



# AUSTRALIAN ALUMINIUM INDUSTRY

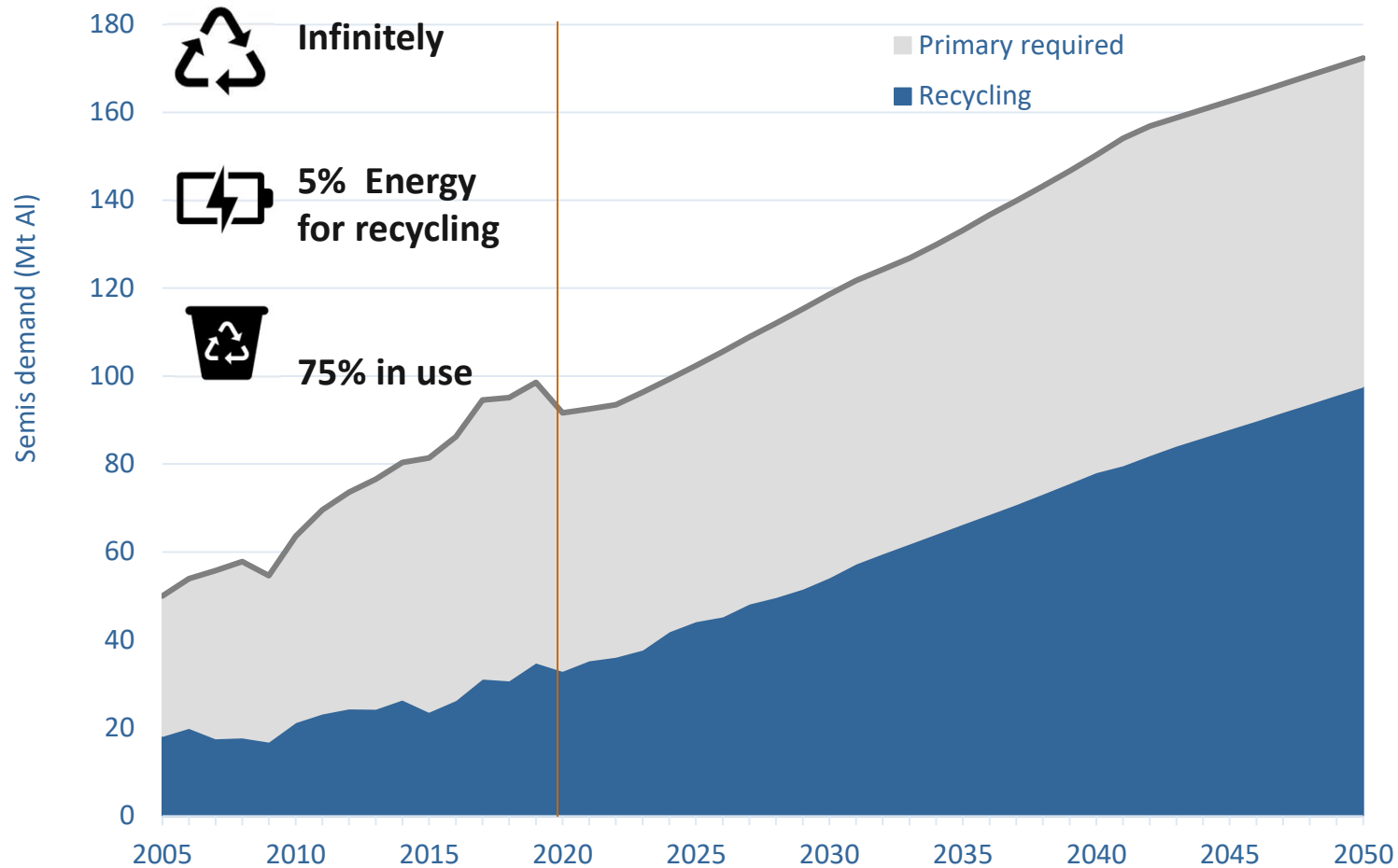
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November 2020





