

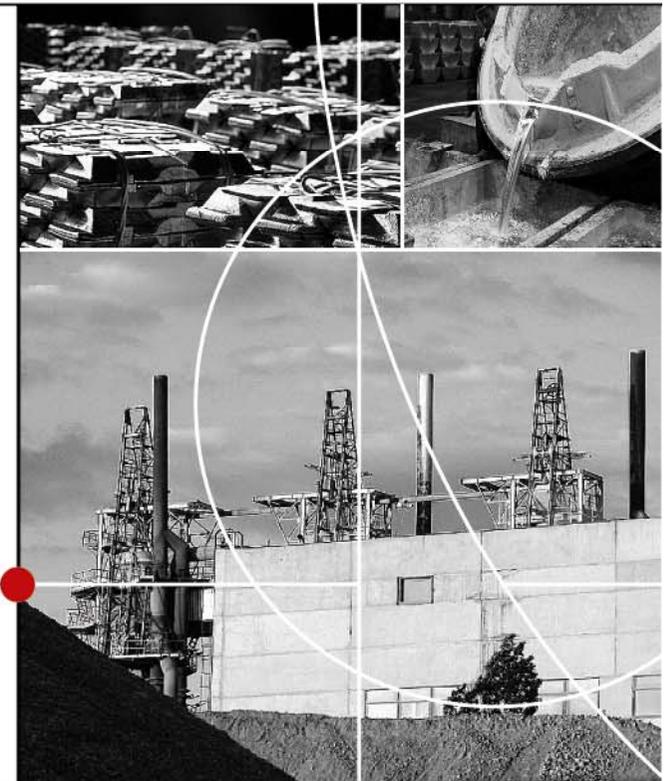
RUSAL



# UC RUSAL

## **CHINESE AND RUSSIAN ALUMINIUM INDUSTRIES: PARTNERING FOR THE FUTURE**

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Aluminium Sales Director, UC RUSAL



# GLOBAL INDUSTRY GROWTH

## Strong fundamental demand...

- *Accelerating global growth* driven by developing countries
  - *China is the primary contributor*, with the other BRIC countries (Brazil, Russia and India) also growing strongly
- *Increasing use of aluminium as a substitute* for other metals

## ... and limited new supply

- *Rising capital and operating costs* are resulting in *significant smelter capacity closures*, particularly in North America, Western Europe and China as well as *new project delays* and *budget increases* (e.g. Qatar)
- *The industry is also rapidly consolidating*
  - Improving capex discipline
  - Increasing economies of scale
  - Increasing operating flexibility



## Attractive industry fundamentals

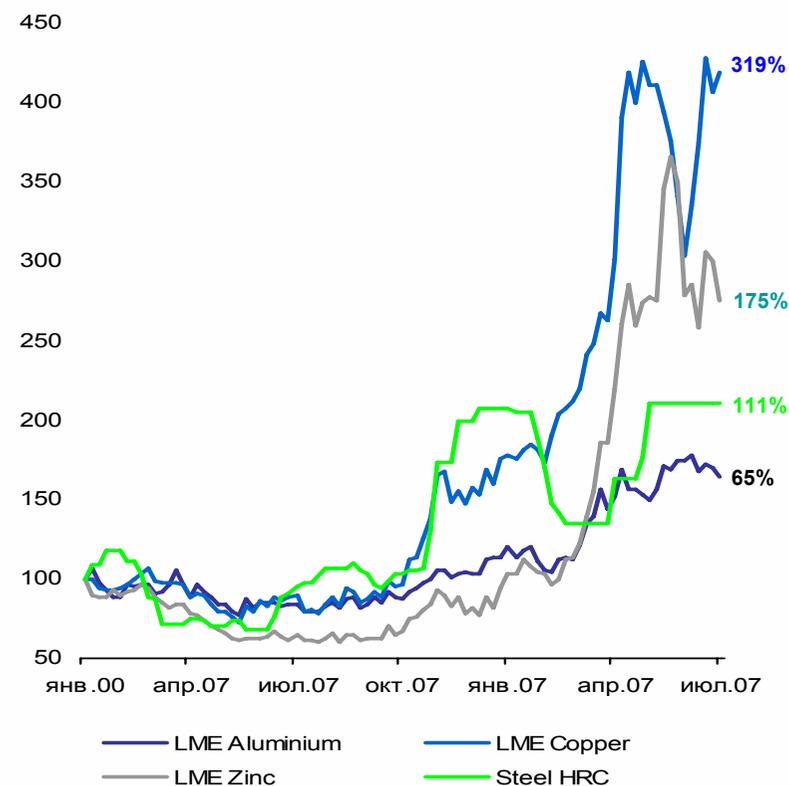
Strongest price environment since the 1980s, with the market continuing to upgrade price expectations

