



RUSAL and the Aluminium Stewardship Initiative

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UC RUSAL is a fully vertically integrated aluminium industry leader with a global footprint

RUSAL is a leading, global aluminium producer and one of the world's major producers of alumina. The company was founded in 2000 and, following its merger with SUAL and the alumina assets of Glencore, became the global aluminium industry leader in 2007

RUSAL key figures

RUSAL's share
of global
aluminium
production
6.2%

RUSAL's share
of global alumina
production
6.5%

RUSAL Worldwide

- Armenia
- Ireland
- Italy
- Kazakhstan
- China
- Russia
- Ukraine
- Sweden
- Nigeria
- Australia
- Guyana
- Guinea
- Jamaica

Key sales markets

- Europe
- Russia
- CIS
- North America
- Asia
- Japan
- Korea

Plants

- 15 aluminium smelters
- 11 alumina refineries
- 8 bauxite mines
- 3 aluminium powder plants
- 2 silicon factories
- 2 secondary aluminium plants
- 4 foil mills
- 2 cryolite plants
- 1 cathode plants

- Representative office
- Aluminium
- ▲ Alumina

- Bauxite
- ◆ Foil
- Powders

- ★ Silicon
- ◆ Nepheline ore
- Production of cryolite and cathodes



**Aluminium production
capacity**

2016
3 919 million tones

**Alumina production
capacity**

2016
7 527 million tones

Bauxite mining

2016
12 187 million tones

RUSAL's integrated approach to sustainability

1. Labor safety

- We are committed to produce aluminium responsibly and safely, preventing harm to our employees and contractors.

2. Environmental stewardship

- Responsible use and protection of the natural environment through conservation and sustainable practices

3. Clean energy

- Achieve 100% of carbon-free purchased power in our energy mix by 2020

4. Innovation

- New alloys
- CO2 free technologies for anodes

5. Social

- Create partnerships to jointly tackle social issues and share experience with local communities.



Shift to sustainability is now a priority for industries and governments

Climate Change

- Governments are working on implementation of national commitments under Paris Agreement which is now effective and represents international consensus on climate change goals and low-carbon strategy.

Shift to green power

- Global power production is shifting to renewable sources in regions including EU, the US and China. China has set a 15% minimum target for the share of non-fossil energy to its overall consumption by 2020.

Global push for carbon pricing

- Today carbon pricing is being implemented or is scheduled to commence in 40 national and over 20 subnational jurisdictions. Together, these carbon pricing initiatives cover about 7 GtCO₂e, or about 13% of annual global GHG emissions.

Sustainability along value chain

- Consumers become more responsible and tend to consume products made from environmental friendly materials to state and promote their sustainability commitment .

Environmental efficiency and innovations

- There is a trend of tightening environmental regulations and push for innovative environmentally efficient technologies. Example – Shenhua coal-fired power plants.

Industries like aluminium exert severe strain on the environment

		Aluminium + alumina + coal-fired power				Environmental impact	Health impact
		Per ton of aluminium		2016 yearly emissions			
Greenhouse gas	CO2	22	t	711	Mt	• Climate change	
	SO2	111	kg	3,6	Mt		
	NOx	78	kg	2,5	Mt		
Air pollutants	Dust	18	kg	590	kt	• Concentration in one area multiplies negative effect • Negative impact on quality of agricultural products	• SO2 lead to asthma, heart failure, premature death and preterm birth
	CO	2,9	kg	93	kt		• NOx Form smog and acid rain
	Fluoride	0,2	kg	5	kt		• Dust causes permanent DNA mutations, heart attacks and lung cancer
	Asphalt fumes	1,3	kg	41	kt		• Fluoride contamination lead to skeletal and dental fluorosis
Solid waste	Red Mud	3,5	t	112	Mt	• Huge amount of accumulated hard waste • Spills floods and risk of soil degradation • Risk of water quality deterioration	• Red mud contains highly toxic alkali, which is extremely harmful for people, animals and corps • SPL generates explosive gases and contains toxic fluoride, cyanide, alkali metals and etc. It causes DNA damage
	Coal ash	2	t	64	Mt		
	Spent pot linin	10	kg	323	kt		
Liquid waste	Wastewater	14	m3	451	mn m3	• Reduces limited sources of potable water	

Red mud

Red mud is solid waste of alumina production, contains highly toxic alkali, which is extremely harmful for people, animal and crops. Spills result in contamination of potable and agricultural water.



Red spent pot lining

Spent pot lining is a toxic waste which when combined with water generates explosive gases. It contains fluoride, cyanide and alkali metals and can also cause DNA damage.



Air pollution

Air pollution in Beijing and surrounding areas reached record levels in 2013 prompting unprecedented levels of public concern.



