

# Overview

## Grimes Carbon Tech (GCT)

A net negative green technology company changing the world

May 2025

### **Net Zero Energy & Rare Earths from Coal**

*“The only problem with coal is burning it.”* - Dr. Patrick Grimes

# 🌱 GCT: Green Energy & Rare Earths from Coal

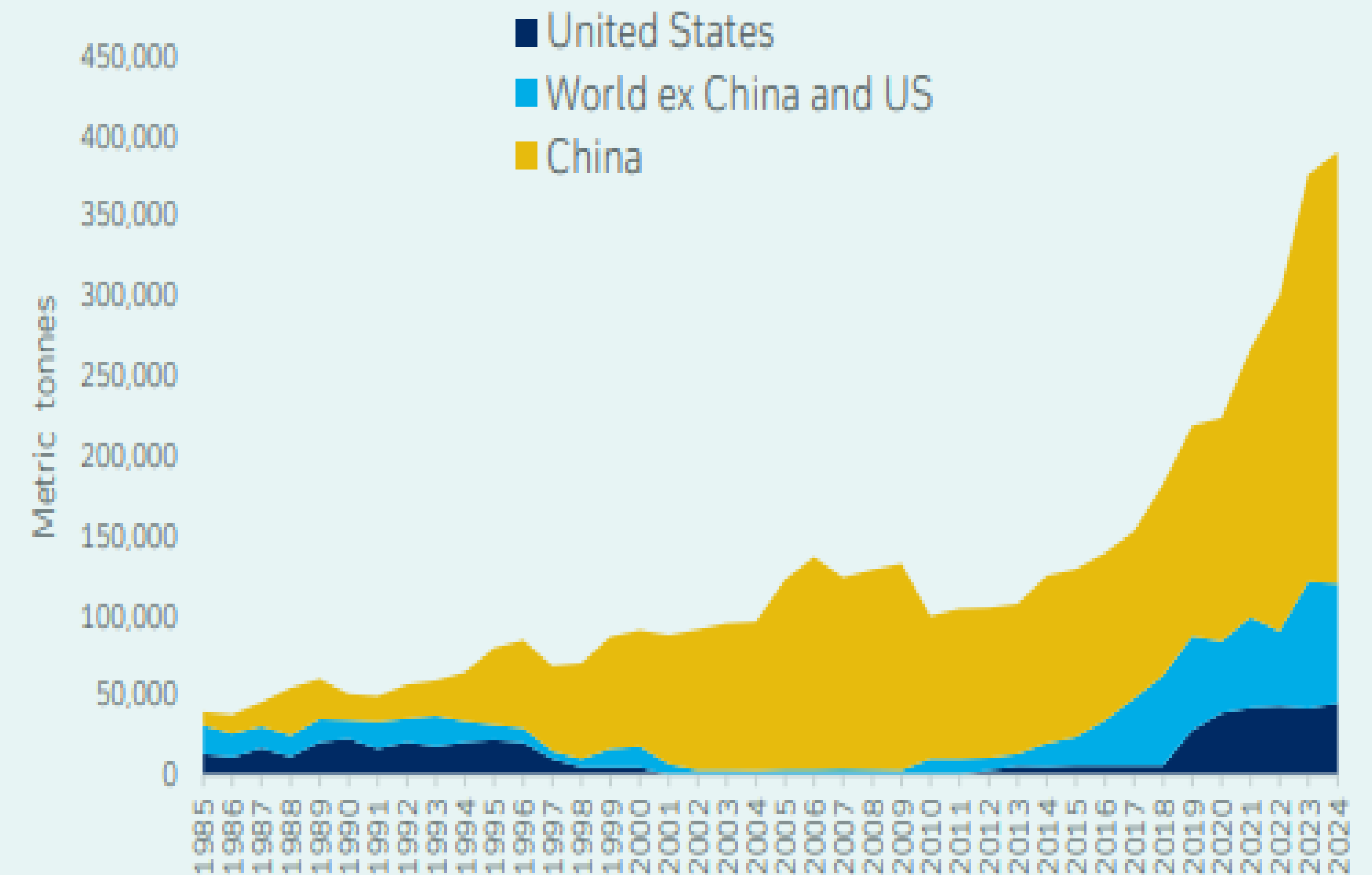
GCT provides secure, domestic supply of critical minerals

