</sub>)** but dropped to ~0.2M lb U<sub>3</sub>O<sub>8</sub> in 2019. With uranium production of 9,946 lb U<sub>3</sub>O<sub>8</sub> for Q1/22, 2022 looks destined to rank as an **even slimmer year** for domestic uranium production.
- ▶ Despite the US' reliance on nuclear power for its energy needs **< 1% of the country's U<sub>3</sub>O<sub>8</sub> requirements**. This compares with peak uranium mined production of ~44M lbs U<sub>3</sub>O<sub>8</sub> and plant purchases of ~33M lbs U<sub>3</sub>O<sub>8</sub> from domestic sources in the early 1980s.
- ▶ A total of 26 uranium mills were operating in the US during these peak domestic production years. Today, only the **White Mesa Mill** in Utah is operating. Over the past 15 years (since 2007) **12 ISL projects operated in the US**. None currently operate commercially.

### Future US Production Potential

- ▶ We see a **potential US global NI 34-101 compliant resource of ~550M in-situ lbs** of U<sub>3</sub>O<sub>8</sub>, of which ~400M in-situ lbs are available to be tapped by ISR, the remainder extracted by conventional mining methods.
- ▶ **Half of this resource is located in Wyoming, a quarter in New Mexico** and the remainder in Arizona, Texas, Utah, South Dakota, Nebraska and Colorado.
- ▶ For ISR, most **~(80%) are located in Wyoming and New Mexico**. We see **nearly a half (~45%)** being potentially available to be tapped by previously operated, permitted but currently suspended ISR facilities.
- ▶ More than half **(~60%) of resources available to be extracted via conventional mining methods**, are located in **New Mexico and Wyoming. Most of these (~75%) are NI 43-101 compliant** but **not supported by recent economic studies** (PEA, PFS, FS).
- ▶ We recognize **eight companies as having the required infrastructure to restart uranium production in the US** They are Cameco Corp.(TSX-CCO), Uranium Energy Corp.(TSX-UEC), Energy Fuels Inc. (TSX-EFR), enCore Energy Corp.(TSX-EU), Ur-Energy Inc.(TSX-URE), Peninsula Energy Ltd.(ASX-PEN), Consolidated Uranium Inc. (TSXV-CUR) and Laramide Resources Ltd. (TSX-LAN).
- ▶ We see potential production from up to **13 ISL facilities**, (11 which are currently on standby) **tapping resources hosted by ~40 ISR projects**. We also recognize **~20 projects** where uranium can be extracted by **conventional mining methods** with potentially **half utilizing milling facilities at White Mesa**.

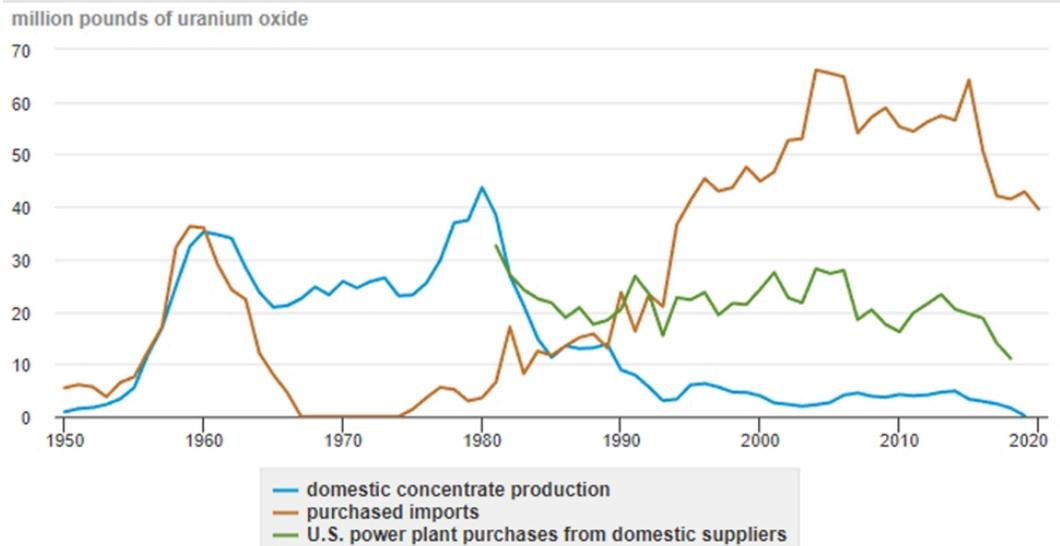


## The US' Nuclear Predicament: Reliant & Dependent!

The US is the world's largest user of nuclear power, drawing power from 93 nuclear power plants (25% of the global installed nuclear capacity) to satisfy ~20% of its power needs. Eighteen countries derive at least one-fifth of their electricity from nuclear. Whilst France, Slovakia and Ukraine rank as world leaders and ahead of the US in sourcing their electrical needs from nuclear, nuclear power is and will remain an important baseload source of zero-emission clean energy for the US.

Canada and Kazakhstan each rank as the US' largest providers of uranium oxide ( $U_3O_8$ ), the most widely used fuel, each providing ~22% of the country's annual requirements with Russia (~16%), Australia (~11%), Uzbekistan (~8%) and Namibia (~5%) providing the bulk of the country's remaining needs. Despite the US's reliance on nuclear power for its current and future energy needs < 1% of the country's uranium oxide requirements (~48.9M lbs  $U_3O_8$  in 2020) is mined locally. This compares with peak uranium mined production of ~44M lbs  $U_3O_8$  and plant purchases of ~33M lbs  $U_3O_8$  from domestic sources in the early 1980s (see Exhibit 1). In recent years (the last 15 years) uranium production peaked in 2014 (~4.9M lb.  $U_3O_8$ ) but has dropped off to ~0.2M lb  $U_3O_8$  in 2019 (the last year of recorded production). With uranium production of 9,946 lb  $U_3O_8$  for Q1/22, 2022 looks destined to rank as an even slimmer year for uranium production from domestic sources compared with 2019.

**Exhibit 1 - Sources of Uranium for U.S. Nuclear Power Plants, 1950 to 2020**



Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 8.2, June 2021



Note: Data withheld for U.S. power plant purchases from domestic suppliers in 2019 and for domestic production in 2020 to avoid disclosure of individual company data.

This US supply / demand imbalance begs the question — With the recent improvement in uranium prices and the beginnings of actions by the Biden Administration to purchase of US\$4.3B worth of enriched uranium from US or other “friendly” producers and Congress’ approval in April for the Department of Energy to begin building a strategic uranium reserve, are we going to see a renaissance in US domestic uranium production? If so, which companies/projects are best positioned to satisfy — if only partially — the need for domestically produced  $U_3O_8$ ?

In this report, we review eight companies which we believe are best positioned to grow US domestic uranium production.

### Origin of Nuclear Power in the US: An Early Leader

The US was an early leader in producing electricity from nuclear power. Electricity was first produced in 1951 from a small Experimental Breeder Reactor (EBR-1) in Idaho. This was followed by the

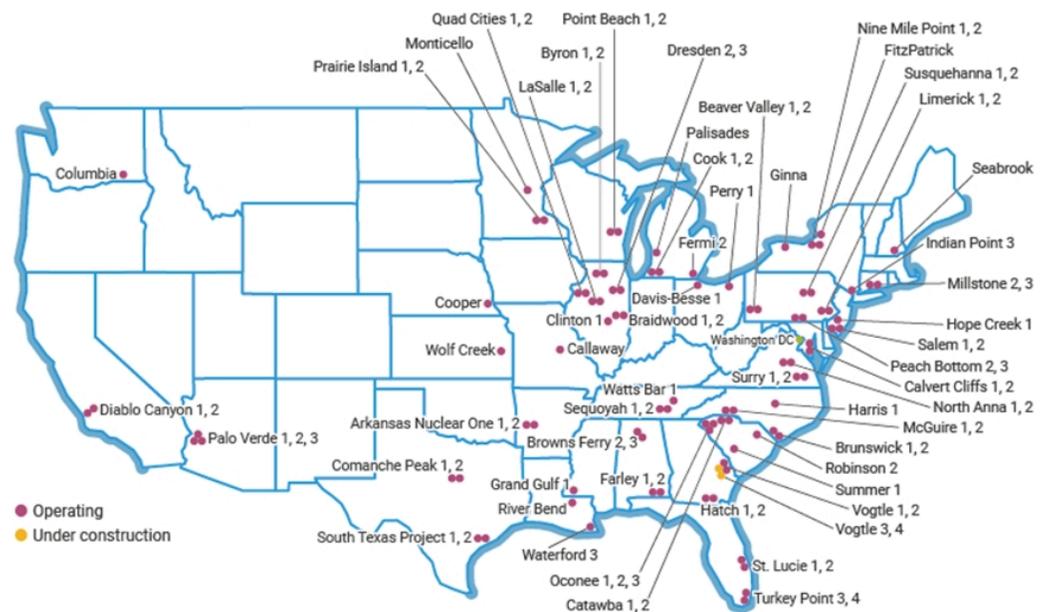


generation of commercial electricity from nuclear power in 1958, as part of President Dwight D. Eisenhower Atoms for Peace program. As nuclear power continued to grow throughout the 1960s, the Atomic Energy Commission anticipated that more than 1,000 reactors would be operating in the United States by 2000. However, by the mid-1970s it became clear that nuclear power would not grow nearly as quickly as once believed. Cost overruns of reactors built from the mid-1960s to early-1980s, the Three Mile Island accident in 1979 and a slowing of electricity demand growth curtailed much of the industry’s previously anticipated growth.

### The US Nuclear Landscape Today: More Investment Needed

There are currently 93 licensed nuclear power plants in the US (62 Pressurized Water Reactors and 31 Boiling Water Reactors), the largest number of commercially operating reactors globally (443). These reactors have a combined installed capacity of ~95.5 GWe and are operated by 28 different power companies across 30 different states. Since 2001 the US’s fleet of nuclear plants have achieved an average capacity factor of over 90%. There are also 31 research and test reactors located primarily at universities where they are used for research, testing, and training.

#### Exhibit 2 - Reactors Operating in the U.S.



Source: Worlds Nuclear Association

Despite a reduction in number of operating nuclear reactors over the last 30 years (from a peak of 112 in 1990), US nuclear electricity generation capacity has continued to grow and peaked in 2012 at ~102 GWe (from 104 operating nuclear reactors) dropping only ~6% to ~95.5 GWe currently.