Why ASI is relevant to RUSAL

Our industry is very conscious of its impact on the environment and communities in which it operates



Energy & GHG
intensive



Impacts on
humans &
communities



Red mud spill
accident,
Hungary, 2009

Existing industry associations have tended to focus on technology, trade and commercial imperatives. ASI has emerged as the :

- only multistakeholder, from mine to consumers in the aluminium value chain
- Most effective platform to address sustainability issues for the industry, customers and society

What does the ASI offers our industry?

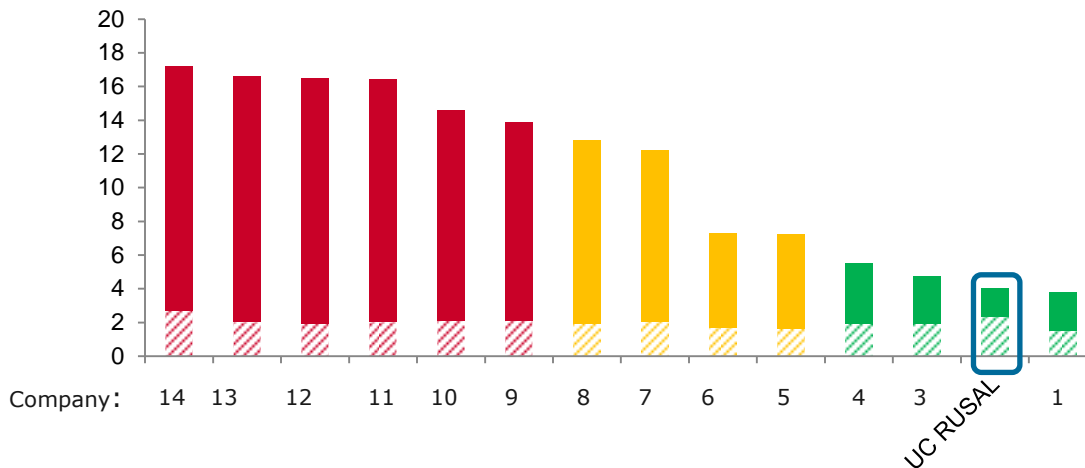
RUSAL supports the ASI and is an active member of the Standards Committee



- Brings together a full cross section of the value chain and industry stake holders
- A credible and well structured platform to assure sustainability practices
- Customers are demanding it

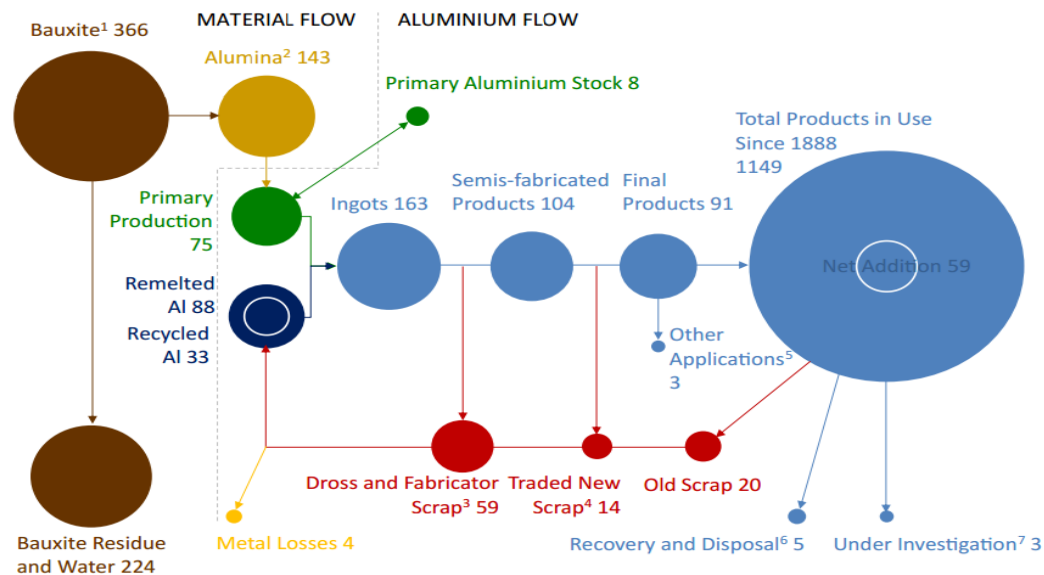
What are our expectations from ASI membership?

