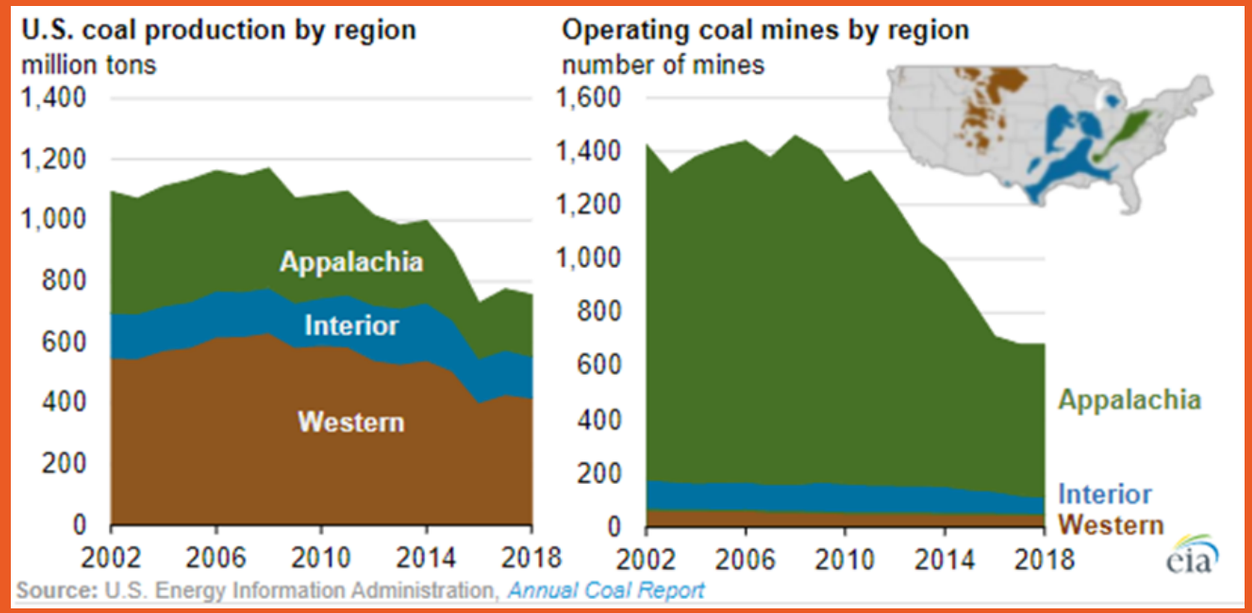
BUSINESS CASE

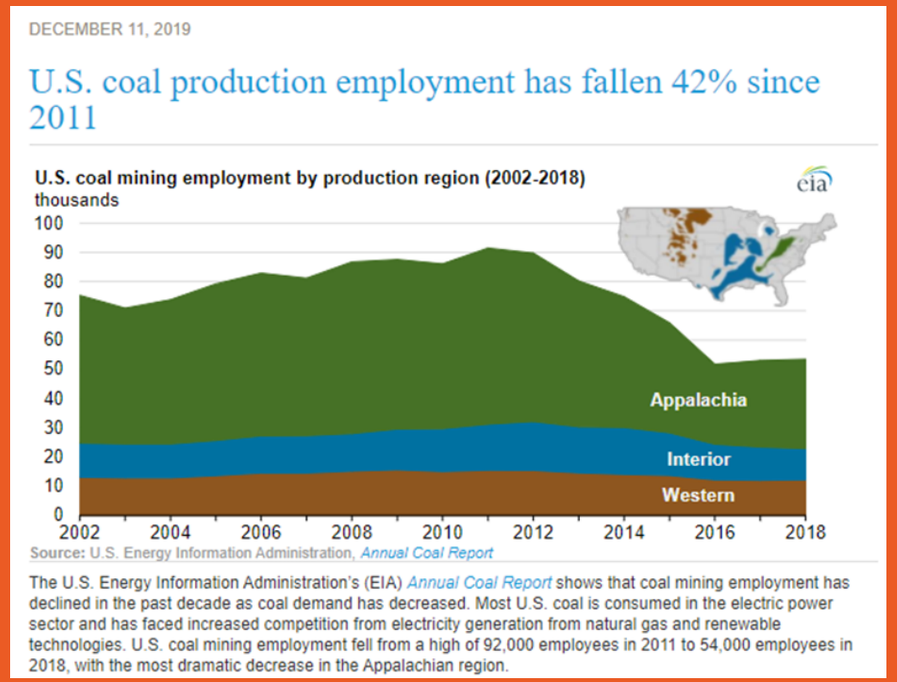
Appalachian poverty is real

With the nation's transition away from coal, counties and states in the northern Appalachian basin are in steep decline.