# ALUMINIUM DEMAND IS GROWING





# CLEAN ENERGY USES FOR ALUMINIUM

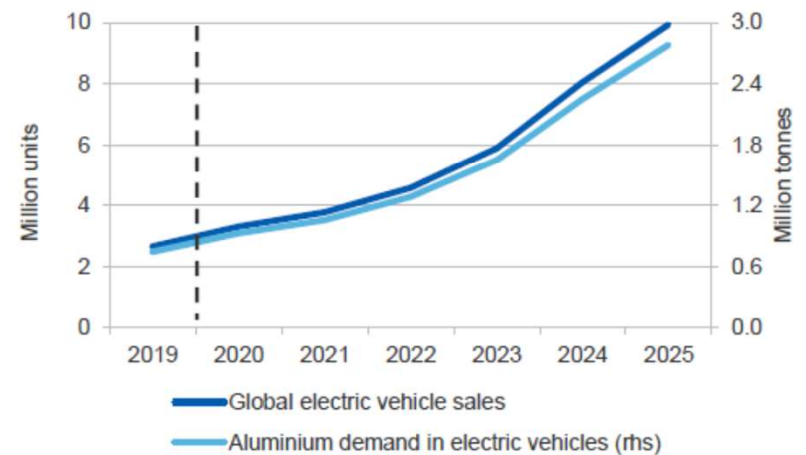
## CUMULATIVE DEMAND FOR MINERALS FOR ENERGY TECHNOLOGIES (WITHOUT STORAGE) THROUGH 2050\*



\*Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition

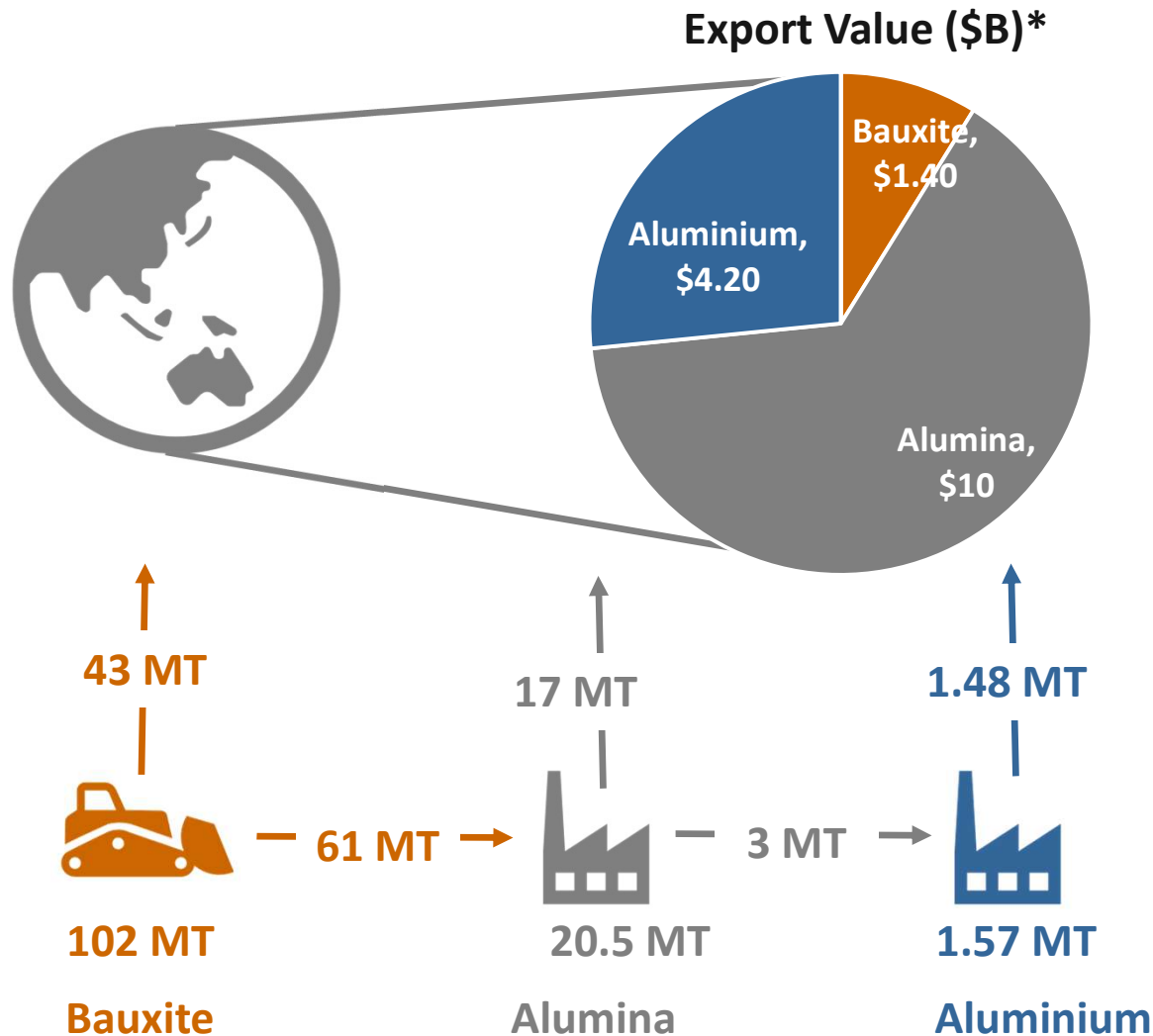
\*\* Resources and Energy Quarterly, March 2020, Department of Industry Science Energy and Resources

