



**Morien**  
**Resources Corp.**

# **Global Coal Market Update**

Q1-2021



## **Donkin Mine**

The majority of the early coal exports from developing the Donkin Mine have been sold into the overseas steelmaking (metallurgical) coal market with the remainder sold into both the domestic and some overseas electrical (thermal) coal markets.

## **Metallurgical Coal**

Limited global capital investment in new metallurgical projects and economic pressure on higher cost production sources like the U.S., in conjunction with there being no commercially viable replacement to metallurgical coal in a world demanding plenty of high-quality steel, will provide long-term support to metallurgical coal markets.

## **Thermal Coal**

Despite increasing pressure from climate-concerned Western governments and banks, thermal coal remains the single largest source of electricity generation, with coal-powered generation currently representing 37% of the installed global power generation capacity. It's longevity as a competing fuel source is supported by increasing demand from the Asia-Pacific, Mediterranean and South American regions which is outpacing the decline in demand in Europe and North America.

# A Tale of Two Coals



## Steelmaking (Metallurgical) Coal

## Electrical (Thermal) Coal

### Market

- Critical ingredient in the manufacturing of steel
- No near-term replacement

- Electricity generation
- Remains a key part of the global energy mix (37% of global electricity grid)

### Supply

- Limited new supply
- Disruptions in Australia

- Limited new supply
- Growth in Russia and Australia

### Demand

- Global demand is growing
- Tight seaborne market

- Secular decline in N. America and EU
- Demand growth in Asia-Pacific

### ESG

- Falls under the category of “difficult to eliminate” fossil fuels
- Sometimes grouped with thermal coal

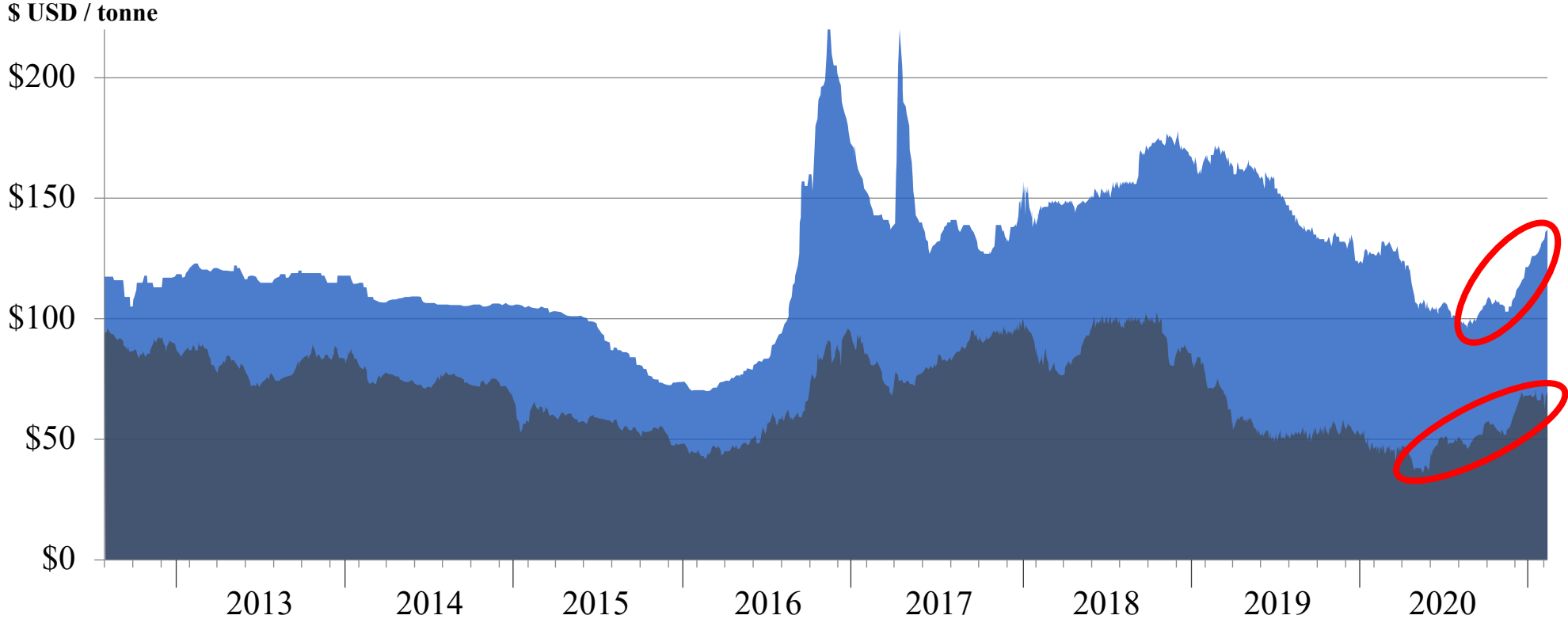
- Financing new, thermal-only coal projects is a challenge
- Limited to private funds

Source: Adapted from RBC Capital Markets. Internal company research.

# Coal Prices Rebounding



- U.S. Metallurgical Coal (Semi-Soft High-Vol B, U.S. east coast)
- European Thermal Coal (CIF ARA)



**US \$137/tonne**

**+43%**

from low point in Aug 2020

**US \$70/tonne**

**+93%**

from low point in May 2020

Source: S&P Global, Platts Coal Trader International

# Steelmaking Coal Market

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# Introduction to Steelmaking (Metallurgical) Coal



- Metallurgical coal is a critical component in the chemical reaction that transforms iron into steel, and thus its market closely follows that of global manufacturing and steel production.
- There are a few greenhouse gas emitting industries that fall widely into the category of being “difficult to eliminate” and metallurgical coal is one of them, as is aviation fuel and the cement industry.
- The primary reason for this is that there is no viable replacement for metallurgical coal in the manufacturing of steel.
- Global population growth, urbanization and a growing middle class will continue driving long-term demand for steel and the steelmaking coal required to produce it.