**GCT: Could produce 100% of US Rare Earth demand, from stored coal fines alone, for the next 25 years**

- Critical in military, electric motors, sonar and more
- Total annual US demand is 8,800 tonnes
- US production in 2023 was 40,000 of mineral concentrate and 250 tons of compounds and metals
- 70% of rare earths imported from China
- Energy & minerals security concerns

*China dominates rare earth supply chain*

**2023 US consumption = 8,800 tons**



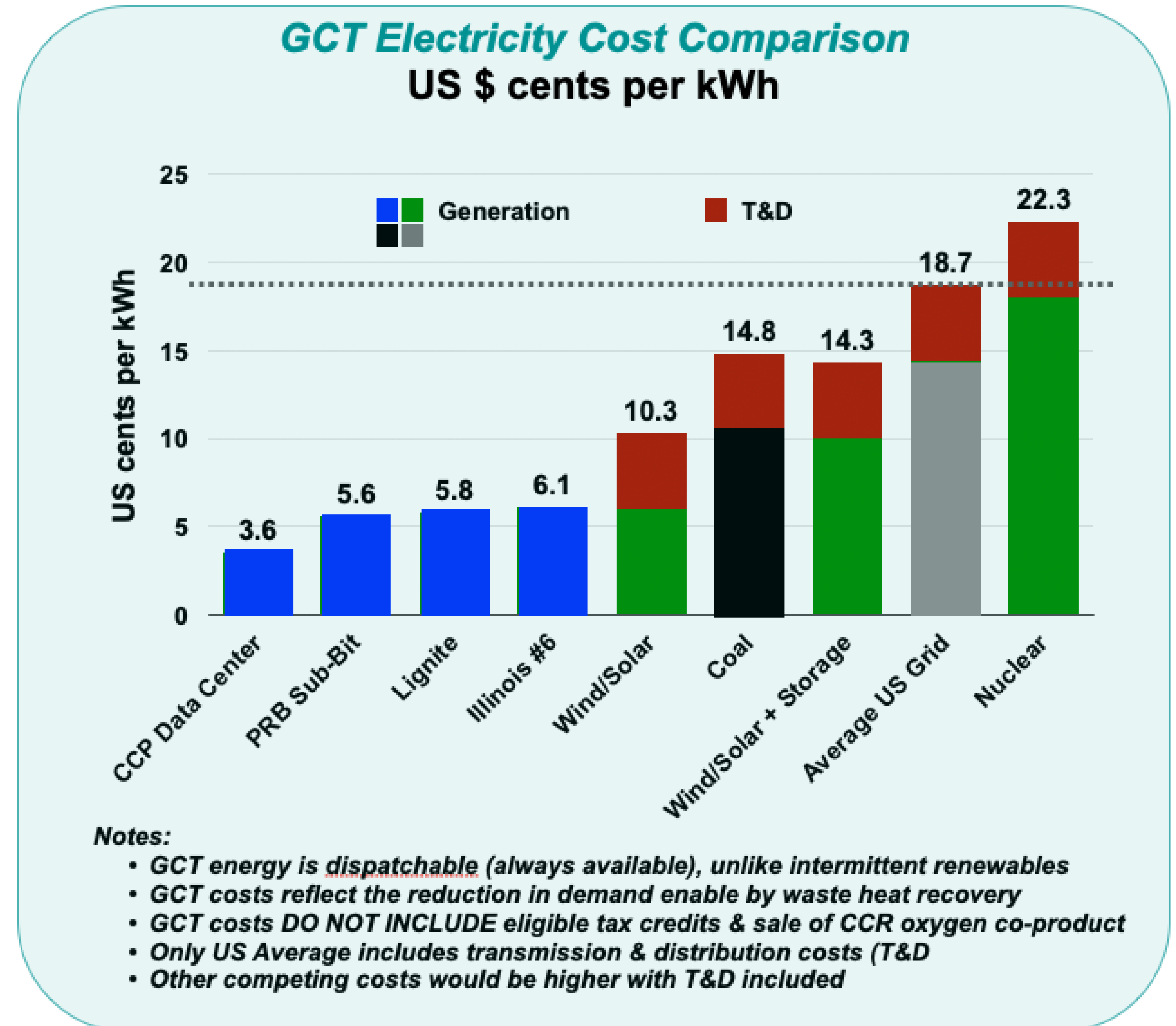
Source: Deutsche Bank Research, Bloomberg Finance LP.