In fact, Appalachian poverty has become a major problem in the United States that has gone largely unnoticed by the rest of the country. Meanwhile, this series of unfortunate events has led to catastrophic outcomes, such as the large dependence on welfare programs and fostered an unprecedented opioid crisis.

Communities need economic relief within the next decade or there will be no recourse.





MINING JOBS IN WEST VIRGINIA

Mining jobs in West Virginia have been halved since 2012 leading to horrible outcomes including but not limited to:

- 17% of adults with children reported food insecurity in the last seven days because they could not afford groceries.
- 29% of all children in West Virginia are reported to live in a family that is either not getting enough to eat or is behind on housing payments.

Source: West Virginia Center on Budget & Policy

SYNERGOS HOLDINGS

MATERIA

CARBON SOLUTIONS
A Materia Company

CURIO

NuCycle™

TRU Fuel

Rare Earth vs. Nuclear Market

- As the demand for **Energy Transition Minerals (ETM)** grows over the next few decades, the rare earth market is projected to multiply 3 - 7X
- With a green energy transition, **nuclear power is expected to be more decisive than ever before in meeting international net-zero goals**
- Rare Earth market, although important, is not a game changer like nuclear energy prospects
- States that invest in nuclear infrastructure will be able to tap into an unprecedented opportunity for their stakeholders
- **China is investing $440 billion in its own nuclear build up over the next 15 years**

*Source: NETL, IEA; NEI

Global Rare Earth Market

(in USD)

2030	2040 (low end - high end)
$8.5B	$28 – 60B

Global Nuclear Energy Market

(in USD)

2022	2040's	2050's
$136B	$272B	$546B

Nuclear business-as-usual growth rate

Nuclear growth rate to meet USG 2050 targets

Projected number of US reactors by 2050

300+

NUCLEAR WASTE LIABILITY

- Yucca Mountain remains **unlicensed** and is politically **unfavorable with no USG based solution in sight**
- Current approach of *kicking the can down the road* poses **unquantifiable environmental risk**
- **Billions of dollars in liabilities to taxpayers and ratepayers**
- Courts ruled **USG liable** for failing to deal with the nuclear waste problem, annual payments to utilities from judgement fund makes USG the laughing stock of the world
- **Nuclear waste #1 issue to those who oppose nuclear power**

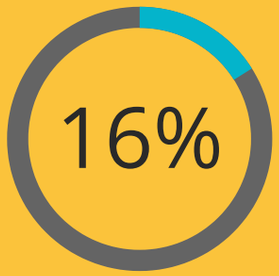
SPENDING AND LIABILITIES

as of 2020 (in billions of USD)

Yucca	NWF	Damages	Potential
15	47	7.4	50→∞?

