

Nevertheless, aluminum production is an energy intensive process that exhibits strong economies of scale and requires large amounts of electricity. Our paper investigates ...

Many decarbonization solutions--such as electrification of transportation, expansion of the electrical grid, and renewable electricity generation-- require aluminum as a material input.

By integrating solar PV and wind in smelting, aluminium producers can lead the industry's transition in line with the Paris Agreement. Several smelters already plan to ...

This paper investigates the economic feasibility of utilising energy flexibility in aluminium production as a viable solution to leverage electricity surpluses arising from the ...

The potential for reduction of anthropogenic greenhouse gas emissions through the use of aluminum-intensive, efficient machinery in industry; efficient cabling, turbines, solar panels, ...

The decision to equip newly built smelting capacity with captive power plants is based on a cost comparison between fossil fuel power generation (mainly coal and gas) and ...

This study contributes to the field of energy flexibility and renewable energy integration in industrial processes by assessing the ...

Aluminium smelters can modulate +/- 30%, which can free up power for secondary batch-processing smelters or other complimentary industries, if energy use is synchronised.

An in-depth analysis of the reduction process provides insights on the production cost of current aluminum smelting, and the economic impact of using a novel carbon-free ...



Solar power generation for aluminum smelting

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