# 🌱 GCT: Zero Emission Energy from Coal

## Distributed energy where required

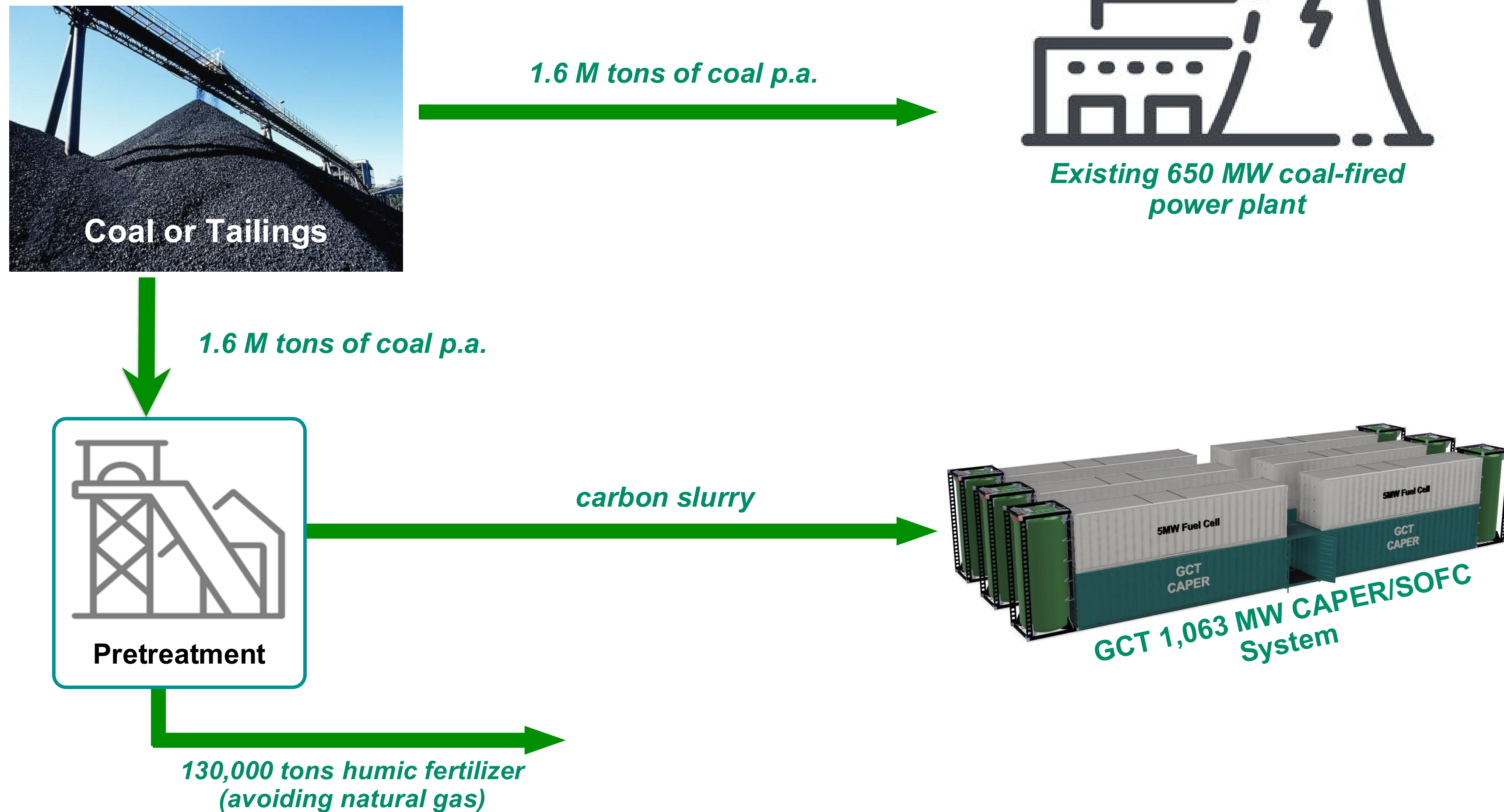
### GCT's Cheap, Distributed Power

- Cheap, on demand (reliable) green energy
- Energy produced directly on-site - no need for transmission or distribution systems
- Scales quickly (add containers)
- 2 MW per container - 150 MW per acre
- Double output per ton of coal
- Creates jobs & revalues coal plant sites