## GLOBAL ELECTRIC VEHICLE SALES AND ALUMINIUM DEMAND\*\*





# VERTICALLY INTEGRATED AND VALUE ADDING



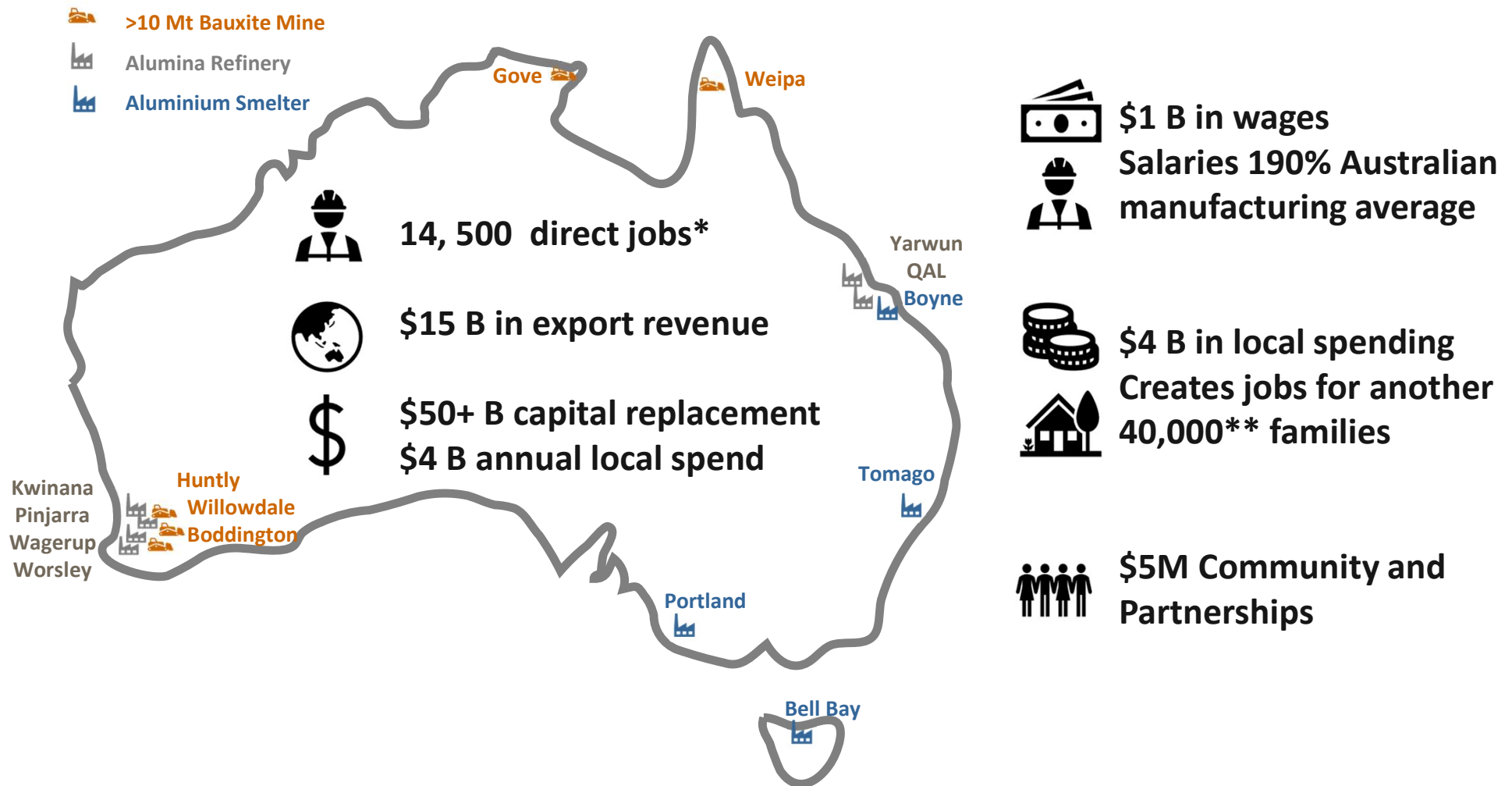
Australia is the worlds:

- Largest producer of Bauxite
- 2<sup>nd</sup> largest producer of Alumina
- Largest exporter of Alumina
- 6th largest producer of Aluminium

\*Source: Composition of Trade Australia 2018-19, Department of Foreign Affairs and Trade



# A REGIONAL CONTRIBUTOR AND ENABLER



\*Includes 4000 FTE Contractors

\*\* Industry multiplier of 3.7 extrapolated from QRC data for Flynn, 2018



# DEVELOPMENT OF ALUMINIUM TECHNOLOGY PATHWAYS

- Australia's five priority technologies:
  1. *Hydrogen under \$2 per kilogram*
  2. *Electricity from storage for firming under \$100 per MWh\**
  3. Low emissions steel production and low emissions aluminium
  4. *CCS – CO<sub>2</sub> compression, transport and storage under \$20 per tonne of CO<sub>2</sub>*
  5. Soil carbon under \$3 per hectare per year

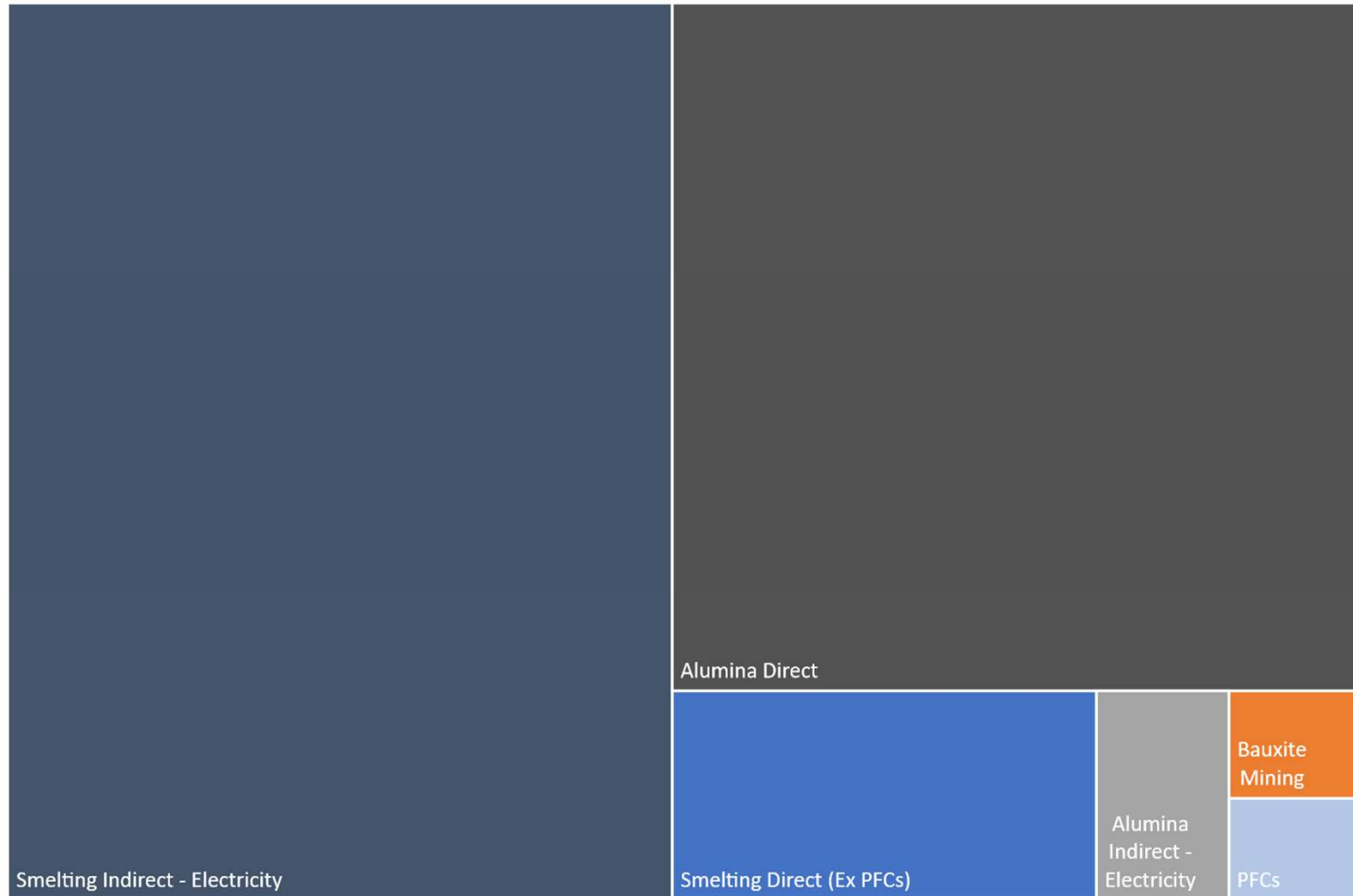
## Plus

- International Aluminium Institute
- Aluminium Stewardship Initiative (ASI)  
<https://aluminium-stewardship.org/asi-standards-revision/>
- World Economic Forum (WEF)  
<https://www.weforum.org/our-impact/mission-possible-we-re-helping-heavy-industry-reach-net-zero-carbon-emissions-by-2050>
- Science Based Targets  
<https://sciencebasedtargets.org/aluminium/>, <https://sciencebasedtargets.org/wp-content/uploads/2015/05/Sectoral-Decarbonization-Approach-Report.pdf>
- International Energy Agency (IEA)  
<https://www.iea.org/reports/tracking-industry/aluminium>
- COP26  
<https://unfccc.int/climate-action/marrakech-partnership/background>