Global aluminium producers' ranking based CO₂ specific smelter emissions per tonne



- An ability to use ASI certification as a means of differentiation ourselves with the industry
- A source of competitive advantage as low CO₂ aluminium producer
- Enhancing our reputation as a leading proponent of sustainable mining and manufacturing
- Providing a license to sell to like minded consumers

We have a contribution to make to ASI

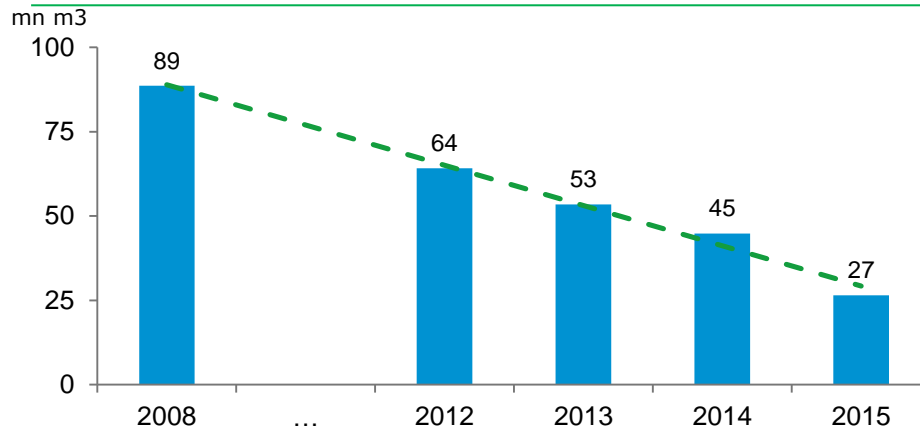


As the demand cannot be satisfied only by recycled sources.
Primary material from Low CO2 sources is the best way forward.

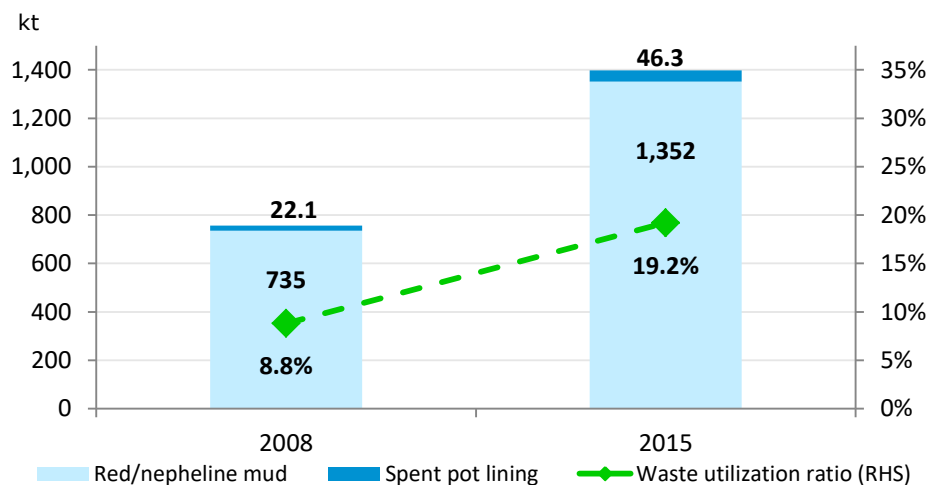
- We bring the perspectives of the 2nd largest aluminium producer with main operations in Russia
- We drive the recognition for the need of sustainably certified materials
- We provide thought leadership to promote Low CO2 primary aluminium as essential part of the solution for the climate challenge

RUSAL environmental achievements: Better water usage and solid waste utilization

Industrial water discharges



Utilization of solid waste



RUSAL is the industry leader in terms of ecological initiatives and achievements:

- RUSAL's total environmental investments of \$525 million during the last 5 years
- Elimination of dumping of more than 30 million m3 of polluted wastewater
- Modernization of existing production facilities
- Adoption of new technologies to reduce amount of generated waste
- Number of plants adopted system of zero-discharge wastewater treatment
- R&D to increase share of waste utilization
- Proper management and constant improvement of waste disposal sites

Renewable energy is the cornerstone of RUSAL's sustainable development

More than 90% of energy for RUSAL's aluminium smelting comes from carbon-free sources



Hydro power sources for RUSAL's key smelters*

Bratsk smelter –
1,005kt



Bratskaya HPP –
4,500 MW

Irkutsk smelter –
415kt



Irkutsk HPP –
662.4 MW

Krasnoyarsk
smelter – 1,024kt



Krasnoyarskaya
HPP – 6,000 MW

Sayanogorsk &
Khakas smelters
– 823kt



Sayano-
Shushenskaya
HPP – 6,400 MW

BEMO smelter –
149kt



BEMO HPP –
3,000 MW

RUSAL's top priority is strive to achieve 100% carbon-free purchased electricity for Russian smelters

* 2016 production data for smelters and installed capacity for power plants

RUSAL IS A MEMBER OF:

Aluminium Stewardship Initiative
International Aluminium Institute
World Bank's Carbon Pricing Leadership Coalition
CDP
UN Global Compact
UNDP
International Chamber of Commerce
Climate Partnership of Russia

In 2016 RUSAL was named "The Industry Leader in Aluminium" at Platts Global Metals Awards



2016 PLATTS
GLOBAL METALS
AWARDS WINNER





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