In terms of electrical power production, the US nuclear reactor fleet of 93 operating reactors delivered 778.2 TWh in 2021 compared with 383.69 TWh in 1985, also from 93 reactors. While the 93 reactors operating today have more capacity, on average, than in 1985, most of that increased productivity can be attributed to operational improvements that has increased the fleet’s average capacity factor from just 57.5% in the three-year period 1984–1986 to near 90% by the early 2000s.

Power plant up-rates—modifications to increase capacity—at nuclear power plants have made it possible for the operating nuclear reactor fleet to maintain a relatively consistent total electricity generation capacity despite a reduction in plant number (from a peak of 112 in 1990). These up-rates, combined with high-capacity utilization rates (or capacity factors), have helped nuclear power plants maintain a consistent share of about 20% of total annual US electricity generation from 1990 through 2021. Today, the US’s nuclear power facilities also generates ~55% of the nation’s carbon-free electricity. This is achieved despite the average age of the US’s nuclear power fleet being ~40 years old.



Nineteen nuclear reactors are slated for premature closure, removing ~19.8 GWe of baseload capacity, according to the Nuclear Energy Institute. Of note, four of these reactors owned by Exelon (Byron 1 & 2, Dresden 2 & 3) were saved from shutdown after a new energy bill was signed into law in Illinois in September last year, which introduced US\$694M in nuclear subsidies to be paid over 5 years. The bill also included subsidies of more than US\$350M annually for renewables.

The newest reactor to enter service, Watts Bar Unit 2, came online in 2016. Only two reactors are slated to enter service following numerous license applications made since mid-2007 to build 26 new nuclear reactors. These reactors, the Vogtle 3 and 4 reactors, have combined capacity of ~2.2 GWe (2.5 GWe Gross). Last month, costs released for the two new reactors totaled US\$30.3B. Upon completion of Units 3 and 4 in 2023, Vogtle will become the largest nuclear power station in the US

If today's nuclear plants retire after 60 years of operation, 22 GWe of new nuclear capacity would be needed by 2030, and 55 GWe by 2035 to maintain a 20% nuclear share. Considering that 1 GWe of power is produced per plant on average in the US, a significant investment in the US's nuclear power infrastructure is needed if nuclear is to remain a viable baseload component of the US power grid.

### The US as a Uranium Producer

The US has a history of small-scale uranium production undertaken by relatively few companies and operations. The majority of uranium ore mined in the US has been via conventional open pit or underground mining methods. During the "uranium boom" period of the late 1970s and early 1980s uranium production in the US grew to include the development of open pit, underground, and in-situ recovery operations. Many uranium mining and milling production centers remained in operation through the middle 1980s, however, price erosion ultimately led to closure of many facilities.

A total of 26 uranium mills were operating in the US during the peak domestic production years of the early 1980s. Today, there are three uranium mills remaining in the US. Two of these are currently authorized for operations and only one is currently operating. Over the past 15 years (since 2007) one mill (the White Mesa mill in Utah owned by Energy Fuels) and 12 in-situ leaching (ISL), also known as solution mining or in situ recovery (ISR), projects operated in the US. In addition, a number of conventional underground mines supplied ore to the White Mesa mill. During this period uranium production peaked at only (~4.97M lb. U<sub>3</sub>O<sub>8</sub>) in 2014. This compares with ~23.7M lb. U<sub>3</sub>O<sub>8</sub> produced from four mines in Canada during the same year.

Prior to 2020 licensed annual ISL production capacity stayed relatively consistent at ~12M lbs U<sub>3</sub>O<sub>8</sub> supplemented by conventional mill capacity of ~8M lbs U<sub>3</sub>O<sub>8</sub> offered by the White Mesa mill. In total, between ISL sources and the White Mesa mill, ~20M lbs of historical annual U<sub>3</sub>O<sub>8</sub> capacity has been available but never fully utilized.

Recently (2021/22), most of the US's primary domestic uranium production has come from Smith Ranch-Highland and Crowe Butte Central processing plants (CPPs) (Cameco Corp.) in Wyoming and Nebraska, and the Ross CPP (Peninsula Energy Ltd.) also in Wyoming. In Q2/16, Cameco curtailed production from its facilities and deferred all wellfield development. Peninsula is evaluating several alternative uranium capture/recovery process options. The Lost Creek CPP (Ur-Energy Inc.) is also currently operating on a limited basis to maintain operational bleed in wellfields. These four CPPs have a combined annual capacity of ~9.5M lbs U<sub>3</sub>O<sub>8</sub>. Seven additional CPPs and associated wellfields are on standby with a combined annual production capacity of ~10.5M lbs U<sub>3</sub>O<sub>8</sub>.

### The US Uranium Production Landscape Today

We recognize eight companies that currently have the required infrastructure to restart uranium production in the US. They are Cameco Corp.(TSX-CCO)., Uranium Energy Corp.(TSX-UEC), Energy Fuels Inc. (TSX-EFR), enCore Energy Corp.(TSX-EU), Ur-Energy Inc.(TSX-URE), Peninsula Energy Ltd. (ASX-PEN), Consolidated Uranium Inc. (TSXV-CUR) and Laramide Resources Ltd. (TSX-LAN).

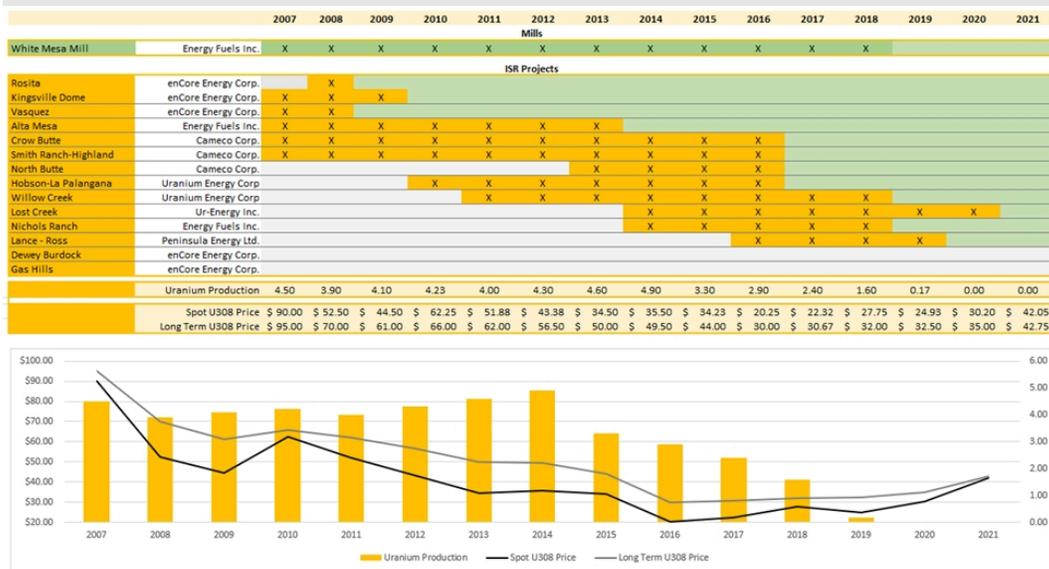
Consolidated Uranium offers near-term production potential from its projects (conventional underground mines) and the strategic alliance the Company shares with Energy Fuels which provides



CUR with access to Energy Fuels' White Mesa Mill. Laramide Resources offers similar potential at its La Sal Project in Utah.

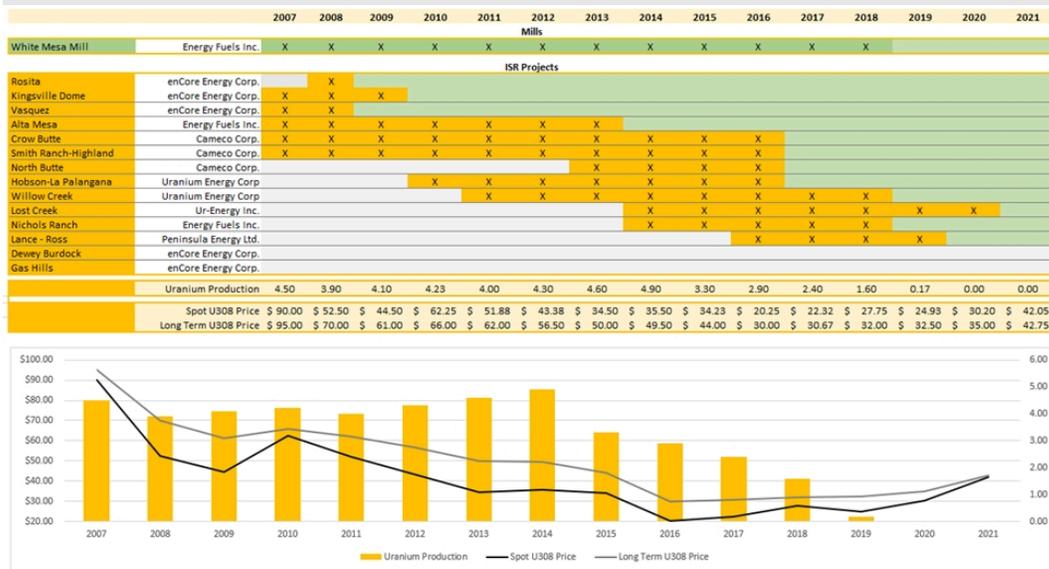
Besides the White Mesa mill, we see production from up to 13 facilities, 11 of which are currently on standby. All 11 facilities have operated over the past 15 years. Since the 2014 production peak of ~4.9M lb. U<sub>3</sub>O<sub>8</sub> when the long-term price was ~US\$50/lb U<sub>3</sub>O<sub>8</sub> the six facilities that operated reduced to five facilities by 2018 when the long term price traded down to ~US\$30/lb U<sub>3</sub>O<sub>8</sub>. The last two facilities to suspend production were the Ross facility (Peninsula Energy) and the Lost Creek facility (Ur-Energy) in 2019 and 2020, respectively (see Exhibit 3).

### Exhibit 3 - U.S, ISR Historical Production Timelines



Source: PI Financial Corp.

### Exhibit 4 - U.S, ISR Historical Production Timelines



Source: PI Financial Corp.

Our analysis of potential for renewed US domestic uranium production identified a potential global resource (NI 34-101 compliant) that totals ~550M in-situ lbs of U<sub>3</sub>O<sub>8</sub>, of which ~400M in-situ lbs can be potentially tapped by ISR facilities, the remainder extracted by conventional mining methods.