Steel is essential to building construction



~100 tonnes of steelmaking coal required to produce the steel in the average wind turbine

# Steelmaking Coal Facts



**8.1 bln tonnes**

Global Coal Production <sup>1</sup>  
(thermal + steelmaking coal)

**1.1 bln tonnes**

Global Steelmaking Coal Production <sup>1</sup>

**0.3 bln tonnes**

Seaborne Steelmaking Coal Demand <sup>1</sup>

**0.8 tonnes**

Tonnes of steelmaking coal used to produce  
each tonne of steel <sup>2</sup>

**150 tonnes**

Tonnes of steelmaking coal used to produce  
the steel in the average wind turbine <sup>3</sup>

**40 tonnes**

Tonnes of steelmaking coal used to produce  
each new MW of solar power <sup>4</sup>



1. S&P Global Platts

2. World Coal Association; assumes all of the steel required is produced by blast furnace-basic oxygen furnace route.

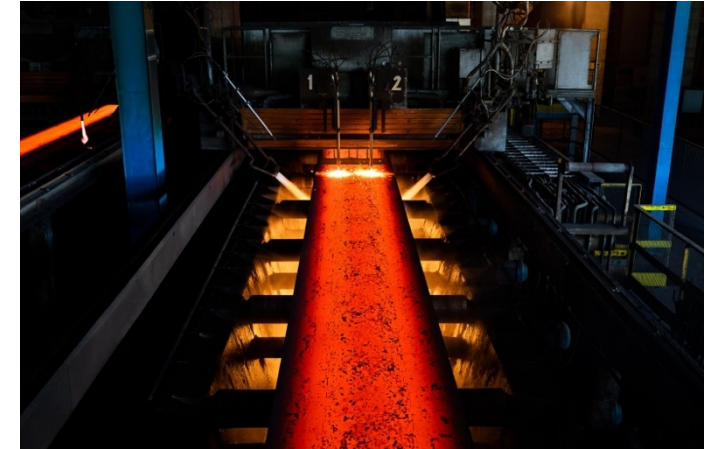
3. The Coal Alliance; assumes all of the steel required is produced by blast furnace-basic oxygen furnace route.

4. ArcelorMittal

# Global Steel Demand



- In response to the COVID-19 pandemic, global steel production declined 0.9% in 2020<sup>1</sup>.
- Industrial shutdowns began to reverse toward the end of Q3-2020 with the lifting of restrictions, leading to increasing steel demand and the restarting of many idled blast furnaces<sup>2</sup>.
- Recovery in steel demand is largely driven by China where demand increased by 5% in 2020<sup>1</sup>;
  - China's manufacturing sector grew at the fastest rate in a decade in November 2019 with companies reporting difficulties in sourcing materials including steel.



Steel slab cutting, Ternium steel plant, Brazil



Steel coil storage warehouse, Brazil

(1) World Steel Association

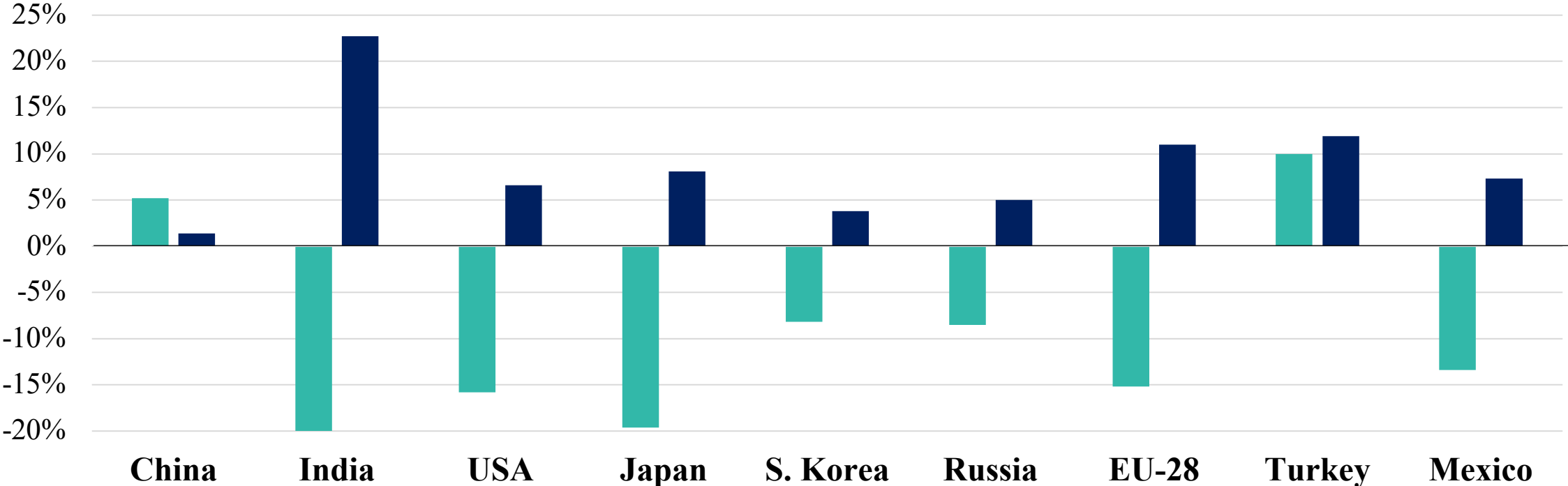
(2) Argus Media Group



# Global Steel Demand – 2020 Actual & 2021 Forecast



■ 2020 (-0.9%)  
■ 2021 (+5.0%)