Annual liability to taxpayers

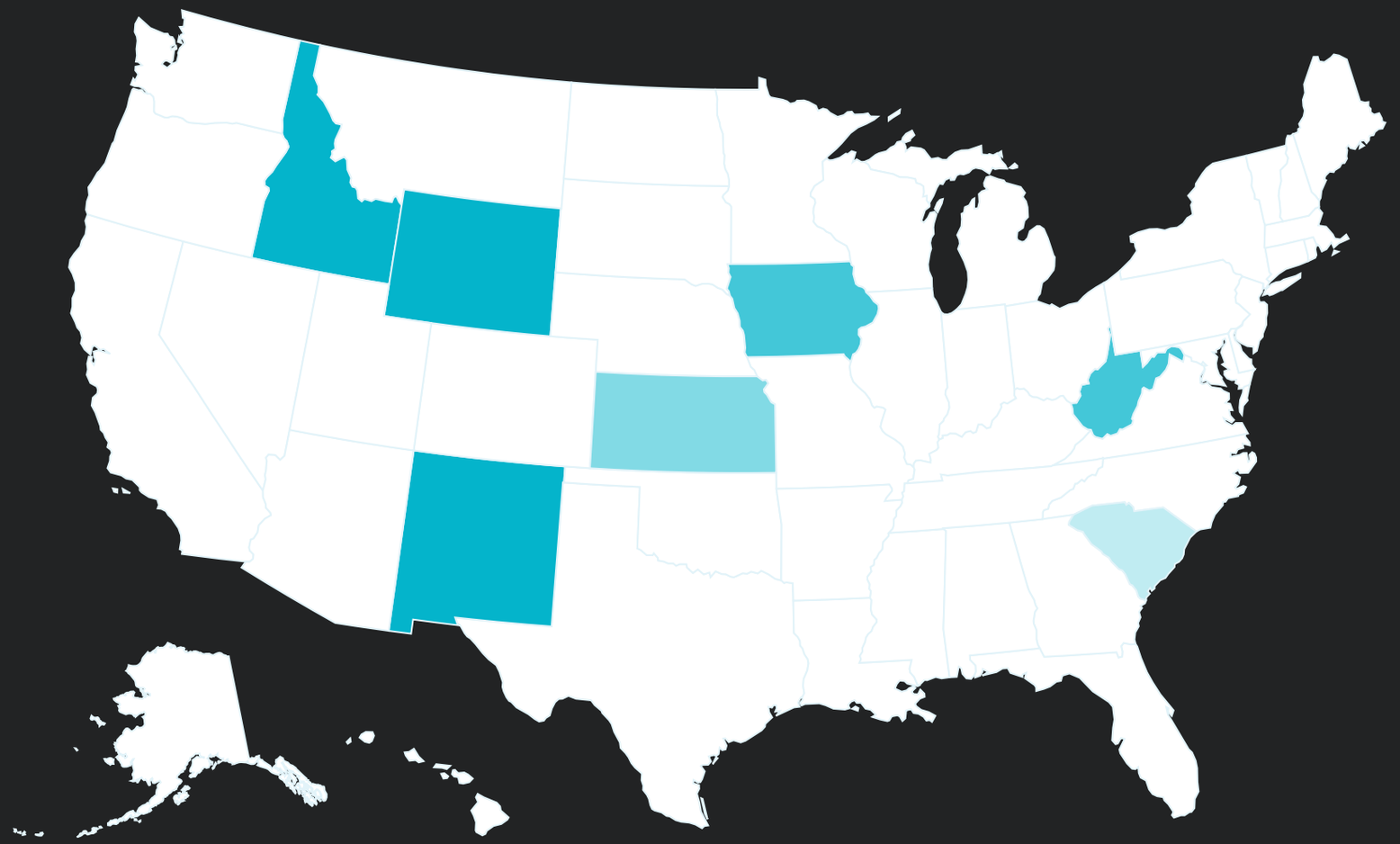
$800M



of NWF balance equivalent paid out in labilities by taxpayers

INCENTIVIZED CONSENT

- Involve all stakeholders, including partnering states
- Incentivize state with $1B / yr for siting the facilities
- Common sense environmental protection



5+

Ideal locations across the nation, including West Virginia

A NUCLEAR POWERHOUSE

- A **NuCycle™** facility will be able to produce a new uranium supply stream that can complement already existing and future uranium mining operations
- Uranium demand forecasted to see a solid 26% increase by 2030
- With 800 MT of Uranium (3.5 wt%) and 40 MT of TRU*fuel*™ **annually, state that hosts recycling facility will become the largest nuclear fuel exporter**
- Can power 21 million American homes on the uranium prospects alone, with TRU*fuel*™ the total count is close to 40 million

*Source: EIA; NEI

URANIUM FROM RECYCLING

(in MT)

U at 0.9 wt%	U at 3.5 wt%
3,800MT	800MT

COAL BTU PRODUCTION MATH*

(in MT)

Max WV production in 1998	Equivalent in U 3.5 wt%
158M MT	935 MT

Cost per MT of uranium	Uranium exports annually	Homes powered annually by uranium exports
$1.6M	800 MT	21.7M

Tax Revenue Projections

- **Curio™** is advocating for the partnering state to receive 1 billion dollars a year from the NWF for the lifetime of the facility
- A **NuCycle™** facility would generate anywhere from 48 to 156 million dollars in annual corporate tax payments to the state
- With over 3,500 high-paying jobs, a **NuCycle™** facility would produce over 10.5 million dollars in annual state income tax revenues
- The facility would generate a robust downstream economy with 2,500 jobs statewide adding another 8.2 million dollars in annual state income taxes

Corporate Tax Revenue

(in Billions USD)

Low Projection	Expected Projection
$48M	$156M

Income Tax Revenue

(3,500 jobs with median income of $100,000)

Facility	Downstream Economy
$10.5M	$8.2M

*Source: NEI: Economic Benefits of Nuclear Power (https://www.nrc.gov/docs/ML0419/ML041910428.pdf)

THE SECOND NUCLEAR ERA™