In our analysis we distinguish NI 34-101 compliant global resources by development stage, i.e:

- ▶ Operating: In production,
- ▶ Standby: Previously operated in last 20 years, permitted, currently suspended,
- ▶ Economic Evaluation: Economic Study (PEA, PFS, FS), typically awaiting permits,
- ▶ Resource Development: NI 43-101 compliant (awaiting economic evaluation),
- ▶ Exploration: Non- NI 43-101 compliant.

Irrespective of mining method, we see a third of the US' potential global resource inventory as "production-ready" and two-thirds as "development-ready".

### ISR Uranium Production Potential

Of the ~400M in-situ lbs can be potentially tapped by ISR facilities, we view ~179M in-situ lbs (~44%) as "Standby lbs", i.e. lbs associated with previously operated (in last 20 years), permitted but currently suspended ISR facilities. Cameco and Peninsula Energy's ISR facilities host ~70% of these lbs., Energy Fuels, Ur-Energy and Uranium Energy own the remainder. We see ~227M in-situ lbs (~56%) as either "Economic Assessment or Resource Development lbs", i.e. lbs associated with ISR facilities that have been subjected to economic study, with the minimum of a Preliminary Economic Assessment (PEA) or host to NI 43-101 compliant resources. ISR facilities owned by enCore Energy, Ur-Energy, Uranium Energy, Laramide Resources, Cameco and Energy Fuels host these lbs (see Exhibits 5 and 6).

**Exhibit 5 - ISR Development Stage in-situ U308 lbs – by Development Stage**

	Operating	Standby	Economic Assessment	Resource Development	Exploration	Total
Cameco Corp.	0	68	0	19	0	87
Uranium Energy Corp.	0	18	0	70	0	88
Energy Fuels Inc.	0	21	0	13	0	34
enCore Energy Corp.	0	0	26	34	0	60
Ur-Energy Inc.	0	19	9	0	0	27
Peninsula Energy Ltd.	0	54	0	0	0	54
Laramide Resources Ltd.	0	0	0	56	0	56
<b>Total</b>	<b>0</b>	<b>179</b>	<b>35</b>	<b>192</b>	<b>0</b>	<b>406</b>
	0%	44%	9%	47%	0%	

Source: PI Financial Corp.

**Exhibit 6 - U.S. ISR Developers**

Company	US States	Mlbs	%U308	Development Stage (% in-situ lbs)					Production Centres		
				OP*	SB*	ED*	RD*	EX*			
<b>U.S. ISR Uranium Developers</b>											
Cameco Corp.	Nebraska, Wyoming	87	0.11%	0%	78%	0%	22%	0%	Crow Butte (CPP)	Smith Ranch (CPP)	Highland (CPP)
Uranium Energy Corp.	Texas, Wyoming	88	0.10%	0%	20%	0%	80%	0%	Hobson (CPP)	Irigaray (CPP)	
Energy Fuels Inc.	Wyoming, Texas	34	0.07%	0%	63%	0%	37%	0%	Nichols Ranch (CPP)	Alta Mesa (CPP)	
enCore Energy Corp.	Texas, South Dakota, Wyoming, New Mexico, Colorado	60	0.11%	0%	0%	43%	57%	0%	Rosita (CPP)	Kingsville Dome (CPP)	Dewey Burdock (CPP)
Ur-Energy Inc.	Wyoming	27	0.11%	0%	68%	32%	0%	0%	Lost Creek (CPP)		
Peninsula Energy Ltd.	Wyoming	54	0.05%	0%	100%	0%	0%	0%	Lance (CPP)		
Laramide Resources Ltd.	New Mexico	56	0.08%	0%	0%	0%	100%	0%			

Note: OP: Operating, SB: Standby, ED: Economic Development, RD: Resource Development, EX: Exploration

Source: PI Financial Corp.

### Conventional Uranium Production Potential

Of the ~150M in-situ lbs can be potentially extracted by conventional mining methods, we see ~11M in-situ lbs (~7%) as "Standby lbs", i.e. lbs associated with previously operated (in last 20 years), permitted but currently suspended operations. Four of Energy Fuels' projects host these lbs, the remainder of the Company's NI 43-101 compliant in-situ lb resource base being characterized as at the "Resource Development" stage of development. In fact, Energy Fuels owns over half of the



150M in-situ lbs that we see can be potentially extracted by conventional mining methods, Uranium Energy, enCore Energy and Laramide Resources owning the remainder. Over 90% of these lbs are at an “Economic Assessment” or “Resource Development” stage of development.

Whilst Consolidated Uranium’s projects don’t currently host NI 34-101 compliant resources, we do note the Company’s current exploration programs are directed at verifying historic drill hole data and facilitating the preparation of a NI 43-101 -compliant mineral resource estimates (see Exhibits 7 and 8).

**Exhibit 7 - Conventional Development Stage in-situ U308 lbs – by Development Stage**

	Operating	Standby	Economic Assessment	Resource Development	Exploration	Total
Uranium Energy Corp.	0	11	0	71	0	82
Energy Fuels Inc.	0	0	24	0	0	24
enCore Energy Corp.	0	0	0	35	0	35
Consolidated Uranium Inc.	0	0	0	0	0	0
Laramide Resources Ltd.	0	0	0	10	0	10
<b>Total</b>	<b>0</b>	<b>11</b>	<b>24</b>	<b>116</b>	<b>0</b>	<b>151</b>
	0%	7%	16%	77%	0%	

Source: PI Financial Corp.

**Exhibit 8 - U.S. Conventional Developers**

Company	US States	Mlbs	%U308	Development Stage (% in-situ lbs)					Production Centres
U.S. Conventional Uranium Developers				OP*	SB*	ED*	RD*	EX*	
Uranium Energy Corp.	New Mexico, Arizona, Colorado	82	0.04%	0%	0%	0%	100%	0%	
Energy Fuels Inc.	Utah, Colorado, New Mexico, Arizona, Wyoming	24	0.32%	0%	13%	0%	87%	0%	White Mesa (Mill)
enCore Energy Corp.	Wyoming, New Mexico	35	0.11%	0%	0%	100%	0%	0%	
Consolidated Uranium Inc.	Utah	0	-	0%	0%	0%	0%	0%	
Laramide Resources Ltd.	New Mexico, Utah	10	0.22%	0%	0%	0%	100%	0%	

Note: OP: Operating, SB: Standby, ED: Economic Development, RD: Resource Development, EX: Exploration

Source: PI Financial Corp.



## Cameco Corp. (TSX: CCO)(NYSE:CCJ)

### One of the Largest Global Providers of Uranium Fuel Needed to Energize a Clean-Air World.

COO is the world's largest publicly traded uranium company. COO's operations and investments span the nuclear fuel cycle, from exploration to enrichment and fuel manufacturing.

COO operates uranium mines in North America and Kazakhstan including McArthur River-Key Lake, previously the world's largest uranium producer, and Cigar Lake, the world's highest-grade uranium mine, both in Saskatchewan. Other operations in Saskatchewan include a mine and mill at Rabbit Lake, currently in care and maintenance.

COO's outlook for 2022 reflects the expenditures necessary for the Company to achieve its strategic objectives, including the ramp-up to planned production of 15M lbs U<sub>3</sub>O<sub>8</sub> /year (100% basis) at McArthur River/Key Lake by 2024. COO will incur care and maintenance costs for its tier-two assets (Rabbit Lake operation and US ISR mines), which are expected to be between C\$50M and C\$60M.

In the US, COO owns the Crow Butte and Smith Ranch-Highland ISL mines (including the North Butte satellite) located in Nebraska and Wyoming, respectively. Both mines are in care and maintenance. COO expects ongoing cash and non-cash care and maintenance costs to range between US\$17M and US\$19M for both operations in 2022.

It is important to realize that COO is executing on a supply discipline strategy which will see the Company reduce production from its Cigar Lake mine (share of production to be about 45% below productive capacity in 2024). In addition, at the Company's Inkai mine in Kazakhstan COO will continue to follow the 20% reduction until the end of 2023.

**Global Laser Enrichment:** COO is also exploring innovative areas like laser enrichment technology to broaden its fuel cycle participation. Uranium enrichment is the second-largest value component, after uranium, in a typical light-water reactor fuel bundle. COO has a 49% interest in Global Laser Enrichment (GLE), the exclusive licensee of the proprietary Separation of Isotopes by Laser Excitation (SILEX) technology. GLE is developing this third-generation uranium enrichment technology. COO's partner in GLE is Silex Systems Limited of Australia (51% interest), the licensor of the SILEX technology.

**US Assets:** Two ISR mines, one in Wyoming and one in Nebraska.

**Smith Ranch-Highland CPP & Well Fields:** Located in Converse County, Wyoming. The Smith Ranch and Highland properties share a common border and are operated as a single facility.

Smith Ranch-Highland CPP: Annual Capacity: 3M lb U<sub>3</sub>O<sub>8</sub>.

Projects/Wellfields: Smith Ranch-Highland, North Butte-Brown Ranch, Ruby Ranch, Shirley Basin.

History: COO acquired Power Resources, Inc., the owner of the Highland project in 1997. COO acquired Smith Ranch and other Wyoming uranium assets from Rio Algom Mining in 2002. Both Highland and Smith Ranch were conventional uranium mining operations prior to ISL operations. Smith Ranch-Highland commenced production in 1975 and produced 23M lbs of uranium. North Butte is a satellite facility to the Smith Ranch-Highland ISL facility. Resins from North Butte are transported to the Smith Ranch-Highland CPP for processing. Production started in 2013. In Q2/16, COO curtailed production from Smith Ranch-Highland and North Butte and deferred all wellfield development.

Current Activities: Currently on care and maintenance.