# Producing cheap, clean, electro-chemical energy from coal

Can be grid connected or independent



## Coal-fired Power Plants

- 204 plants generating 210 GW
- ~352 million tons of coal per annum
- 39% efficient
- Energy costs = 10.5c/kWh
- 709 million tons of CO<sub>2</sub> emissions

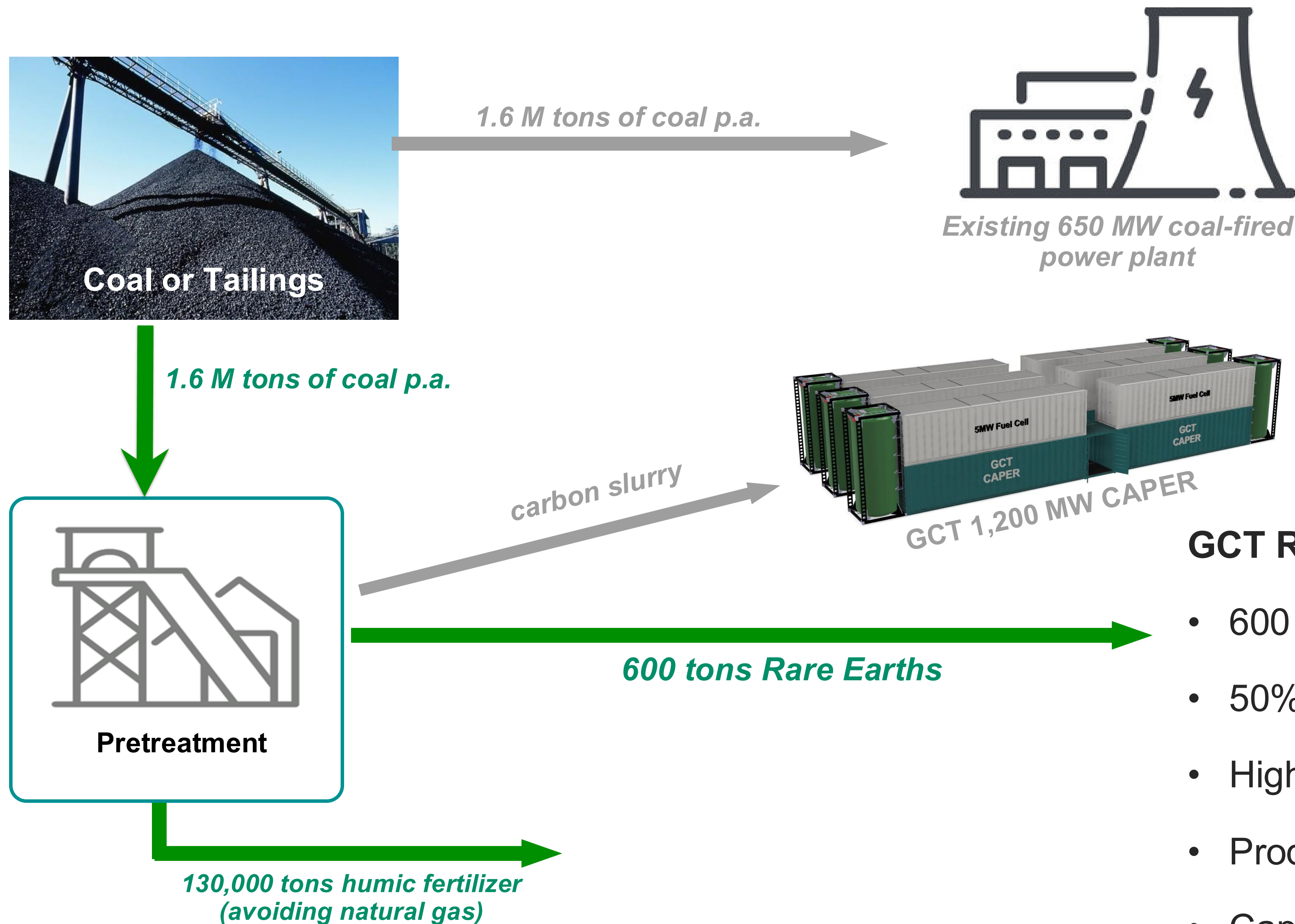
## GCT CAPER Plant

- 79% efficient
- Electricity Cost = 6-7 c/kWh
- No emissions
- Less coal or more energy
- Capital Cost < \$2,000/kW initially dropping to \$1,000/kW with volume
- Payback < 3 years



# Producing rare earths and fertilizer from coal

Cheap, US sourced products



## GCT Rare Earths from Waste

- 160,000 tons of fines contain 96 tons of rare earths
- 560,000 tons of tailings contain 134 tons of rare earths

## GCT Rare Earths (1.6m t p.a., 0.2% of US coal)

- 600 tonnes per annum (7% of RE US consumption)
- 50% of the cost of Chinese rare earths
- Highly concentrated heavy rare earths