# AUSTRALIA'S ALUMINUM INDUSTRY EMISSIONS

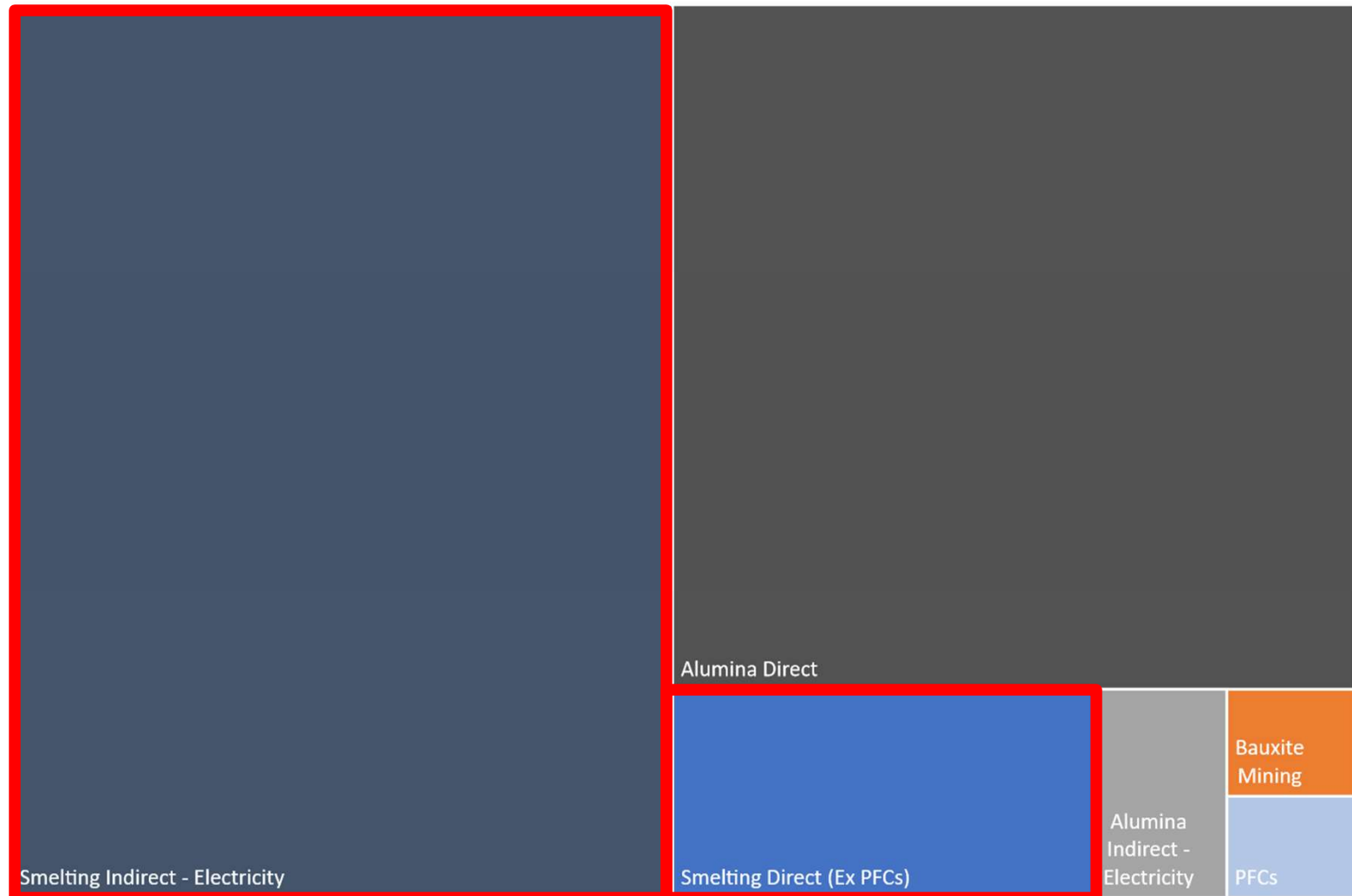
Emissions (Mt CO<sub>2</sub>-e)





# AUSTRALIA'S ALUMINUM INDUSTRY EMISSIONS

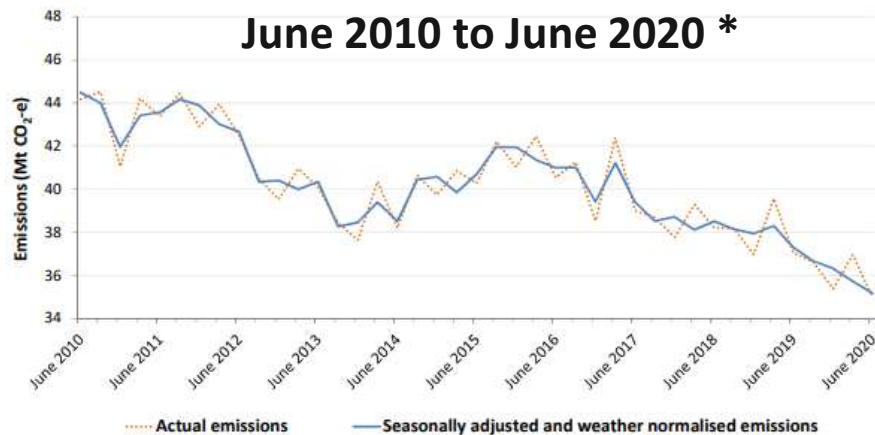
Emissions (Mt CO<sub>2</sub>-e)