**Crow Butte CPP & Well Fields:** Located in Dawes County, Nebraska.

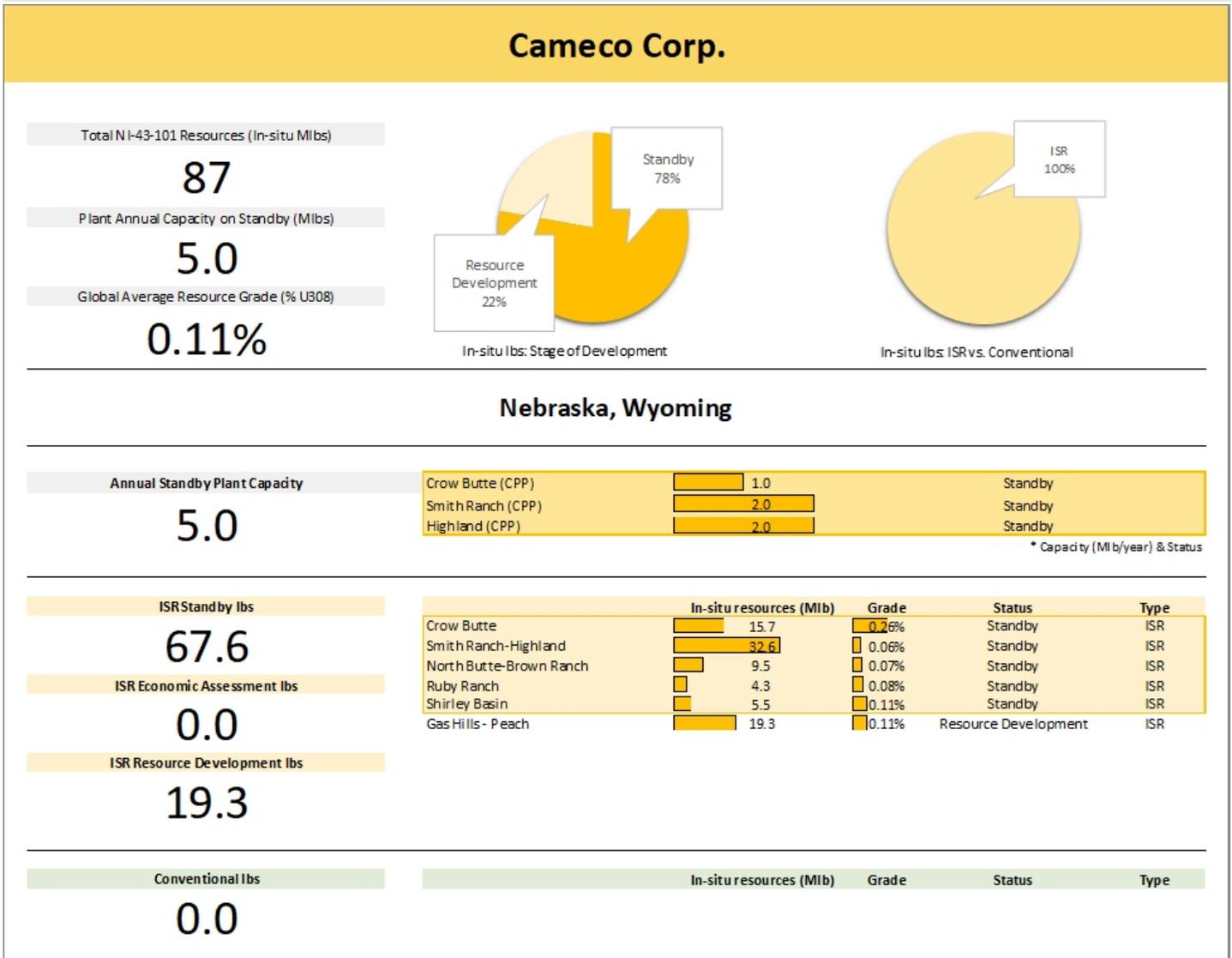
Crow Butte CPP: Annual Capacity: 2M lb U<sub>3</sub>O<sub>8</sub>.

Projects/Wellfields: Crow Butte, North Trend Expansion Area.

History: Crow Butte was the first uranium mine developed in Nebraska. ISR production commenced in 1991. In Q2/16, COO curtailed production from Crow Butte and deferred all wellfield development.

Current Activities: Currently on care and maintenance.

**Exhibit 9 - Cameco Corp. - Project Snapshot**



Source: Cameco Corp., PI Financial Corp.



## Uranium Energy Corp. (NYSE:UEC)

### Uranium Energy Low-Cost Fuel for Emission-Free Electricity.

**Irigaray & Christensen Ranch (Willow Creek) CPP & Wellfields:** Located in Campbell, Johnson, Converse and Sweetwater Counties, Wyoming.

Irigaray & Christensen Ranch (Willow Creek) CPP: Annual Capacity: 2.5M lb U<sub>3</sub>O<sub>8</sub>.

Projects/Wellfields: Christensen Ranch, Reno Creek, Ludeman, Moore Ranch, Irigaray, Allemand-Ross, Barge, and the Jab/West Jab project areas.

History: Irigaray & Christensen Ranch was acquired from Uranium One Inc in late 2021. The Irigaray plant and wellfields commenced production in 1978 and were placed on standby in 1982. Production recommenced in 1987 and Christensen Ranch was included as a satellite operation with ion exchange plant and the associated wellfields. Uranium production ceased in mid-2000 and activities transitioned to wellfield restoration and site decommissioning.

Current Activities: Christensen Ranch is currently under care and maintenance and capturing residual U<sub>3</sub>O<sub>8</sub> lbs. Irigaray has toll processing capacity. The plant and infrastructure is production ready with four fully installed wellfields on standby. A resin processing agreement with Peninsula Energy is in place at Irigaray through 2024.

**Hobson CPP & Wellfields:** Located in Karnes County.

Hobson CPP: Annual Capacity: 2M lb U<sub>3</sub>O<sub>8</sub> (1M lb U<sub>3</sub>O<sub>8</sub> licensed).

Projects/Wellfields: Burke Hollow, La Palangana, and Goliad projects.

History: The Hobson CPP and La Palangana project was acquired from Uranium One Inc in late 2009. Hobson was originally licensed and constructed in 1978 and was subsequently refurbished and expanded to a drying and packaging capacity of 1M lb U<sub>3</sub>O<sub>8</sub> a year in late 2008.

Current Activities: Continuing wellfield monitor well installation at Production Area 1 at Burke Hollow.

Exhibit 10 - Uranium Energy Corp. - Project Snapshot

Uranium Energy Corp.

Total NI-43-101 Resources (In-situ Mlbs)

88

Plant Annual Capacity on Standby (Mlbs)

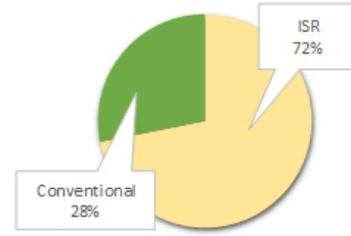
4.5

Global Average Resource Grade (% U3O8)

0.10%



In-situ lbs: Stage of Development



In-situ lbs: ISR vs. Conventional

Texas, Wyoming

Annual Standby Plant Capacity

4.5



\* Capacity (Mlbs/year) & Status

ISR Standby lbs

17.8

ISR Economic Assessment lbs

0.0

ISR Resource Development lbs

70.3

	In-situ resources (Mlb)	Grade	Status	Type
Palangana	2.2	0.16%	Standby	ISR
Irigaray CPP (Willow Creek)	6.0	0.07%	Standby	ISR
Christensen Ranch	9.6	0.07%	Standby	ISR
Reno Creek	27.5	0.04%	Resource Development	ISR
Ludeman	11.0	0.09%	Resource Development	ISR
Burke Hallow	7.1	0.09%	Resource Development	ISR
Goliad	7.0	0.50%	Resource Development	ISR
Barge	4.4	0.05%	Resource Development	ISR
JAB	4.4	0.07%	Resource Development	ISR
Moore Ranch	3.3	0.06%	Resource Development	ISR
Allemand-Ross	3.0	0.10%	Resource Development	ISR
Salvo	2.8	0.08%	Resource Development	ISR

Conventional lbs

34.5

	In-situ resources (Mlb)	Grade	Status	Type
Anderson	29.0	0.03%	Resource Development	Conv
Workman Creek	5.5	0.09%	Resource Development	Conv

Source: Uranium Energy Corp., PI Financial Corp.



## Energy Fuels Inc. (TSX-EFR)

### The Leading US Producer of Uranium and Vanadium, and an Emerging Producer of Rare Earth Element (REE) Products.

EFR owns three uranium production centers in the US, which total over 11.5M lbs of annual licensed production capacity. The company also owns a number of conventional and ISR uranium mines. These include:

- ▶ The White Mesa Mill, located near Blanding, Utah (8M lbs. annual licensed capacity), which is the only operating conventional uranium and vanadium mill in the US, and was recently expanded to produce REEs. The mill is currently producing the most advanced REE material in the US
- ▶ The company's conventional mines include the fully-permitted and fully- or substantially-developed Pinyon Plain mine (Arizona), the La Sal Complex of mines (Utah), the Whirlwind mine (Utah), and several partially-permitted, undeveloped conventional projects including Sheep Mountain (Wyoming), Roca Honda (New Mexico), Bullfrog (Utah), and Wate (Arizona).
- ▶ ISR projects include the fully-permitted and developed Alta Mesa (Texas; 1.5M lbs. annual licensed capacity) and Nichols Ranch (Wyoming; 2M lbs. annual licensed capacity) projects which have collectively produced about 6M lbs of uranium over the last 15 years; these were placed on care and maintenance in 2013 and 2019, respectively.

**White Mesa Mill:** Located in San Juan County Utah.

The White Mesa Mill ranks as the only operating conventional uranium mill in the US. It is centrally located and can be fed by a number of conventional uranium and uranium/vanadium mines owned by EFR and others in Colorado, Utah, Arizona, and New Mexico, as well as by ore purchase or toll milling arrangements with third party miners in the region.

History: Construction of the White Mesa Mill began in 1979, and conventionally mined uranium/vanadium ore was first processed in May 1980. The mill has historically operated on a campaign basis, whereby mineral processing occurs as mill feed, contract requirements, and market conditions warrant. Over the years, the Company's own, and third-party owned, conventional uranium properties in Utah, Colorado, Arizona, and New Mexico have been both active and on standby, from time-to-time, in response to changing market conditions. The Mill has produced about 35 million lbs of uranium, and about 55 million lbs of vanadium, during its operating history. During 2021, the Mill began producing an intermediate REE product (high-purity mixed REE carbonate).

Current Uranium Activities: EFR's current focus at the mill is on producing uranium and REEs. During 2022, improved uranium market conditions allowed the company to enter into three (3) long-term uranium sales contracts with US utilities with base sale quantities totaling 3.0 million lbs. for 2023-2030; quantities could total 4.2 million lbs. if all options are exercised. The company is seeking to secure additional sales contracts. As a result, the company is preparing to resume uranium production at one or more of its uranium projects, including the White Mesa Mill, Nichols Ranch, and/or Alta Mesa. The company also has about 700,000 lbs. of finished uranium in inventory, plus about 300,000 – 400,000 lbs. of uranium in stockpiled ore, which could be delivered into the contracts or sold on the spot market. The mill is also evaluating the potential recovery of thorium and radium from the company's existing REE Carbonate and uranium process streams for use in the production of medical isotopes for emerging targeted alpha therapy (TAT) cancer therapeutics.

