



Clean Aluminium Production Process

Carbon Neutral and CO₂ Emission Free



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Climate
Launchpad
2015

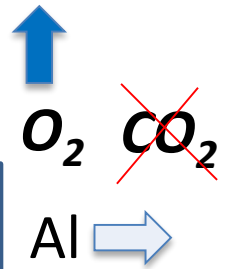
September 2015



Turn-key
modular aluminium smelter



Aluminium
Manufacturers



Price € 175 million
per smelter
100,000 ton Al / year

The Market

In the year 2015 some 50 million tons of aluminium will be produced worldwide.



Bauxite mining



Alumina Production



Primary aluminium production



Recycling



Semi-fabrication



Use phase



Product manufacturing

ALUMINIUM
VALUE CHAIN

Beachhead market:
100
Aluminium
manufacturers
in Germany and Italy.



Main customers:

- *Aluminium manufacturing companies in Europe (400 companies)*

Value Proposition:

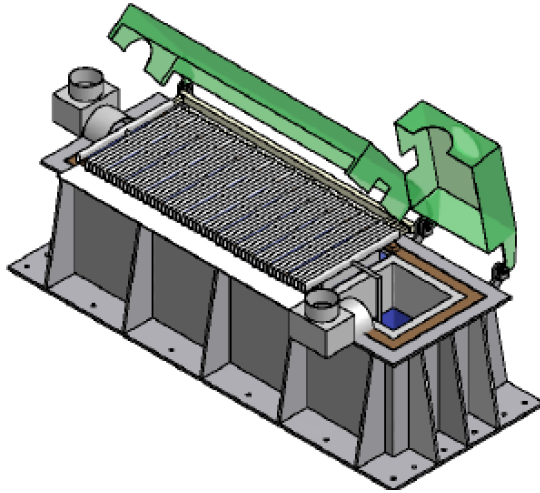
- *O₂ emission instead of CO₂*
- *20% less energy per ton Aluminium produced.*
- *60% less space*
- *40% less investment per ton Aluminium produced.*

Energy-efficient and clean aluminium production process

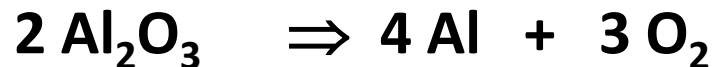


Main Products:

- *Turn-key modular aluminium smelter.*
- *Aluminium reduction cells with vertical inert anodes and cathodes to produce aluminium.*