# INCREASED COMPETITIVENESS OF ALUMINIUM



- Competitive price compared to copper, zinc and steel
- Aluminium has become an increasingly attractive substitute of zinc and steel, enhanced by its versatility for end uses (construction, transportation, power, consumer)
- Steel prices have also out-performed aluminium, stimulating demand for aluminium as a lower-priced substitute
- Switching costs make it difficult to go back to other materials once the switch to aluminium is made
- Toughening of international environmental legislation offer more opportunities for the use of aluminium as a light metal

Relative performance for copper, zinc, steel and aluminium  
(rebased to 100 as of January 2000)

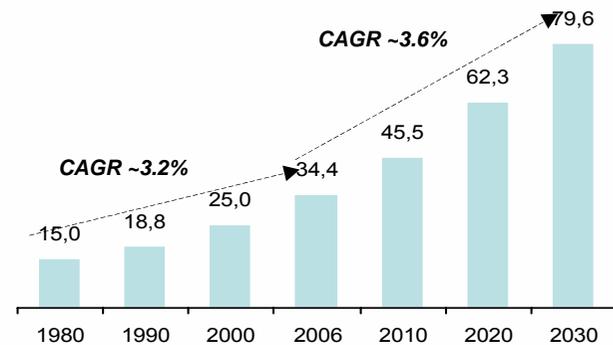


# MACRO TRENDS SUPPORTING DEMAND FOR ALUMINIUM



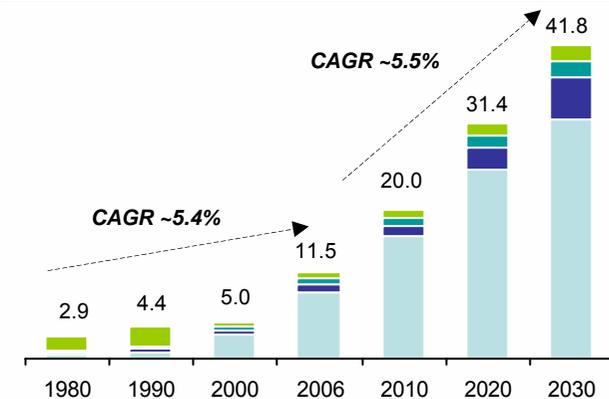
- Global aluminium consumption is forecast to grow at 3.6% CAGR
- Demand in developing markets is expected to be markedly higher, as indicated by the correlation between consumption and GDP per capita
- BRIC aluminium demand is forecast to grow at 5.5% CAGR through 2030
- Shorter-term growth rates (through 2010) for the BRIC markets are much higher (China: 16.8%, India 9.0%, CIS 7.2%)
- Overall aluminium demand is forecast to increase by 11 MMt by 2010 with China, CIS and India accounting for 75% of the increase
- In the long-term (through 2030), overall aluminium demand is forecast to more than double with an increase of 45 MMt

**Global aluminium consumption growth 1980-2030 (MMt)**



Source: CRU

**Consumption growth for China, India, CIS and Brazil (MMt)**



Source: CRU

# CHINA CONTINUES TO BE KEY CONSUMER



Growing share of urban population in China contributes to increasing demand for aluminium used in consumer goods, packaging, automobiles and other applications