EFR expects to recover ~100 to 120K lbs of U<sub>3</sub>O<sub>8</sub> at the mill this year. These lbs will primarily be a result of processing stockpiled ore and alternate feed materials with a small contribution from REE processing.

Current REE Activities: In 2021, the Mill began commercially processing a mineral called "monazite" for the recovery of REE's, producing a high-purity mixed REE carbonate, which is ready for the next step in the REE supply chain (separation) without further processing. EFR expects to process monazite to produce about 650 to 1,000 tonnes of mixed REE carbonate, containing ~300 to 450 tonnes of



TREO (total rare earth oxides), during 2022. In 2021, EFR also began piloting separation of individual REE oxides, including production of about 2 kg per day of high-purity (99.8%) NdPr oxide. The company also successfully performed partial separation of lanthanum (La) oxide at commercial scale at the mill earlier in 2022. The company plans to continue piloting REE separation, including “heavy” REEs. This piloting and other work will allow for the design of a commercial-scale separation facility at the mill, and the company expects to submit an application to Utah regulators for this new REE infrastructure in late-2022 or early-2023.

EFR believes it is uniquely positioned to become a large, low-cost producer of advanced REE materials, as it is currently licensed and capable of recovering and/or managing the radionuclides naturally associated with monazite. In addition, the White Mesa Mill has used solvent extraction (SX) processing technology to produce uranium and vanadium for 40+ years, and SX is the proven technology for producing separated REE oxides and other advanced materials. It makes sense to deploy this knowledge for the production of REEs.

We also note that Consolidated Uranium Inc (discussed below) has a strategic alliance with Energy Fuels with a toll-milling agreement which guarantees access to EFR’s White Mesa Mill. Consolidated Uranium’s key US projects, which were acquired from EFR, are the Tony M, Daneros and Rim mines.

## **Conventional Mining Opportunities**

### **Pinyon Plain (formerly known as the “Canyon” mine), Coconino County, Arizona:**

Pinyon Plain is a fully permitted and substantially-developed high-grade uranium mine. Surface infrastructure and a 1,500-foot-deep production shaft have been completed. Pinyon Plain is within economic trucking distance to the White Mesa mill (270 miles to 320 miles, depending on the route).

EFR is currently evaluating the potential to begin production at the Pinyon Plain mine. Before ore production can occur, minimal underground development work, including a ventilation shaft, must be constructed. Finished uranium from this mine could be available for sale within about 18 months of a production decision.

### **La Sal Complex, San Juan County, Utah:**

The La Sal Complex is a series of fully-permitted and fully-developed mines located near the town of La Sal, Utah, which are currently on standby status. The 11-mile-long La Sal Trend in Utah has seen an abundance of uranium and vanadium mining activity for several decades.

Between 2006 and 2012 production in the La Sal Project area totaled ~ 412,000 tons (1.66M lbs U<sub>3</sub>O<sub>8</sub> at an average grade of 0.20% U<sub>3</sub>O<sub>8</sub> and 8.4M lbs V<sub>2</sub>O<sub>5</sub> at an average grade of 1.02% V<sub>2</sub>O<sub>5</sub>). Production ceased in 2012. EFR’s La Sal project is within economic trucking distance to the White Mesa mill (~60 miles).

EFR rehabilitated the La Sal Complex in 2019 and also produced about 6,000 tons of ore during a test mining campaign that developed new mining techniques for targeting high-grade uranium and vanadium zones. Today’s elevated uranium and vanadium prices make La Sal an attractive option for resuming full-scale mine production to supply the company’s new long-term sales contracts. Finished uranium from this mine could be available for sale within about 12 months of a production decision.

### **Whirlwind, Mesa County, Colorado and Grand County, Utah:**

The fully-permitted and substantially-developed Whirlwind mine straddles the Utah/Colorado state line 4.5 miles southwest of Gateway, Colorado. EFR is currently carryout rehabilitation work on a mine decline in order to ensure that the mine remains in a state of readiness to enable resumption of production on a timely basis.



### **Sheep Mountain, Fremont County, Wyoming:**

The Sheep Mountain project is a large, fully-permitted conventional uranium mine located in central Wyoming. Sheep Mountain hosts over 30 million pounds of uranium and has the potential to produce about 1.5 million pounds of uranium per year over a 15+ year mine life. Ore would be processed at a new on-site heap leach facility, which needs to be licensed and developed. Production could commence within about 3-4 years, pending licensing and construction of the heap leach.

### **Roca Honda, McKinley County, New Mexico:**

Roca Honda is a large, partially-permitted conventional uranium mine located in New Mexico. The mine hosts approximately 26 million lbs. of uranium and has the potential to produce about 2.7 million lbs. of uranium per year over a 9 mine life. Once permitted and developed, ore would be processed at the White Mesa Mill.

### **Bullfrog, Garfield County, Utah:**

The Bullfrog deposit is a large, un-permitted deposit located about 100 miles west of the White Mesa Mill in Utah. The Company is currently evaluating commencing permitting on this project.

### **Wate, Coconino County, Arizona:**

Wate hosts a high-grade breccia pipe, similar to Pinyon Plain. Wate is one of several uranium bearing breccia pipe deposits held by EFR in northern Arizona. Wate could advance rapidly to underground exploration and development planning should uranium market conditions improve.

## **ISR Mining Opportunities**

**Nichols Ranch CPP & Wellfields:** Located in Campbell and Johnson Counties, Wyoming.

Nichols Ranch Central Processing Plant (CPP): Annual Capacity: 0.7M lb U<sub>3</sub>O<sub>8</sub>. (2M lb U<sub>3</sub>O<sub>8</sub>.licensed).

Projects/Wellfields: In order for production to recommence at Nichols Ranch, additional wellfields near the CPP will have to be developed, as all nine (9) existing wellfields are now depleted. EFR holds 34 fully permitted, undeveloped wellfields at Nichols Ranch, including four additional wellfields at Nichols Ranch, 22 wellfields at Jane Dough, and eight wellfields at Hank.

History: Construction of the Nichols Ranch processing facility commenced in 2011 and plant construction / initial wellfield installation was completed in 2014 with operations commencing in April 2014. The Nichols Ranch CPP produces a yellow cake slurry that is transported by truck to the White Mesa Mill, where it is dried and packaged into drums that are shipped to uranium conversion facilities. Nichols Ranch produced 1.27M lbs U<sub>3</sub>O<sub>8</sub> through to year-end 2019 (69,626 lbs recovered during 2019).

Current Activities: Nichols Ranch is currently on standby but ready to resume wellfield construction and uranium production when uranium prices yield an attractive operating margin. The company is currently evaluating recommencing production in response to the recently signed sales contracts and generally improved market conditions.

**Alta Mesa CPP & Wellfields:** Located in Brooks and Jim Hogg Counties, South Texas.

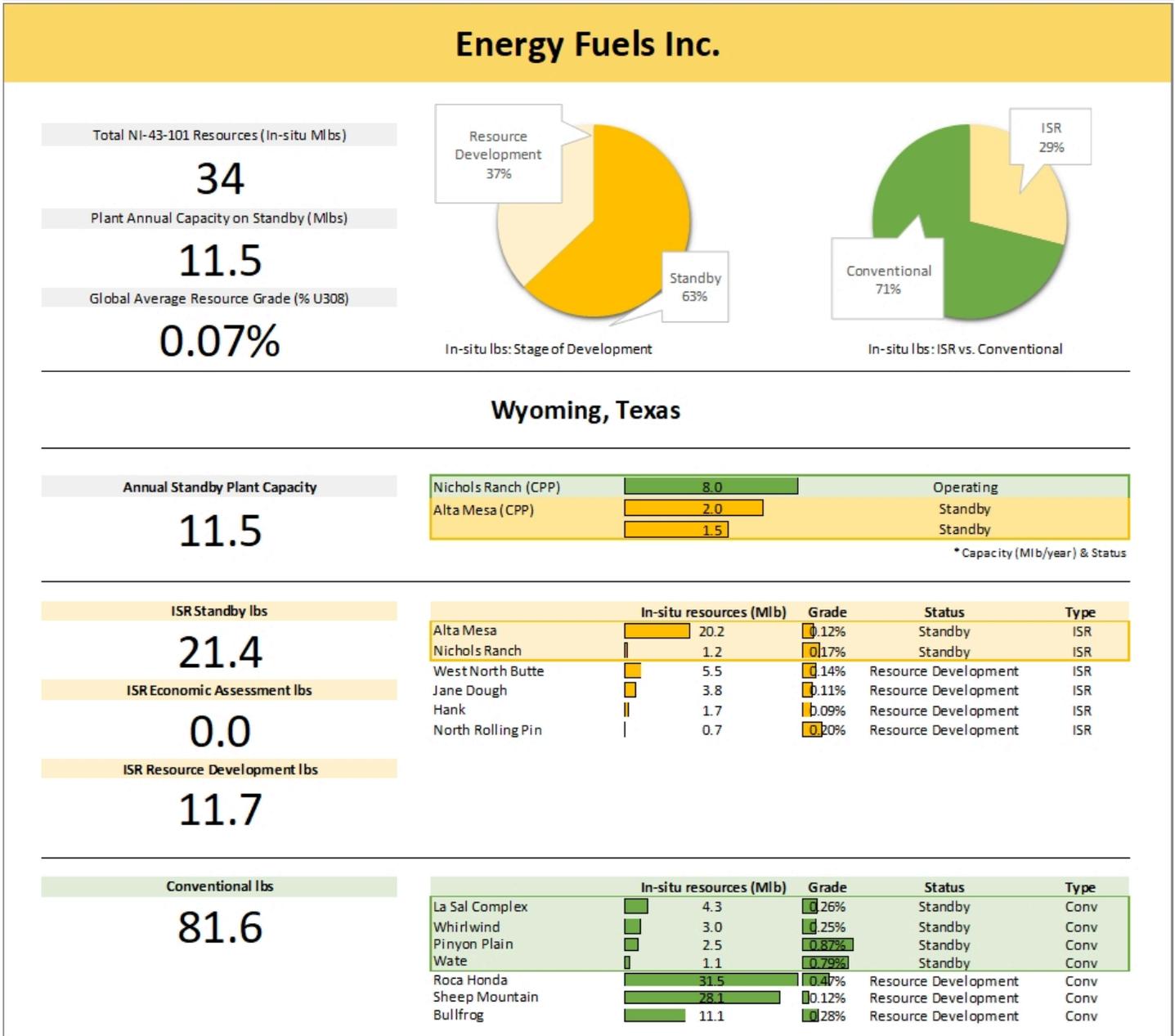
Alta Mesa CPP: Annual Capacity: 1.5M lb U<sub>3</sub>O<sub>8</sub>.