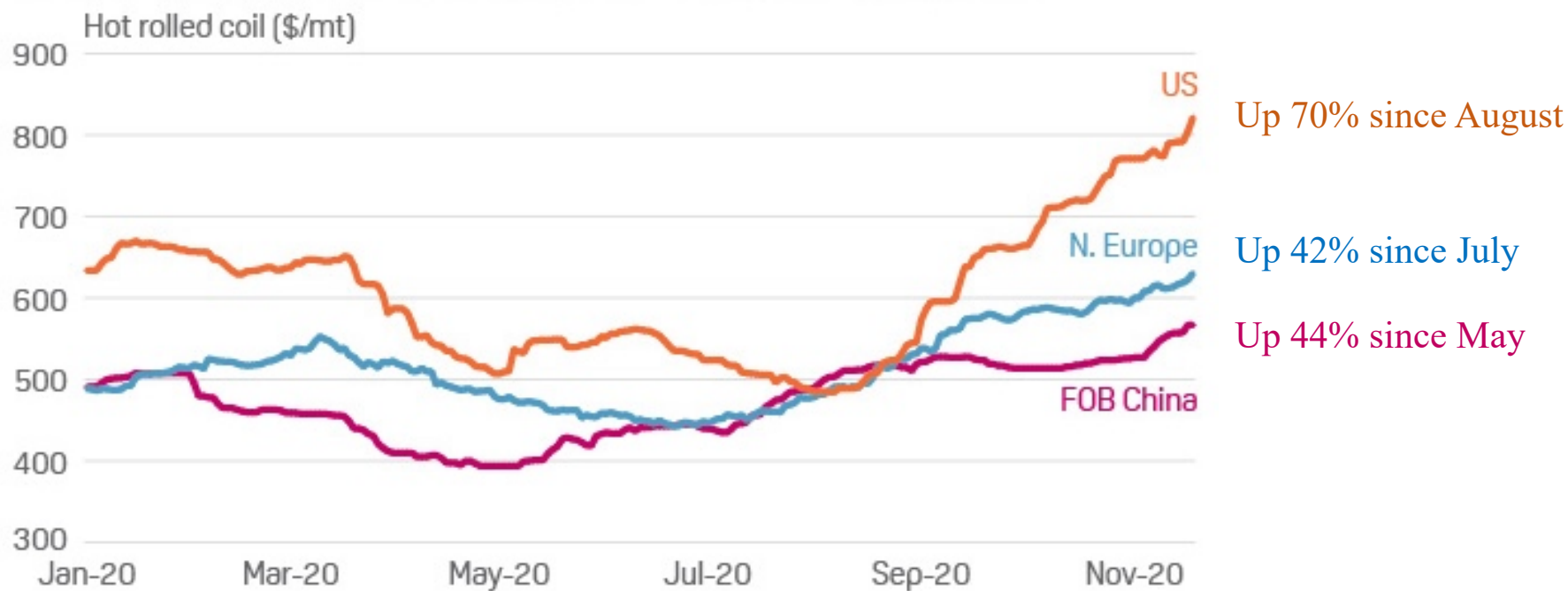


Sources: World Steel Association (Nov 2020) and ArcelorMittal (Feb 2021)

# Increasing Met Coal Demand Reflected in Rising Steel Prices



- As the world looks past COVID-19 and toward a return of global economic growth in 2021, the prices for the engineering and construction related commodities have been increasing, including hot-rolled coil, the major steel product used in manufacturing.

