

MAKING NET-ZERO, I.5°C-ALIGNED ALUMINUM POSSIBLE



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The solution: Low carbon power is vital

Emissions pathways, Gt CO2e/y



• High usage of CCS or new grid connections

% of cumulative reduction, 2022-50

- Introduction of nuclear small modular reactors (SMRs)
- Grid decarbonisation

Material and resource efficiency

- Improved recycling rates
- Higher design efficiency

Additional fuel switching

- Fuel switching for mining, casting, recycling and processing
- Decarbonisation of electricity use across value chain

Low carbon anodes

 Develop low-carbon anode production technology, including inert anodes and CCS retrofits

Low-carbon refineries

• Deployment of low-carbon boilers (electric and hydrogen) and heat recovery systems

• Develop low-carbon calciners (electric and hydrogen)

² What it will take

Investment for a net zero primary sector, annual capital investment, in billion US\$





Note: Compared to regular investments of \$9 billion-\$15 billion per year (in a Business-as-Usual future)

Green premium, levelised cost of alumina, \$/tonne of alumina — Business-as-Usual scenario — 1.5°C scenario



Note: Values are weighted by production type.

Resource requirements, share of global demand by 2050





Priorities for this decade



INDUSTRY ACTION TO BOOST SUPPLY

- Invest in RD&D for low-TRL technologies in refineries and anodes starting their roll out by the end of the decade
- Develop site-specific decarbonisation of power, particularly focusing on decarbonisation power over the next decade



ALUMINIUM DEMAND

- Key users of aluminium to commit to buying low-carbon products with a green premium
- Work with government and secondary producers to increase efficient aluminium use and recycling



FINANCE ACTION

- Mobilise capital across the electricity and aluminium sector in integrated projects
- Establish climatealigned investment principles for near-zero emissions aluminium production



GOVERNMENT ACTION

- Reduce cost differential between low-carbon and fossil-based-aluminium, e.g., by carbon pricing
- Use government procurement levers to support the development of a market for low carbon aluminium
- Work with producers and regulators to integrate aluminium smelters into electricity, CCS, and hydrogen grids