Projects/Wellfields: Like Nichols Ranch, in order for production to recommence at Alta Mesa, wellfields will have to be developed. In addition, plant upgrades must be carried out. Alta Mesa is divided into two primary areas with sufficient drilling to define resources.

History: EFR acquired Alta Mesa in June 2016 through the acquisition of Mesteña Uranium LLC. Plant construction at Alta Mesa began in 2004 and initial production commenced in Q4/05. Alta Mesa produced ~4.6M lbs of U<sub>3</sub>O<sub>8</sub> between 2005 and when production ceased in 2013.

Current Activities: Alta Mesa is ready to resume wellfield construction, plant upgrades and resume production when uranium prices yield an attractive operating margin. The company is currently evaluating commencing production at Alta Mesa in response to the recently signed sales contracts and generally improved market conditions.

**Exhibit 11 - Energy Fuels Inc. - Project Snapshot**



Source: Energy Fuels Inc., PI Financial Corp.



## enCore Energy Corp. (TSXV: EU)

### Becoming the Leading American Uranium ISR Producer

**Rosita CPP & Wellfields:** Located in Duval County, Texas.

Rosita CPP: Annual Capacity: 0.8M lb U<sub>3</sub>O<sub>8</sub> (after refurbishment).

Projects/Wellfields: Rosita, Upper Spring Creek (previously licensed), Rosita extension and Rosita South Extension.

History: Rosita was acquired from Westwater Resources Inc in late 2020. Initial production commenced in 1990 and continued until July 1999, when the plant was placed on standby and then resumed in June 2008. During the period 1990 to 1999 2.64M lbs U<sub>3</sub>O<sub>8</sub> was produced. In 2007/2008, upgrades were made to the processing equipment and additions to the facility were installed, including revisions to the elution and precipitation circuits, and the addition of a full drying system. Construction terminated when the plant was 95% complete, prompted by low uranium prices and technical difficulties in October 2008.

Current Activities: EU is currently carrying out plant modernization and refurbishment activities at Rosita. Modernization activities commenced in July 2021 with a projected budget of less than US \$1M. Completion is anticipated later this month with planned production 2023.

**Kingsville Dome CPP:** Located in Kleberg County, Texas.

Kingsville Dome CPP: Annual Capacity: 0.8M lb U<sub>3</sub>O<sub>8</sub>.

History: Kingsville Dome was constructed in 1987 as an up-flow uranium extraction circuit, with complete drying and packaging facilities within the recovery plant. Production was recorded in 1988 through 1990, from 1996 to 1999, and most recently from 2007 through 2009. From the onset of production until July 1999, 3.5M lbs of U<sub>3</sub>O<sub>8</sub> was produced from the project before production was suspended in July 1999, due to depressed uranium prices, but resumed in April 2006.

Current Activities: While EU has no immediate plans to restart production at Kingsville Dome, the CPP will be maintained to be available to increase production capacity as additional satellite plants and production wellfields are brought into production.

**Dewey Burdock Project:** Located in Custer and Fall River Counties, South Dakota.

Development Plan: Dewey Burdock is currently at the Economic Assessment stage of development.

A Preliminary Economic Assessment (PEA) was completed in 2019 which demonstrates production potential via a five-stage development plan from 19 well fields from the Burdock resource area and a CPP as well as a satellite facility that draws production from 32 well fields from the Dewey resource area. Initial development will take a phased approach commencing with the construction of the Burdock CPP with ion exchange (IX) resin processed at an off-site processing facility to an expansion to include processing capabilities for up to 1M lb U<sub>3</sub>O<sub>8</sub>/ year. Production will then shift from the Burdock to the Dewey resource.

The PEA is based on the ISL mining of M & I resources that host ~17.1M in-situ lbs U<sub>3</sub>O<sub>8</sub> and Inferred resources that total ~0.7M in-situ lbs U<sub>3</sub>O<sub>8</sub>. 80% recoveries were assumed over a ~20-year LOM (well fields depleted after 16 years) for total production of ~14.3M in-situ lbs U<sub>3</sub>O<sub>8</sub>.

Initial Capex and LOM sustaining Capex is estimated at ~US\$31.7M and ~US\$158M, respectively. Operating costs were estimated at ~US\$30/lb U<sub>3</sub>O<sub>8</sub>.

The PEA estimated a pre-tax NAV of US\$171M at an 8% discount rate and an IRR of 50%, assuming a US\$55/lb U<sub>3</sub>O<sub>8</sub> price.



Current Activities: While EU is in compliance with existing permitting and licensing requirements in order for construction and operations to commence three state permits to be issued by the South Dakota Department of Agriculture & Natural Resources as well as a number of other pre-operational conditions need to be satisfied. Importantly, a EAB appeal to be denied or resolved in favor of the Company.

**Gas Hills Project:** Located in Fremont and Natrona Counties, Wyoming.

Development Plan: Gas Hills is currently at the Economic Assessment (PEA) stage of development.

A PEA was completed in 2021 which demonstrates production potential from four resource areas, namely West Unit, Central Unit, South Black Mountain, and Jeep. A satellite ion exchange (IX) plant will be located at the West Unit and IX resin will be transported to Dewey-Burdock.

The PEA is based on the ISL mining of M & I resources that host ~7.7M in-situ lbs U<sub>3</sub>O<sub>8</sub> and Inferred resources that total ~0.4M in-situ lbs U<sub>3</sub>O<sub>8</sub>. 80% recoveries were assumed over a ~7-year LOM for total production of ~6.5M in-situ lbs U<sub>3</sub>O<sub>8</sub>.

Initial Capex and LOM sustaining Capex is estimated at ~US\$26M and ~US\$59M, respectively. Operating costs were estimated at ~US\$23/lb U<sub>3</sub>O<sub>8</sub>.

The PEA estimated a pre-tax NAV of US\$171M at an 8% discount rate and an IRR of 50%, assuming a US\$55/lb U<sub>3</sub>O<sub>8</sub> price.

Current Activities: While EU is in compliance with existing permitting and licensing requirements in order for construction and operations to commence three state permits to be issued by the South Dakota Department of Agriculture & Natural Resources as well as a number of other pre-operational conditions need to be satisfied. Importantly, a EAB appeal to be denied or resolved in favor of the Company.

*PI Financial Corp. and/or its affiliates have received compensation for investment banking services for enCore Energy over the preceding 12-month period.*

Exhibit 12 - enCore Energy Corp. - Project Snapshot

## enCore Energy Corp.

Total NI-43-101 Resources (In-situ Mlbs)

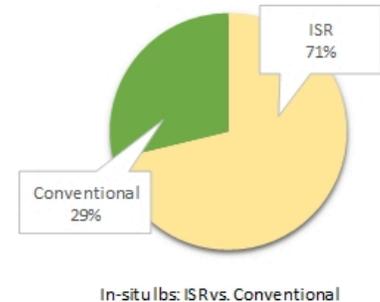
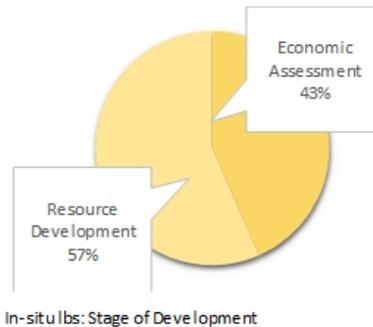
60

Plant Annual Capacity on Standby (Mlbs)

1.6

Global Average Resource Grade (% U308)

0.11%



### Texas, South Dakota, Wyoming, New Mexico, Colorado

Annual Standby Plant Capacity

1.6

Rosita (CPP)		0.8	Standby
Kingsville Dome (CPP)		0.8	Standby

\* Capacity (Mlb/year) & Status

ISR Standby lbs

0.0

ISR Economic Assessment lbs

26.0

ISR Resource Development lbs

33.8

	In-situ resources (Mlb)	Grade	Status	Type
Dewey Burdock	17.8	0.11%	Economic Assessment	ISR
Gas Hills	8.1	0.10%	Economic Assessment	ISR
Crownpoint & Hosta Butte	32.7	0.11%	Resource Development	ISR
Aladdin	1.1	0.11%	Resource Development	ISR
Rosita	0.0	-	Exploration	ISR
Butler Ranch	0.0	-	Exploration	ISR
Upper Spring Creek	0.0	-	Exploration	-
Nose Rock	0.0	-	Exploration	-
West Largo	0.0	-	Exploration	-
Ambrosia Lake – Tree line	0.0	-	Exploration	-
Moonshine Springs	0.0	-	Exploration	-

Conventional lbs

24.2

	In-situ resources (Mlb)	Grade	Status	Type
Marquez-Juan Tafoya	18	0.13%	Economic Assessment	Conv
Juniper Ridge	6.0	0.06%	Economic Assessment	Conv

Source: enCore Energy Corp., PI Financial Corp.



## Ur-Energy Inc. (TSX: URE)(NYSE:URE)

### North America's Premier Uranium Mining Company.

**Lost Creek CPP & Wellfields:** Located in Sweetwater Counties, Wyoming.

Lost Creek CPP: Annual Capacity: 2.2M lb U<sub>3</sub>O<sub>8</sub>.

Projects/Wellfields: Lost Creek, and LC East Project. LC West, LC South, EN, and LC North are not included in the permitted area and have no wellfields or significant resources.

History: URE purchased Lost Creek in 2005 from NFU Wyoming, LLC, a wholly-owned subsidiary of New Frontiers Uranium, LLC. UR commenced construction at Lost Creek in late 2012 (Mine Unit 1). Production at the Lost Creek commenced in August 2013 and 2.7M lbs U<sub>3</sub>O<sub>8</sub> were produced from Lost Creek up to the end of last year. A PEA was completed on the Lost Creek Project earlier this year (March 2022).

Current Activities: Lost Creek is currently operating on a limited basis to maintain operational bleed in the wellfields. Lost Creek is capable of resuming production within a relatively short period of time, with only minimal capital requirements. The Lost Creek plant is designed to generate an annual production of 2.2M lbs U<sub>3</sub>O<sub>8</sub>. The wellfield is designed to produce up to 1.2M lbs U<sub>3</sub>O<sub>8</sub> per year. At full projected flow capacity and at an average uranium content of the lixiviant of 40 mg/L the plant had an originally calculated output of ~1.0M lbs U<sub>3</sub>O<sub>8</sub> a year. URE is currently advancing its ongoing drilling and construction program at Lost Creek in preparation to be production ready in Summer 2022. URE is making progress with the state of Wyoming (LQD) and expect permitting for all mine units listed above to be completed in 2022. They have approx ~4.5M lbs of resource at Lost Creek that is permitted/licensed.

