ALLOW, low-carbon aluminium
Journey towards net zero

Russo-Italian Aluminium Forum
24 June 2021
RUSAL is the largest producer of low-carbon aluminium in the world

- Aluminium produced with hydropower: >90%
- 1st aluminium producer outside China
- 5.9% RUSAL share of global alu production*

**Aluminium production capacity**
- 3.8 million tons

**Alumina production capacity**
- 7.9 million tons

**Bauxite mining capacity**
- 16.1 million tons

**RUSAL Worldwide**
- Armenia
- Ireland
- Italy
- Kazakhstan
- Russia
- Ukraine
- Sweden
- Nigeria
- Australia
- Guyana
- Guinea
- Jamaica

**Key sales markets**
- Europa
- Russia
- CIS
- North America
- Asia
- Japan
- Korea

**Plants**
- 10 aluminium smelters
- 8 alumina refineries
- 7 bauxite mines
- 4 aluminium powder plants
- 2 silicon factories
- 4 foil mills
- 1 nepheline mine
- 2 wheels factories

*Source: UC RUSAL Sustainability report 2019*
74% of global primary aluminium is produced with non-renewable energy. Alu industry contributes to over 1% of the world GHG emissions.
The new reality: businesses accelerate their carbon emissions reduction, from producers to consumers

New regulations are coming. Consumers take serious commitments to reduce their supply-chain emissions

Paris Climate Agreement – implementation
Latest UNFCCC scientific report created a new sense of URGENCY

EU Green Deal
- EU emissions trading system (ETS)
- EU border carbon adjustment scheme (CBTA)
- End of Life Recycling directives
- New Green deal

China committed to greener industry
- China to move 2 million tons of production to hydro-based regions (Sichuan, Yunnan). Potential to produce 8 millions tons of alu of LCA
Smelters using hydro power, generate 7 times less emissions than coal based smelters

Carbon footprint t CO$_2$ eq./ t al (smelter, Scope 1 & 2)*

World primary aluminium production in MT split by energy source** (65 MT in 2020 – projected +40% by 2050)

* Scope 1: emissions related to the smelter processes Scope 2: emissions related to the energy supply.

**IAI data 2016-2018
En+ Group/RUSAL is the largest producer of low-carbon aluminium, committed to carbon neutrality by 2050

ALLOW delivers independently verified carbon footprint statements, traceability to individual smelter of origin, societal benefits for more sustainable future, available worldwide

<table>
<thead>
<tr>
<th>INDUSTRY AVERAGE</th>
<th>ALLOW CARBON FOOTPRINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.5 t CO₂e/t Al, at-smelter Scope 1&amp;2 IAI Level 1</td>
<td>2.4 t CO₂e/t Al, at-smelter Scope 1 &amp; 2 IAI Level 1</td>
</tr>
<tr>
<td>16.8 t CO₂e/t Al, full-scope Scope 1, 2, 3 IAI Level 3</td>
<td>6.4 t CO₂e/t Al, full-scope Scope 1, 2, 3 IAI Level 3</td>
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En+ Group/RUSAL commit to a decarbonisation pathway in line with the Science Based target

2030: -35% greenhouse gas emissions reduction for EN+ Group

2050: Carbon neutrAl
RUSAL is committed to transparency and traceability of CO₂ emissions and provides statements of carbon footprint and energy source

- Supplied by RUSAL, the world’s largest low carbon aluminium producer
- RUSAL produces 25% of the world hydro powered aluminium
- RUSAL aims to produce all of its aluminium with 95% carbon free energy by 2025
- ALLOW by RUSAL is available worldwide

**Carbon footprint**
- Verification of carbon footprint by the 3rd party
- Guaranteed CO2 footprint and secured by contract
- Traceable to a single smelter
- RUSAL promotes CO2 transparency across the value chain

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**Low-carbon aluminium**

**ALLOW**

<table>
<thead>
<tr>
<th>ACTUAL</th>
<th>AVERAGE</th>
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<tbody>
<tr>
<td>&lt;4</td>
<td>2.4</td>
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<tr>
<td>&lt;8</td>
<td>6.4</td>
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</tbody>
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Carbon footprint, T of CO₂ eq/T of Al

- Smelter emissions Scope 1&2 (level 1 IAI)
- Cradle to gate (level 3 IAI)

This corresponds to Level 1, according to IAI’s Aluminium Carbon Footprint Technical Support Document, 2018.
RUSAL is committed to the Aluminium Stewardship Initiative

ASI is the only recognized sustainability standard of the aluminium industry covering the full spectrum of environmental, social, and governance aspects.

Audit scope of supply chain activities:

- Bauxite Mining
- Alumina Refining
- Aluminium Smelting
- Casthouse
- Post-Casthouse

Nine RUSAL facilities have been certified to the ASI Performance Standard and Chain-of-Custody Standard: IrKAZ, BoAZ, BrAZ, KrAZ, KUBAL, SAZ, Boksit Timana (bauxite mining), UAZ (alumina refining).
Work to certify further facilities continues.

Certificates can be downloaded from:
ALLOW

aluminium crafted by hydro power

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