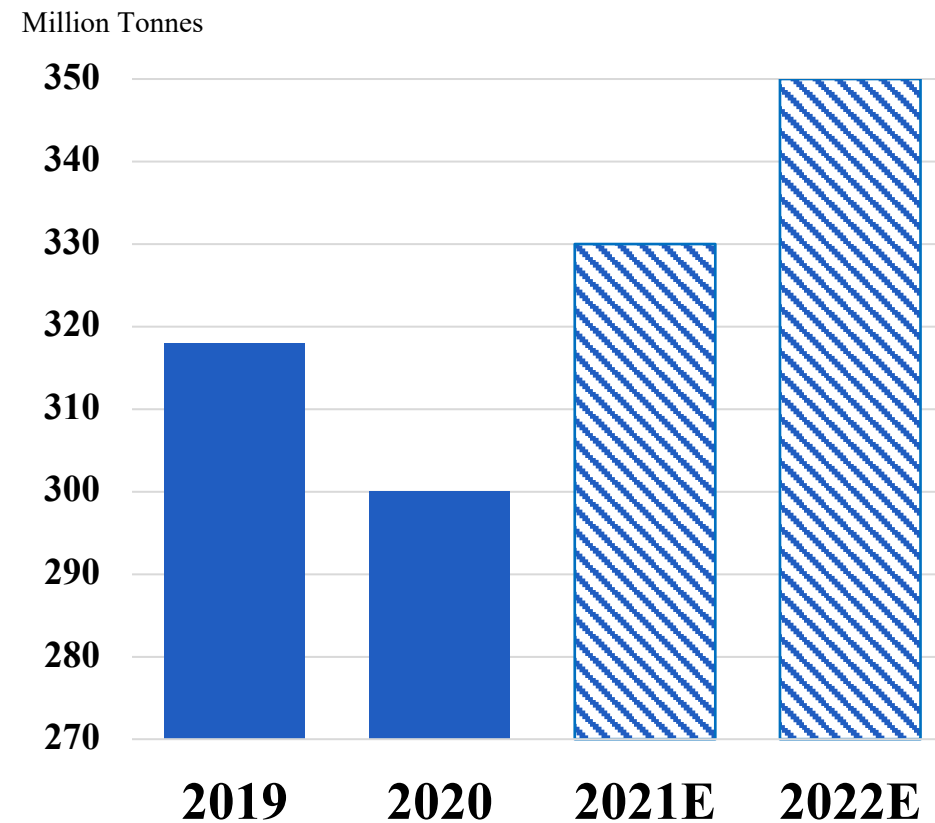


# Steelmaking Coal Demand Growth Forecast



- Continued steel market recovery with >75% blast furnaces restarted/announced restart <sup>1</sup>
- Seaborne steelmaking coal demand is estimated to increase 10% in 2021 and an additional 6% in 2022 <sup>2</sup>.
- Demand driven by global economic recovery in conjunction with pandemic-related production curtailment.
- High-cost production being rationalized; >50% of the steelmaking coal mines are operating below cash breakeven levels <sup>2</sup>.
- Limited global capital investment in new steelmaking coal projects.

## Seaborne Steelmaking Coal Demand<sup>1,2</sup>



(1) Argus Media Group

(2) S&P Global Platts

# Thermal Coal Markets

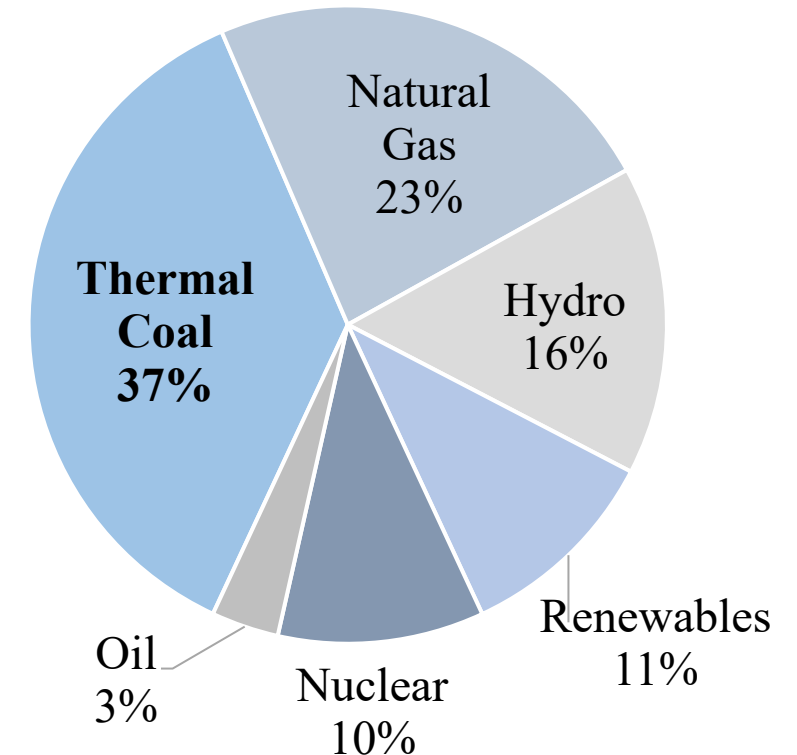
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# Thermal Coal -- A Dominant Energy Source



- Thermal coal remains the single largest source of global electricity generation, representing 37% of the installed power generation capacity<sup>1</sup>.
- Continued annual growth in global energy demand is expected to limit the pace at which the global power sector can decarbonize.
- Long-term, it is estimated that global energy consumption will grow 50% by 2050<sup>2</sup>.

**Global Electricity Consumption<sup>1</sup>**



(1) BP Statistical Review of World Energy, 2020

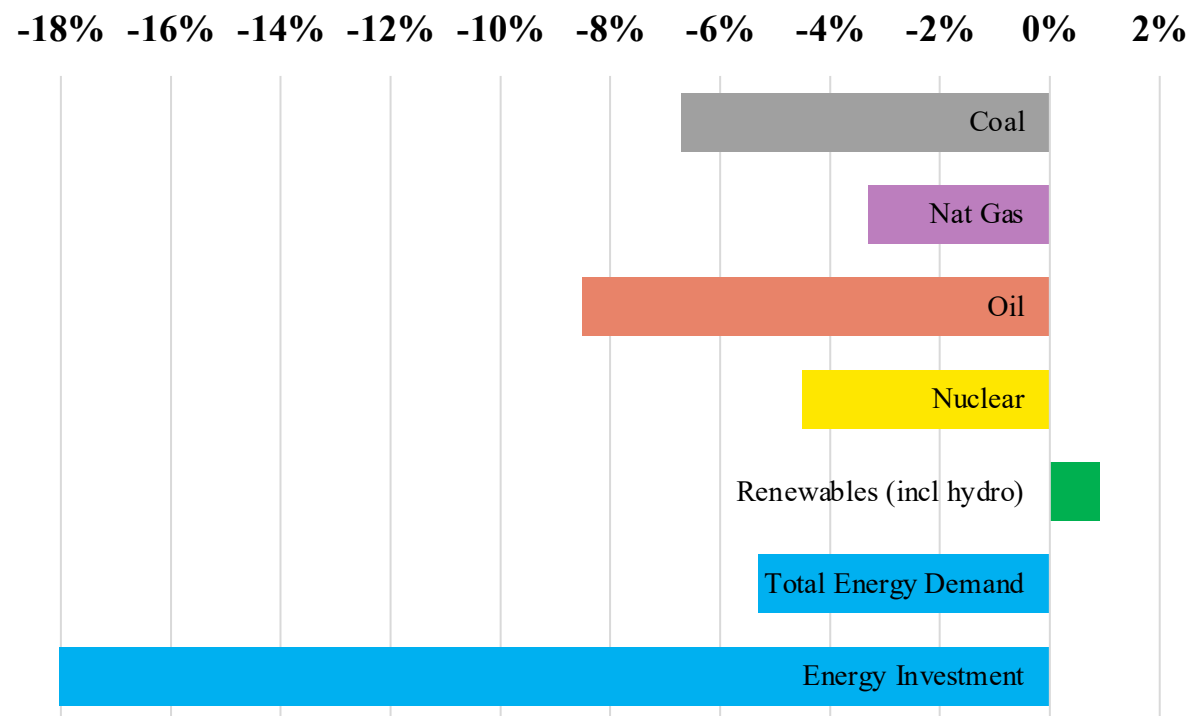
(2) U.S. Energy Information Association, International Energy Outlook 2019