**Shirley Basin & Well Fields:** Located in Carbon County, Wyoming.

The Shirley Basin Project is seen as a satellite to Lost Creek operation. Only the first major solution circuit, the uranium recovery/extraction circuit (IX), will be located at the project. Loaded resin will be contract transported to the Lost Creek Mine, where the remainder of the processing will be completed.

Projects/Wellfields: FAB Trend and Area 5. Currently, 2 Resource Areas and 3 Mining Units have been defined. Resources are hosted in the Main and Lower Sandstone Horizons, both of which have been targeted for production.

History: URE's Shirley Basin land holdings were largely established by Utah Mining Corp in 1957 by staking unpatented mining claims and leasing State of Wyoming and private mineral rights. After several mergers and corporate name changes, all interests were conveyed to Pathfinder Mines in 1976. Pathfinder Mines was purchased by COGEMA Mining, Inc. in the 1980s. URE, acquired Pathfinder Mines in 2013. A PEA was completed on the Shirley Basin Project earlier this year (March 2022).

Exhibit 13 - Ur-Energy Inc. - Project Snapshot

## Ur-Energy Inc.

Total NI-43-101 Resources (In-situ Mlbs)

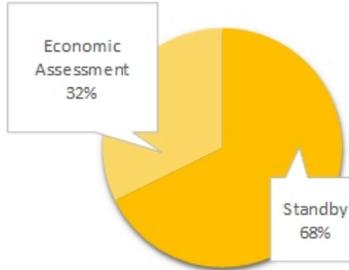
27

Plant Annual Capacity on Standby (Mlbs)

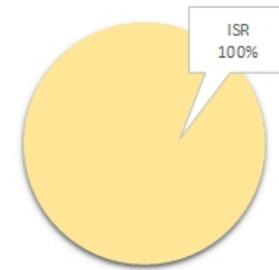
2.2

Global Average Resource Grade (% U308)

0.11%



In-situ lbs: Stage of Development



In-situ lbs: ISR vs. Conventional

## Wyoming

Annual Standby Plant Capacity

2.2

Lost Creek (CPP)

2.2

Standby

\* Capacity (Mlb/year) & Status

ISR Standby lbs

18.5

ISR Economic Assessment lbs

8.8

ISR Resource Development lbs

0.0

	In-situ resources (Mlb)	Grade	Status	Type
Lost Creek	18.5	0.05%	Standby	ISR
Shirley Basin	8.8	0.13%	Economic Assessment	ISR
Lost Soldier	0.0	-	Exploration	ISR

Conventional lbs

0.0

	In-situ resources (Mlb)	Grade	Status	Type
Lucky Mc - Gas Hills Mine	0.0	-	Exploration	Conv

Source: Ur-Energy Inc., PI Financial Corp.



## Peninsula Energy Ltd. (ASX: PEN)

### Uranium Extraction for a Green Energy Future.

Lance — Ross CPP: Annual Capacity: 1.2M lb U<sub>3</sub>O<sub>8</sub>. (3M lb U<sub>3</sub>O<sub>8</sub>.licensed).

Projects/Wellfields: Ross Production Area, and Kendrick Production Area. Kendrick will operate as an extension of Ross with mining solutions pipelined to and from the Ross CPP. Ross Production area is permitted. Kendrick PA permitting is advanced but not complete. The Barber Production Area, offers satellite potential to Ross and Kendrick.

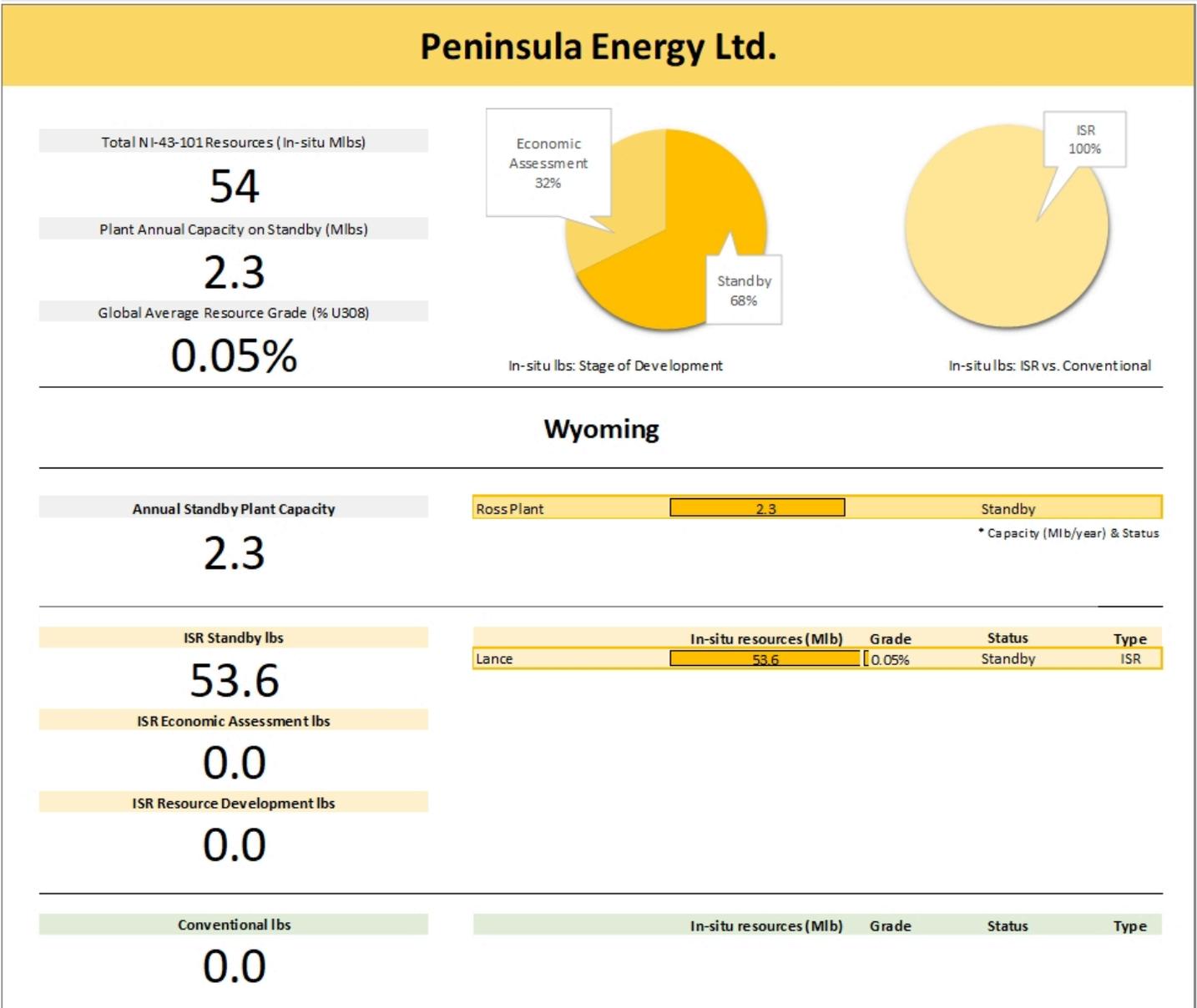
History: Initial production at Ross commenced in Q4/15 after the construction of the central processing plant (CPP), construction of the first wellfield production unit, installation of final pipework, control systems and the installation of all key operating equipment and systems.

Production during 2016 totaled 145K lb U<sub>3</sub>O<sub>8</sub>, which compared with a Stage 1 targeted annual production of between 0.6M lb to 0.7M lb U<sub>3</sub>O<sub>8</sub> by H1/17. PEN experienced lower than expected grade performance during ramp up. Due to the pull back in uranium prices in 2016, PEN implemented an interim operating strategy focused on delivery commitments under term contracts. From the commencement of production, it became evident that uranium recovery was only moderately amenable to the use of an alkaline leach solution.

Commercial operations were suspended in 2019 to allow for a change in process chemistry from using an alkaline leach to a low pH leach. This entailed an application for amendments to regulatory authorities to allow Lance to operate using a low pH ISR process in addition to the originally authorized alkaline ISR process. Lance is the only US uranium project authorized to use the industry leading, low-cost, low pH ISR process. A feasibility study was completed in 2018 which supported the use for a low pH process to yield enhanced recovery rates, while also potentially improving the overall project cost profile. Field leach trials in 2019 validated the feasibility results. Further, in 2020 additional column leach studies indicated that the addition of an oxidant (hydrogen peroxide) to un-mined areas enhanced uranium recovery rates and further confirmed that low pH solutions with oxidant can extract uranium from un-mined areas at rates consistent with the 2018 FS assumptions. The field demonstration operations have performed consistently for more than a year despite the ongoing challenges from the COVID-19 pandemic. The field demonstration was completed in December 2021.

Current Activities: PEN is currently evaluating several alternative uranium capture/recovery process options which may enhance and or improve upon standard ion exchange resin performance. A final investment decision to restart commercial operations is dependent on, the outcome of technical optimization activities, results from an updated feasibility study, off-take agreements to supplement an existing portfolio of uranium concentrate sales and purchase agreements and securing restart funding which could be part funded from sale of strategic uranium inventories. An updated feasibility study is expected to be released in Q3/22.

Exhibit 14 - Peninsula Energy Ltd. - Project Snapshot



Source: Peninsula Energy Ltd., PI Financial Corp.



## Consolidated Uranium Inc. (TSXV: CUR)

### Global Uranium Developer with Focus on Near Term Production in the US

CUR owns a portfolio of US, Canadian, Australia and South American projects. The Company's US portfolio consists of the Tony M, Rim, Daneros and Sage Mines in Utah and several DEO leases in Colorado. All properties offer convectional uranium mining potential. CUR believes it can restart these mines with minimal additional working capital. The Company's Toll Milling Agreement with EFR gives CUR the right to process ore at the White Mesa Mill.