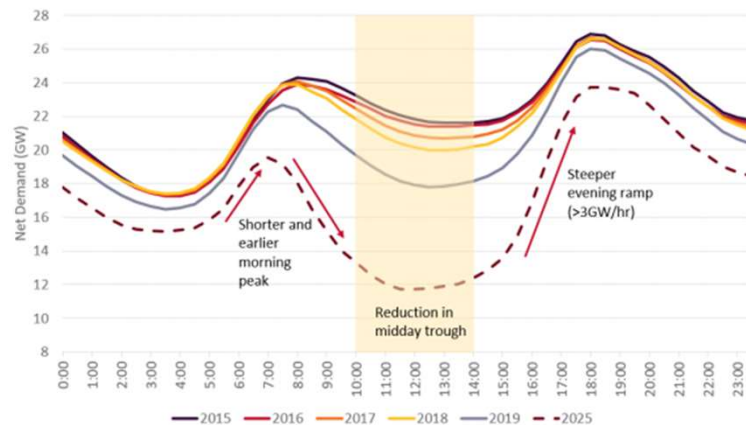


# SMELTING –ELECTRICITY AND ANODES

**NEM electricity emissions, by quarter,  
June 2010 to June 2020 \***



**Duck curve\***



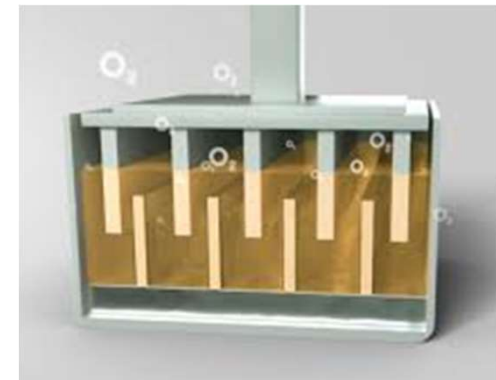
\* <https://www.industry.gov.au/sites/default/files/2020-08/nggi-quarterly-update-march-2020.pdf>