- Production can use waste coal and fines
- Capital cost < \$250/kW



# 🌱 GCT: Green Energy & Rare Earths from Coal

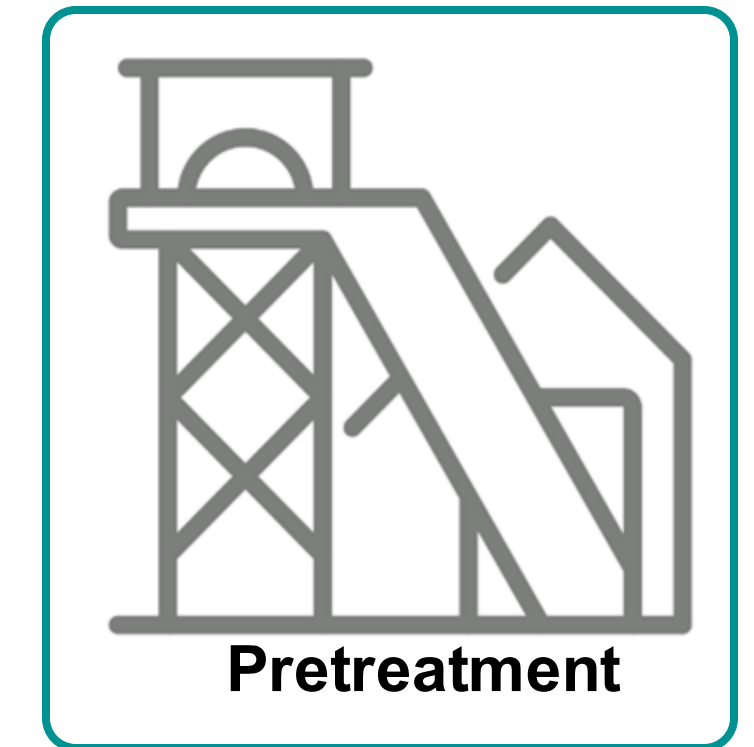
## GCT provides secure, domestic supply of critical minerals



### GCT Rare Earth Potential

#### US DOE 2023

- 387 million tons of coal was mined in 2023 with 90% used in coal plants
- 21 million tons of fines were produced containing ~11,000 tons of ore earths
- 2.3 billion tons of fines are in storage containing ~1.1 million tons of rare earths
- 75 million tons of tailings were produced containing ~17,000 tons of rare earths
- 53 billion tons of tailings are store at mine sites containing ~8.6 million tons of rare earths



#### **Critical Uses**

- *Military Systems*
- *Electric Motors*
- *Aircraft Engines*
- *Hard Drives*
- *Safety Glass*
- *LED Displays*
- *Catalytic Converters*
- *Sonar & Radar Systems*
- *Batteries*
- *Medical Imaging*
- *Nuclear Reactors*
- *etc*