# Impact of COVID-19 Pandemic on Energy Markets



- Global energy demand is set to drop by 5% in 2020 (vs. 1.3% growth in 2019)<sup>1</sup>.
- The impacts vary by fuel type as shown in the figure to the right.
- Under the International Energy Agency’s “Stated Policies Scenario”, which reflects all currently announced government policy intentions and targets, and which assumes that the Covid-19 pandemic will be brought under control in 2021, energy demand will rebound to 2019 levels in the year 2023.

Estimated 2020 Global Energy Demand<sup>1</sup>



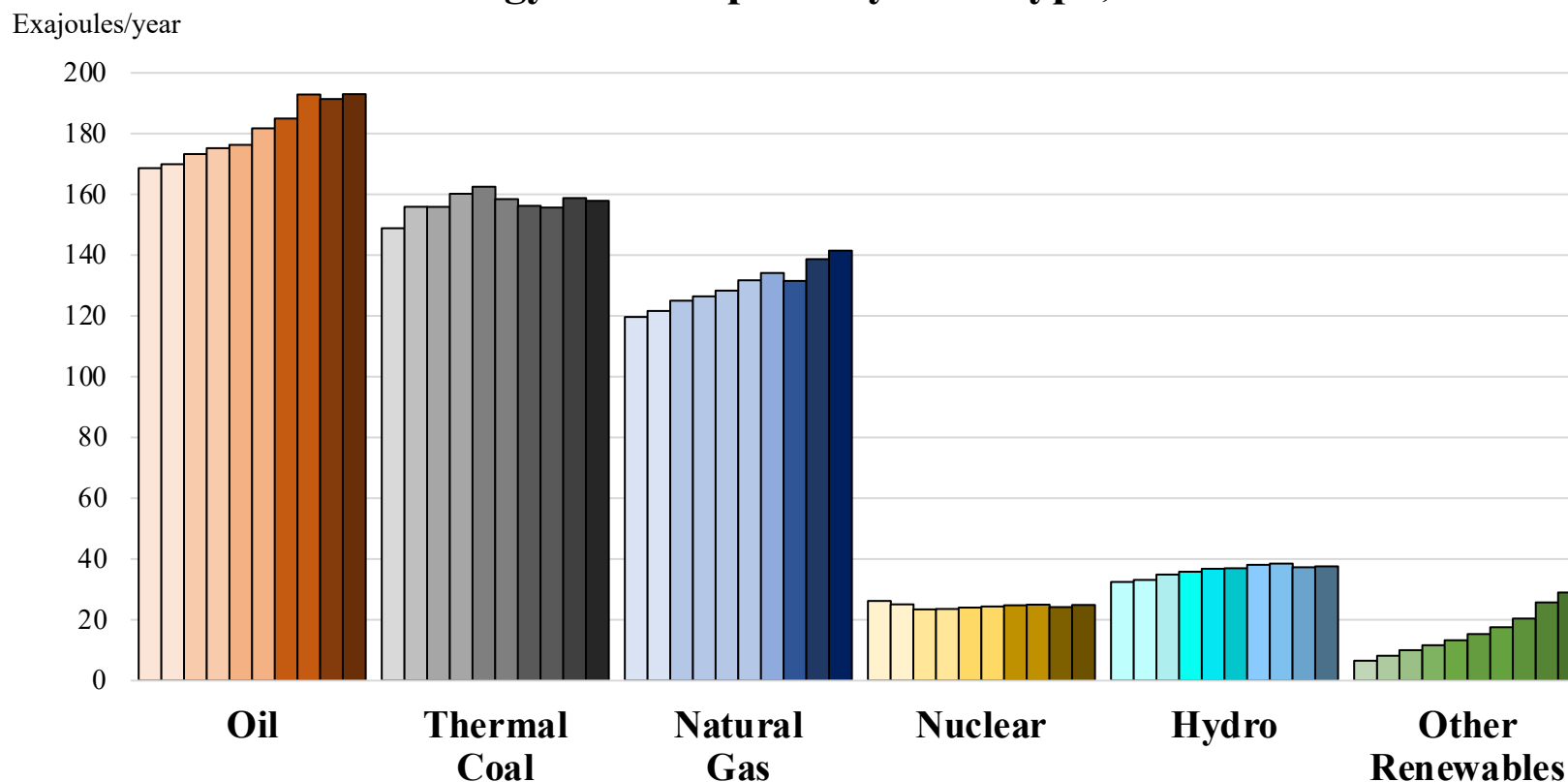
(1) International Energy Agency World Energy Outlook, October 2020