\*\*AEMO 2020 | Renewable Integration Study: Stage 1 report

**Internationally Competitive Prices**



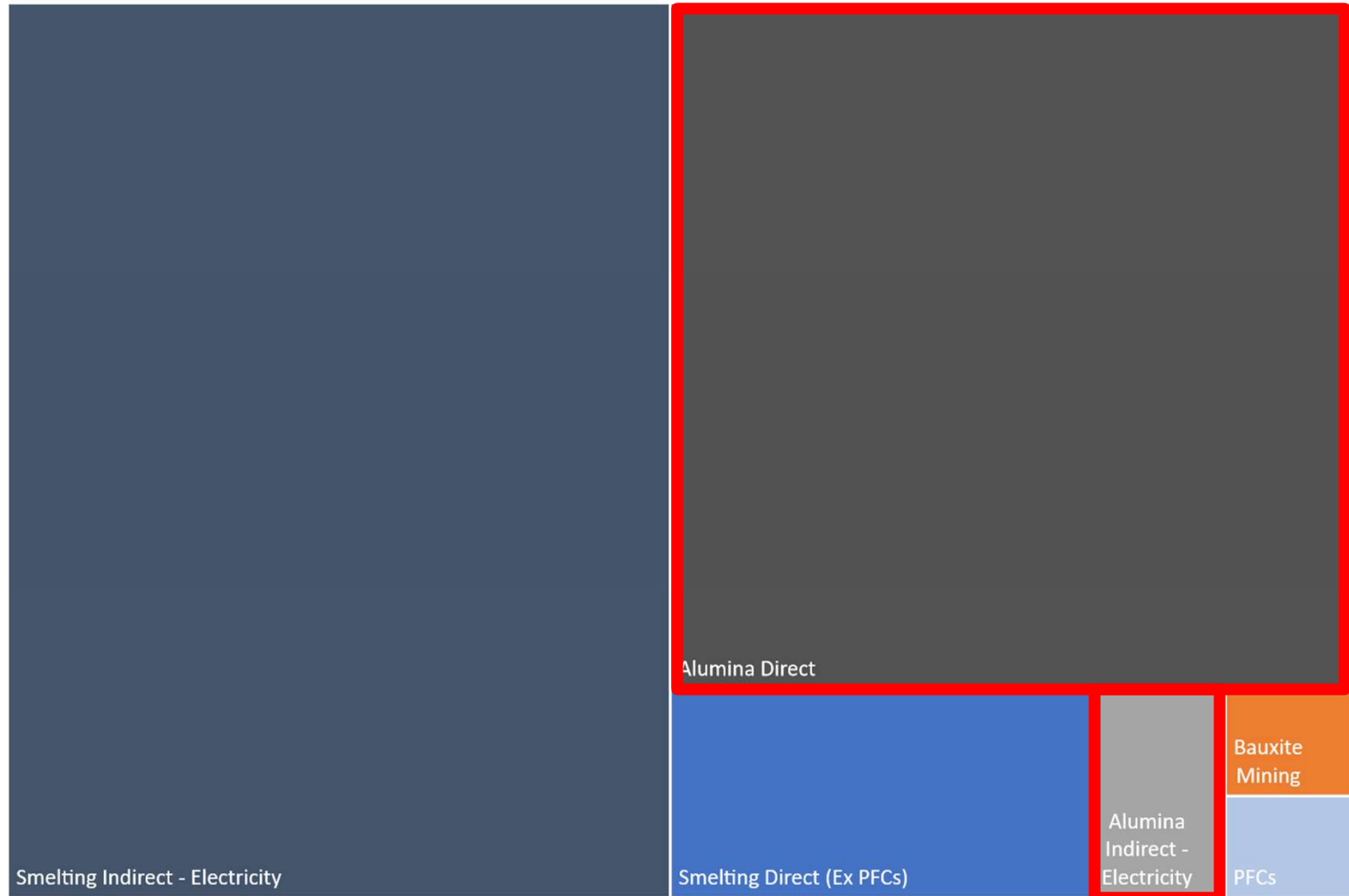
**Inert Anodes**





# AUSTRALIA'S ALUMINUM INDUSTRY EMISSIONS

Emissions (Mt CO<sub>2</sub>-e)





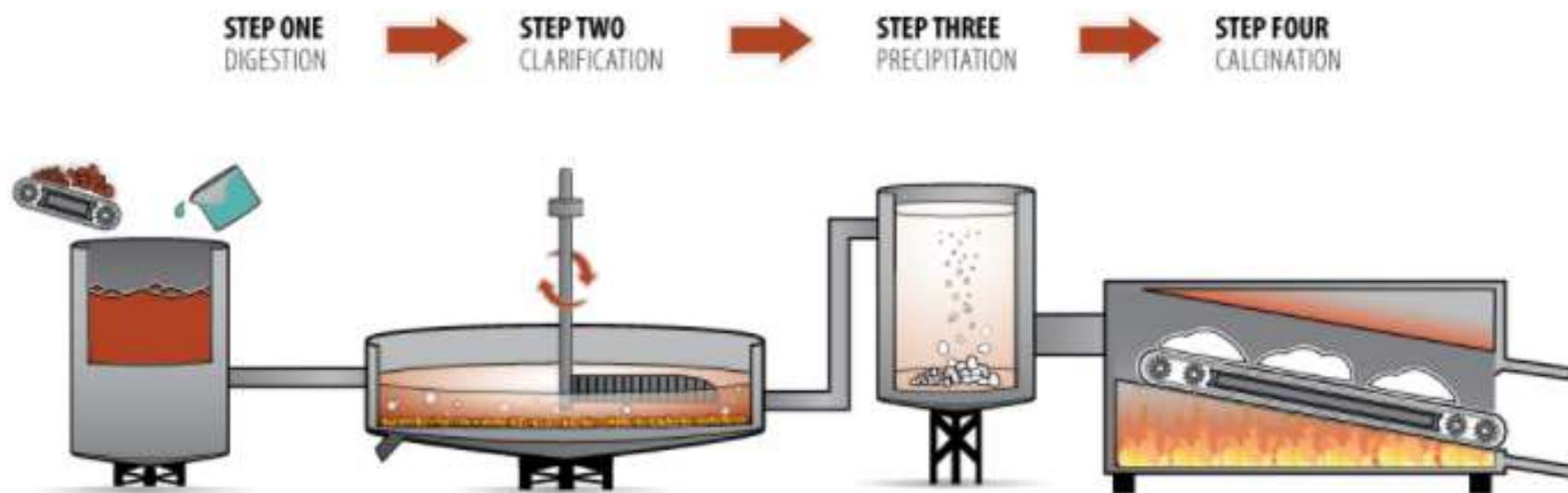
# AUSTRALIA'S ALUMINA FOOTPRINT

Alumina Industry Energy Consumption (GJ)





# HOW ALUMINA IS MADE





# AUSTRALIA'S ALUMINA FOOTPRINT

Alumina Industry Energy Consumption (GJ)





# FUTURE OPPORTUNITIES





# Thank You

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