Aluminium oxide \Rightarrow Aluminium + Oxygen

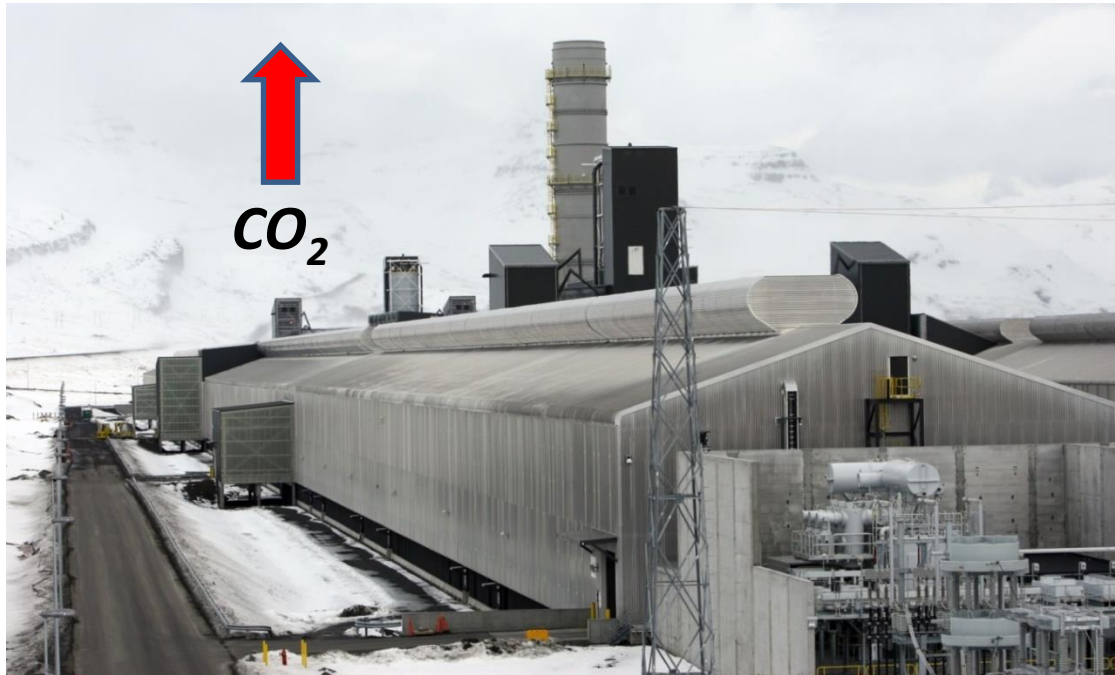


Consumables:

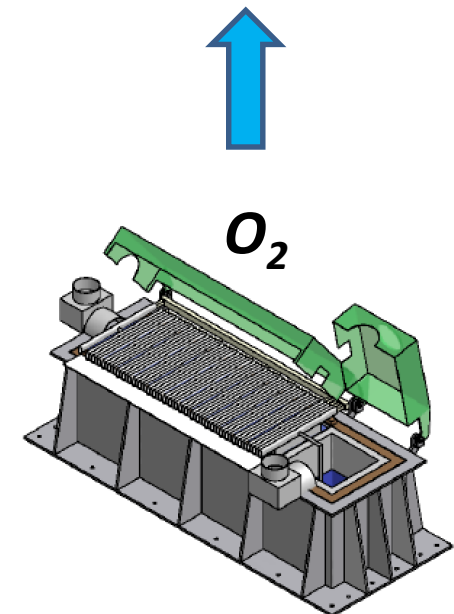
- *Inert anodes*
- *Inert cathodes*

Our carbon neutral process emits O_2 instead of CO_2

In the year 2020 some 70 million tons of aluminium will be produced worldwide with emission of 100 million tons of CO_2



Hall-Héroult 130 years old aluminum production process based on carbon anodes



New inert aluminum production process

Our aluminium process compared to a conventional process:

- Zero emission of CO_2 and greenhouse gases.
- Zero compliance costs for smelters due to stricter climate change.
- Instead 1 ton O_2 generated for each ton Aluminium produced.
- **20% less energy.**
- **60% less space.**
- **40% less investment cost.**
- Improved health and safety for the employees.
- Higher aluminium quality (99.95% vs 99.7%).
- Patented system (*Patent No. US 8,480,876 B2, July 9, 2013*)



The business and market potential for our process is great!

The key financials for our products based on the European market only are:

- ***€ 175 million per modular aluminium smelter for 100.000 tpy Al.***
- ***Sales target after 5 years of commercial operation is at least three turn key aluminium smelters per year.***
- ***25% profit margin on sales.***
- ***Consumables: € 40 million in inert cathodes per smelter and year.***

Strong and experienced management team:

Eng. Jon H Magnusson, MScEE.

Director Arctus Metals Ltd., Reykjavik, Iceland

Director MetalTech Ltd., Reykjavik Iceland

30 years experience in product development in the aluminium industry

Eng. Rolf M. G. Falkenberg, MScME.

Director Arctus Metals Ltd., Reykjavik, Iceland

Former CEO Vattenfall Engineering Ltd, Stockholm, Sweden

30 years experience in the power industry

Dr. Theodore R. Beck, PhDEC.

Partner Arctus Metals Ltd., Reykjavik, Iceland

Process Inventor and President, ETCI LLC, Seattle, WA

Professor Emeritus, Electrochemistry

University of Washington, Seattle, WA, USA

50 years experience in R&D in the aluminium industry

**“Create a profitable business
providing energy-efficient and environmentally friendly
process for aluminium production.”**



Arctus 2nd price in the European ClimateLaunchpad 2015 with 700 participants from 28 European countries.