# Global Energy Supply Over the Last 10 Years



- Fossil fuel consumption has provided the bulk of energy growth over the last 10-years as renewables attempt to scale up. **Note that renewables cannot alone meet the world's increasing energy demands.**

## Global Energy Consumption by Fuel Type; 2010 to 2019<sup>1</sup>



(1) BP Statistical Review of World Energy, archived reports

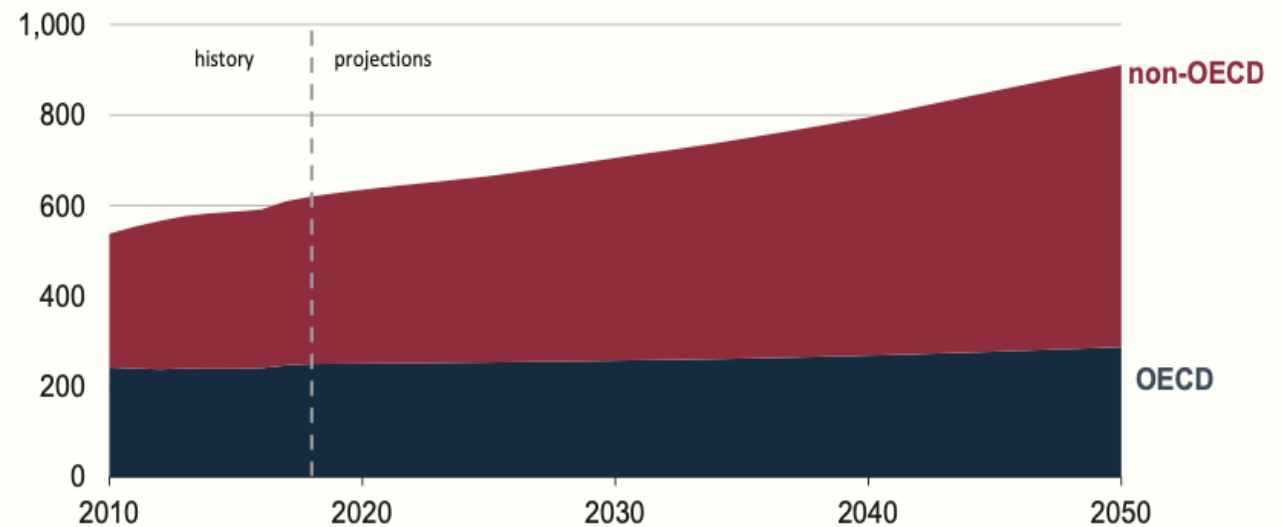
# Global Energy Demand Rises Nearly 50% from 2018 to 2050



- Global energy consumption doubled from 2000 to 2019.
- Long-term, it is estimated that global energy consumption will grow 50% by 2050<sup>1</sup>.
- According to the United Nations, there will be 1.2 billion new urban residents in the Asia-Pacific region by 2050<sup>2</sup>.
- **This pace of growth in energy demand is expected to limit the pace at which the global power sector can decarbonize.**

## Global Energy Consumption<sup>1</sup>

(quadrillion British thermal units)