#### Tony M Mine, Garfield County, Utah

The Tony M Mine was developed from 1977 to 1983 with a double decline with crosscuts on 50-foot centres. Over 18 miles of underground workings have been developed. The underground workings were allowed to flood after mining activities were suspended in 1984. Mining restarted at Tony M again in 2007, continued for a year before stopping in 2008. Tony M hosts non-NI 43-101 (historical) resources estimated by Denison Mines (10.9M lbs  $U_3O_8$  grading ~0.2%  $U_3O_8$ ). Power generation and fuel storage facilities are located on site together with ore bays, maintenance building, offices, dry facilities, and an evaporation pond.

CUR acquired Tony M from Energy Fuels in October 2021 as part of an asset purchase agreement that included projects located in Utah and Colorado. Drilling (8-hole program totaling 6,000 ft) is underway to verify historic drill hole data and facilitate preparation of a NI 43-101 -compliant mineral resource estimate.

#### Daneros Mine, San Juan County, Utah

The Daneros Mine located in the White Canyon Mining District, was operated from 2009 to 2012 with decline access. The initial mine plan at Daneros involved driving twin declines (with the second decline for emergency escape and ventilation). Ore (120.7K dry tons grading 0.26%  $U_3O_8$  for ~628K in-situ lbs) from Daneros was processed at Energy Fuel's White Mesa Mill, located 40 miles away. In addition, 73k tons grading 0.22% for ~314k lbs were mined from the property, these projects are now all considered part of Daneros.

Daneros hosts non-NI 43-101 (historical) resources (200K lbs  $U_3O_8$  grading ~0.36%  $U_3O_8$ ). The project area is remotely located relative to water and power infrastructure. A modular trailer, generator, equipment storage and maintenance buildings are located on site. CUR acquired Daneros from Energy Fuels in October 2021 as part of an asset purchase agreement that included projects located in Utah and Colorado. A drill program (8-hole program totaling 7,000 ft) is planned to focus on areas outside the historic resource.

#### Rim Mine, San Juan County, Utah:

The Rim Mine operated from the 1970s to 2009 with shaft and portal access. Infrastructure includes 2 portals, a head frame, hoist house, a maintenance building and water tank. Rim hosts non-NI 43-101 (historical) resources estimated (327K lbs  $U_3O_8$  grading ~0.2%  $U_3O_8$ ) with significant vanadium credits (3M lbs  $V_2O_5$  grading 1.83%  $V_2O_5$ ).

CUR acquired Rim from Energy Fuels in October 2021 as part of an asset purchase agreement that included projects located in Utah and Colorado. A drill program (15-hole program totaling 10,000 ft) is planned to focus on areas outside the historic resource.

*PI Financial Corp. and/or its affiliates have received compensation for investment banking services for Consolidated Uranium over the preceding 12-month period.*



## Laramide Resources Ltd. (TSX: LAM)

**A Canadian-Based Company with Diversified Uranium Assets Strategically Positioned in the U.S. and Australia to Deliver Uranium to an Increasingly Energy Dependent World.**

### **ISR Mining Opportunities:**

**Churchrock / Crownpoint Projects:** Located in McKinley County (Grants Mining District), New Mexico.

Development Plan: LAM plans to advance the Churchrock project to a PEA stage of development. This will be the first economic study on the consolidated Churchrock / Crownpoint project. The Crownpoint project (located 25 miles from Churchrock) includes an NRC permit for a 3M lb U<sub>3</sub>O<sub>8</sub> per annum CPP to process uranium produced from LAM's New Mexico projects. While the permit to build the facility has been granted, a mining study has not been filed to support the technical feasibility or economic viability of the CPP.

### **Conventional Mining Opportunities:**

#### **La Sal Complex, San Juan County, Utah:**

La Sal offers potential for an underground operation. A feasibility study on La Sal was completed in 1978 by Homestake Mining Company. La Sal hosts non-NI 43-101 resources (historical) estimated by Homestake. LAM exercised an option to acquire La Sal from Homestake in 2010.

LAM has permits to commence a bulk sample program. La Sal is located 60 miles from Energy

Fuels' White Mesa mill in Utah. The project includes existing underground decline and mining stops available for a 20k ton bulk sample planned in near future.

#### **La Jara Mesa Project, Cibola County, New Mexico:**

La Jara offers potential for an underground operation. An economic study of the property was completed in early 1980s by Homestake Mining Company. At that time two mills were still operating in the area, the Kerr McGee and Homestake mills. Currently, the closest licensed mill is the White Mesa mill located 250 miles from the project. LAM acquired La Jara Mesa from Homestake in 2005.

LAM has received a Draft Environmental Impact Statement from US Forest Services. LAM plans to advance La Jara Mesa along the National Environmental Policy Act (NEPA) review process, which will ultimately lead to the completion of the final EIS and Record of Decision (ROD).

Exhibit 15 - Laramide Resources Ltd. - Project Snapshot

## Laramide Resources Ltd.

Total NI-43-101 Resources (In-situ M

56

Plant Annual Capacity on Standby (M

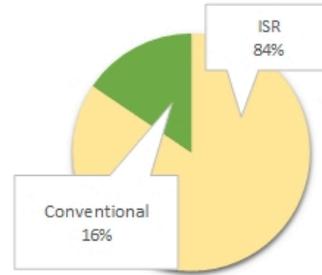
8.0

Global Average Resource Grade (% U

0.08%



In-situ lbs: Stage of Development



In-situ lbs: ISR vs. Conventional

### New Mexico

Annual Standby Plant Capacity

8.0

Nichols Ranch (CPP)

8.0

Operating

\* Capacity (Mlb/year) & Status

ISR Standby lbs

0.0

ISR Economic Assessment lbs

0.0

ISR Resource Development lbs

55.9

	In-situ resources (Mlb)	Grade	Status	Type
Churchrock	50.8	0.08%	Resource Development	ISR
Crownpoint	5.1	0.10%	Resource Development	ISR

Conventional lbs

0.0

	In-situ resources (Mlb)	Grade	Status	Type
La Jara	10.3	0.22%	Resource Development	Conv
La Sal	0.0	-	Exploration	Conv

Source: Laramide Resources Ltd., PI Financial Corp.



## Notes on Geology, Chemistry, Recovery Plants & Costs

### Geology

Uranium deposits are typically formed by the lateral movement of groundwater bearing oxidised uranium minerals through a permeable host such as a sandstone. Precipitation of uranium minerals occurs when the oxygen content of the circulating fluids decreases, along extensive oxidation-reduction interfaces. Uranium minerals are typically distributed along roll fronts between oxidized and reduced sandstones as either uraninite (oxide) or coffinite (silicate) coatings on uncemented sand grains. Uranium deposits suitable for ISL occur in permeable sand or sandstones, confined above and below by impermeable strata, and which are below the water table.

While the US projects have broad geologic similarities, each one also has unique geologic characteristics that can effect the recovery of in-situ uranium resources and costs. Ore associated with low permeability sands will take longer to leach or may be inaccessible to leach solutions. Similarly, more refractory ore may require longer leach times and result in lower recovery. As with any mining operation, comprehensive geologic understanding and the adoption of a proven ISL operating plan are key in achieving attractive ISL economics.

### Chemistry

Uranium ISL methods use native groundwater in an aquifer fortified with a complexing agent and in most cases an oxidant. The solution is pumped through the orebody and minerals are leached from it. Once the pregnant solution is returned to the surface, the uranium is recovered in much the same way as in any other uranium plant (or mill). The ISL process essentially reverses the uranium deposition process over a much shorter time frame.

\*Australian ISL mines (such as Beverley) use hydrogen peroxide as the oxidant and sulfuric acid as the complexing agent. Kazakh ISL mines generally don't employ an oxidant but use much higher acid concentrations in the circulating solutions. ISL mines in the USA use an alkali leach due to the presence of significant quantities of acid-consuming minerals such as gypsum and limestone in the host aquifers.

### Recovery Plants

US operations, like those in Kazakhstan and Uzbekistan, use conventional ion exchange technology to remove the uranium from the pregnant solution. Once the resin is loaded, elution or desorption of the resin is accomplished using a NaCl - NaHCO<sub>3</sub> - Na<sub>2</sub>CO<sub>3</sub> brine. The pH of the eluant is lowered with hydrochloric or sulfuric acid and precipitation from the eluant is completed using hydrogen peroxide or ammonia. The precipitated slurry is filtered through a filter press, washed to lower chloride content, vacuum dried and placed in drums for shipment.

US wellfield operations typically extend over several square kilometers. As operations become remote from the central operating plant, in order to avoid pumping large volumes of water over large distances, satellite plants process pregnant solutions from the wellfields through ion exchange columns. When the ion exchange resin is fully loaded with uranium, it is pumped into specially constructed tanks which are hauled by truck to the central operating plant for elution. Eluted resin is washed and returned in the same haulage tanks to the satellite plant for reuse. Resin transportation is relatively inexpensive on a dollar per kilogram uranium basis, and transportation of resin up to 200 km is considered economically feasible. The satellite plants are modular in design and can be dismantled and moved to different locations as needed. Therefore, small deposits that will not support a full-scale operation can be produced as satellites to larger plants. In addition to resin transportation, one US operation produces a yellowcake precipitate or slurry at a satellite facility, which is hauled in tanks to a central yellowcake dryer.

For very small orebodies which are amenable to ISL mining, a central process plant may be distant from the mined them, so a satellite plant will be set up. This does no more than provide a facility to load the ion exchange (IX) resin so that it can be trucked to the central plant in a bulk trailer for



stripping. Hence, very small deposits can become viable, since apart from the wellfield, little capital expenditure is required at the mine site.

### Costs

Depth of operations is probably the single most important factor that controls cost. Everything else being equal, the deeper the ore, the higher the production cost. Well completion costs, including drilling, casing, cementing and screening become increasingly expensive with depth. Completion costs at depths of 300 m are about 25% more expensive than at 150 m. Costs increase an additional 25% between 300 m and 600 m. Horsepower requirements for pumps operating at 300 m are 50% higher than for pumps operating at 150 m, resulting in higher capital costs for pumps and motors and higher operating costs for power. Standard PVC casing is inadequate at depths greater about 300 m. Stronger, more expensive casing and heavier cement displacement fluids are required below that depth.

We expect labor costs, which typically accounted for about 40% of total historical US ISL production costs to be a significant cost component of the cost of U.S domestic uranium supply. Some projects are more highly automated, which allows fewer people to produce more product. Lixiviant (leach solution) consumption, another important cost component, is variable depending on operating philosophy and geological conditions. The selection of the lixiviant is of critical importance to the success of an in situ leaching operation. The lixiviant affects not only the recovery of uranium and the cost of chemicals, but also the difficulty of meeting environmental regulations concerning restoration of groundwater quality after leaching.

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