(1) U.S. Energy Information Association, International Energy Outlook 2019

(2) United Nations, The Future of Asian & Pacific Cities, November 2019

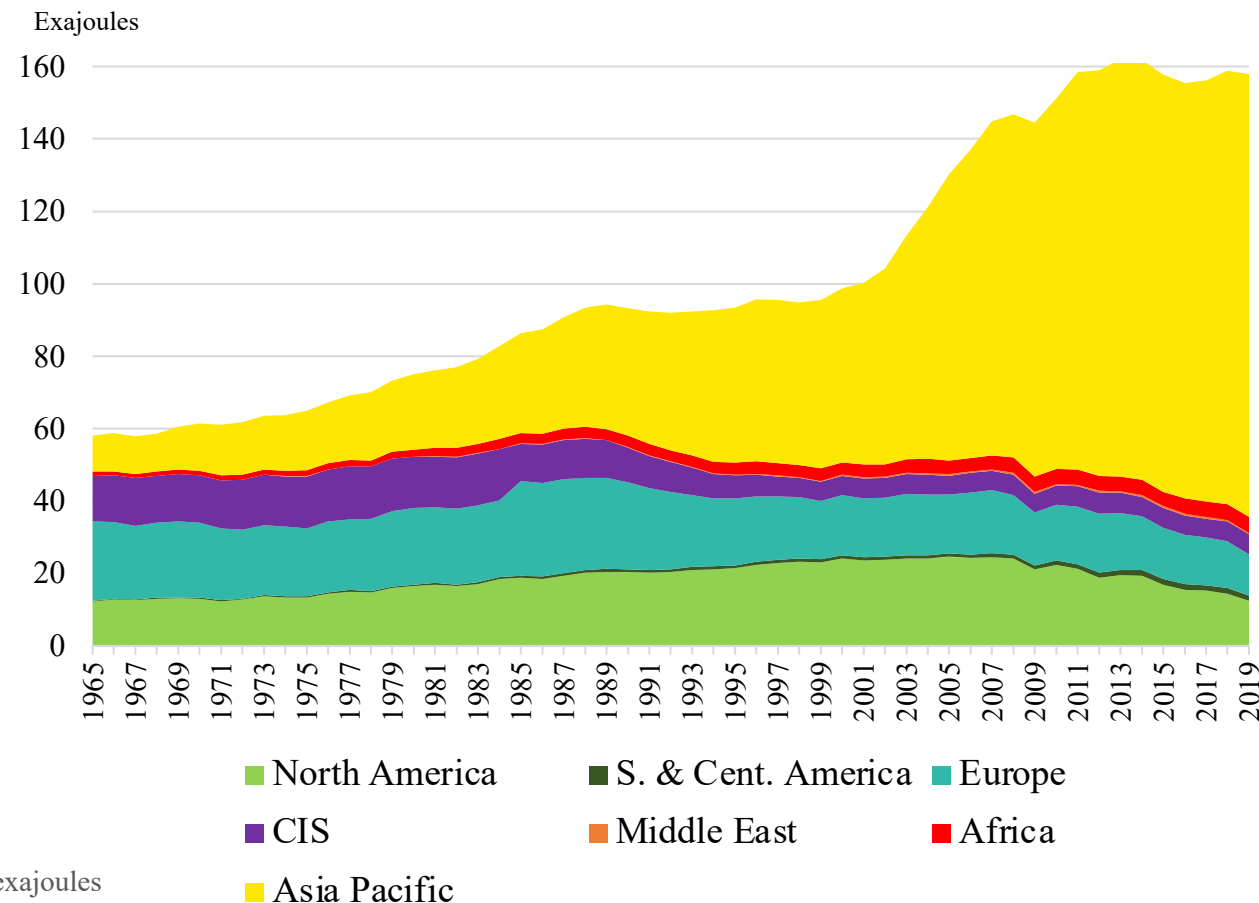


# Thermal Coal Demand Supported by Asia-Pacific Region



- Despite thermal coal use dropping in Western countries, demand is buoyed by the Asia-Pacific region, as shown in the figure to the right<sup>1</sup>.
- The Asia-Pacific region has continued to increase its thermal coal consumption in 2020;
  - Southeast Asian thermal coal imports are expected to rise 29% in 2020<sup>2</sup>.
  - China has approved the construction of more coal-fired power plant capacity in 2020 than in all of 2018 and 2019 combined<sup>3</sup>.

Global Thermal Coal Consumption; 1965-2019<sup>1</sup>



(1) BP Statistical Review of World Energy, 2020 (All energy units sourced from BP are displayed as exajoules)

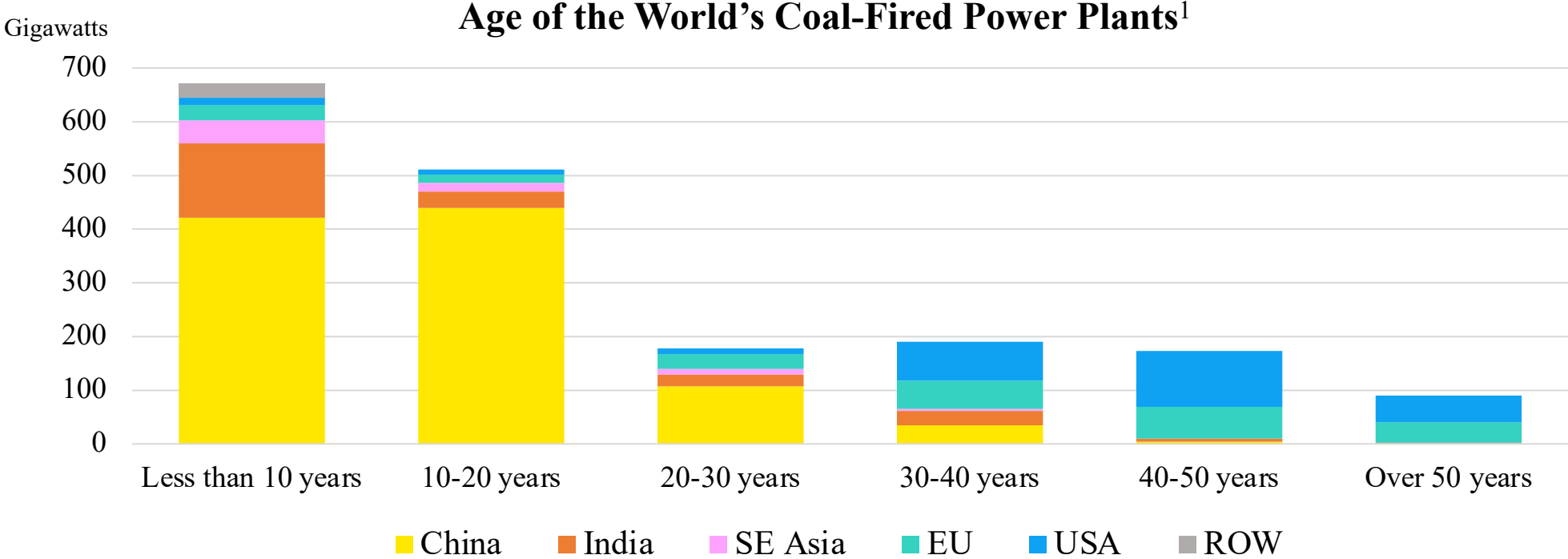
(2) S&P Global Platts Analytics, November 2020

(3) Global Energy Monitor & Centre for Research on Energy & Clean Air, A New Coal Boom in China, June 2020.

# Global Coal-Fired Power Capacity by Plant Age



- More than half of the world’s coal power fleet was built in Asia within the last 20 years, allowing many Asian coal plants to continue operating for decades to come; the average age of a coal plant in Asia is 12 years, three decades younger than in the U.S. or EU.



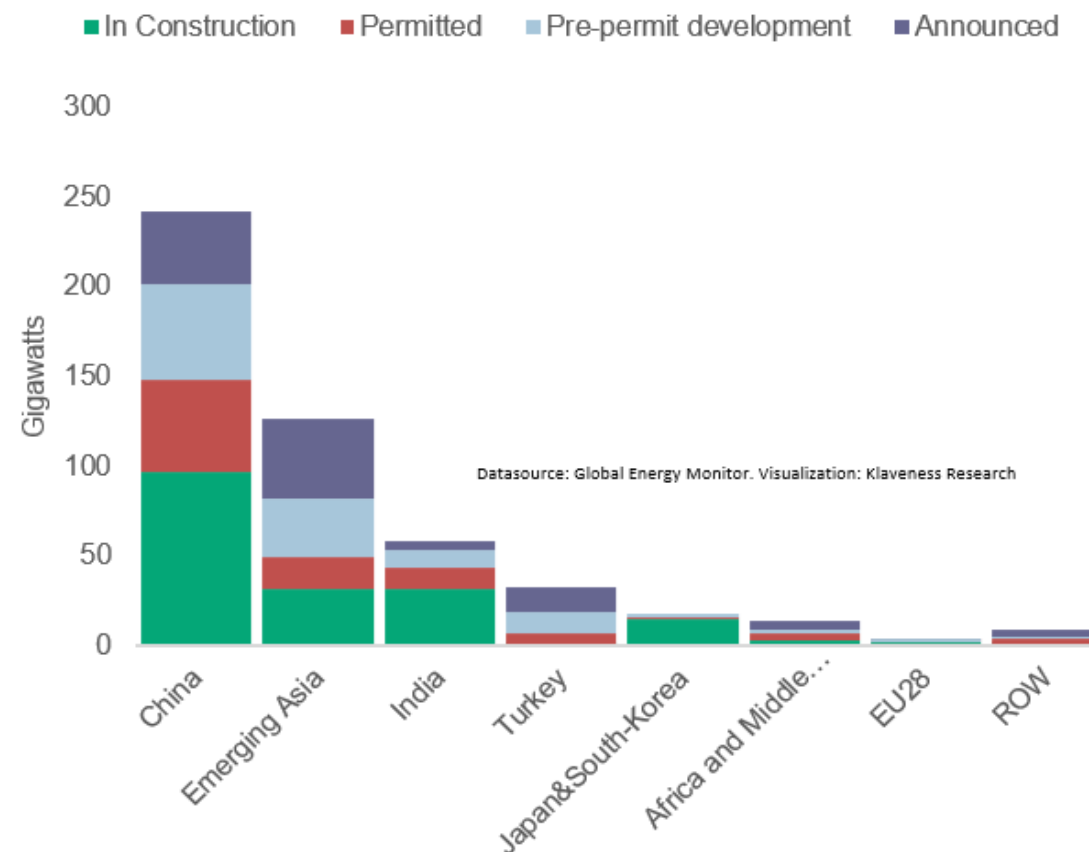
(1) International Energy Agency, World Energy Outlook 2019 (dataset updated July 2020)

# Thermal Coal Fleet Pipeline by Region



- The coal plants in the Asia-Pacific occupy a major part of the region's energy grid;
  - 73% of India's electricity comes from its 850 coal plants;
  - 65% of China's electricity comes from its 3,000 coal plants;
  - 41% of S. Korea's electricity comes from its 80 coal plants;
  - 40% of Vietnam's electricity comes from its 69 coal plants;
  - 31% of Japan's electricity comes from its 140 coal plants.
- Thermal coal imports outside of China and India will grow in the coming 3-5 years as the growth in Emerging Economies more than offsets the falling imports in developed economies (mainly European Union).

## The World is Adding 500 gigawatts of new coal-fired generating capacity, a 25% increase



# Donkin Mine Snapshot



- Operation on care and maintenance program since March 2020.
- Over C\$300 mln spent on mine development since 2015 by owner/operator The Cline Group.
- Recent upgrades to coal export terminal, 30 kilometres from mine site, including; dredging seafloor to 16.5 meter depth to accommodate larger Capesize vessels, and the purchase of a larger shiploader to decrease coal loading times.
- >480 million tonne resource of high quality semi-soft metallurgical coal and high energy thermal coal.
- Very long mine life of > 25 years.
- Seaborne coal demand to remain strong.



Donkin Mine washplant



Recently delivered shiploader at PEV coal terminal

# Donkin Snapshot

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# Donkin Snapshot



**484 mln tonnes**

Coal resource

**25+ years**

Mine life

**>\$250 mln**

The Cline Group's investment into Donkin since 2015

**3.0 mln tonnes**

Permitted annual sales volume (3.75 mln tonnes run-of-mine)

**Product Mix**

Majority is steelmaking coal, with small thermal coal component

**30 kilometres**

Distance to coal export terminal (Provincial Energy Ventures port)

**2% to 4%**

Morien's scaled top line production royalty

**Kameron Collieries**

Owner / Operator

*(subsidiary of The Cline Group)*

# Donkin Mine Update



- Operation on care and maintenance program since March 2020 citing adverse geologic conditions.
- The Mine has not been sealed. A small staff of Kameron employees are maintaining the ventilation system and keeping the mine dewatered during an idled phase for an indeterminate period of time.
- The timeline for the assessment and possible resolution of the situation at Donkin is unknown and will be contingent on Kameron's decision to recommence operations.
- Over C\$250 mln spent on mine development since 2015 by The Cline Group
- Recent upgrades to coal export terminal, 30 kilometres from Donkin, including dredging to accommodate larger Capesize vessels, and the purchase of a larger shiploader to decrease coal loading times.



Donkin Mine washplant



Recently delivered shiploader at PEV coal terminal

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