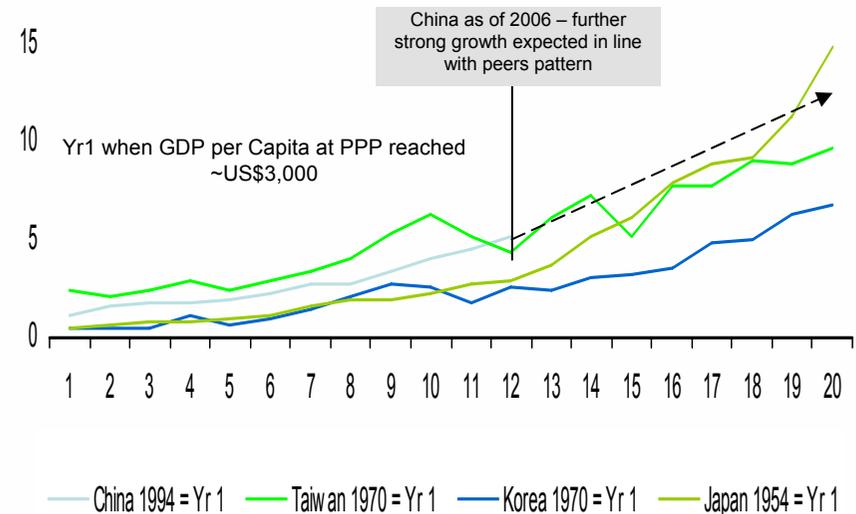
Currently representing ~25% of global consumption and expected to reach 36% by 2010

The demand growth is 17% p.a

China is expected to be a net importer of primary aluminium starting from 2009-2011

China's Ministry of Finance plans to cut import duty on aluminium to 0% from August 1 and impose 15% export of energy-intensive products

## China's aluminium demand pattern vs. other Asian countries (Kg per Capita)



Source: CRU, Brokers' reports

# OVERVIEW OF CHINESE ALUMINIUM INDUSTRY



- In 2006 China produced 9,3 million tons of primary aluminium. In 2007 forecast is 12 million tons, about 1/3 of the world total. In 2001 output was 3,4 million tons
- China's production of alumina is expected to reach 20 million tons in 2007 compared with 13,7 million tons in 2006
- In 2005 China mined only 8 million tons of bauxite, in 2006 domestic production reached 18 million tons, but the quality is not very high and therefore China will need to import large quantities of bauxite
- Price situation in 2006 not only helped smelters to restart idled capacities, but also triggered a new round of investment boom in China. Combined capacity of the ongoing primary aluminium projects are nearly 3 million tons, of which 2 million tons will be put into operation in 2007
- 52 biggest smelters produce 86% of primary metal. Chinalco produced 3,2 million tons of primary aluminium and target to reach 5 mln tons in 2010
- China has its own reduction technology. So far China has mastered 350 kA, exported 300kA and is testing 400kA cell technology

# MAJOR CHALLENGES FOR CHINESE ALUMINIUM INDUSTRY



- CRU forecasts that by 2010 China will produce 13,7 million tons of aluminium and in 2011 14,7 million tons of aluminium. Primary aluminium continues to increase but growth rate has dropped and investments in the industry have decreased
- According to Chinese industrial policy the main purpose of the primary aluminium industry is to meet domestic demand
- Primary aluminium projects can be developed moderately in the area with rich energy and bauxite resources by combined operation of electric power and aluminium with arms length to downstream
- Quality of primary capacity was significantly improved during last 6 years. In year 2000 the output produced with 160 kA or above accounted for 32% of the total production, in 2007 already reached 83% and Soderberg technology was phased out, although the combined capacity with 100kA or below is around 1,8 million
- Chinese smelters bear the highest power costs (between 3 and 4 cents/1000kW, world average is between 2 and 3 cents, Russia and Canada between 1 and 2 cents). 76% of the energy is coal based and in 2006 China became the net importer of coal

## DEMAND SITUATION IN CHINA

- China's GDP grew by 10,7% in 2006. Chinese primary consumption is also accelerating. Starting from 2003 the growth rate of semis production was above the growth in primary production. In 2006 it was 39,3% versus 24,0%
- Electric power industry made strong contribution to the aluminium consumption growth. Chinese electricity generating capacity increased by 20,3% year-on-year to 622 million kW. Aluminium use in the power grid project in 2006-2010 will double compared with last 5 years and will keep growth potential in future
- Growth of aluminium use in the transportation industry is also impressive. In 2006 China produced over 7,2 million cars, 26% p year-on-year. Primary aluminium consumption in auto and motorcycle industry increased by over 20% in 2006
- Real estate area showed growth of 10% in 2006
- Except the electric power and transportation industries, other aluminium use industries saw a mild growth rate in the consumption of less than 10%
- Total primary aluminium consumption growth is 22% but extra demand is generated by the export of semis which is growing fast. Export of semis in 2006 demonstrated 70% rise year-on-year

## POSSIBLE TRENDS

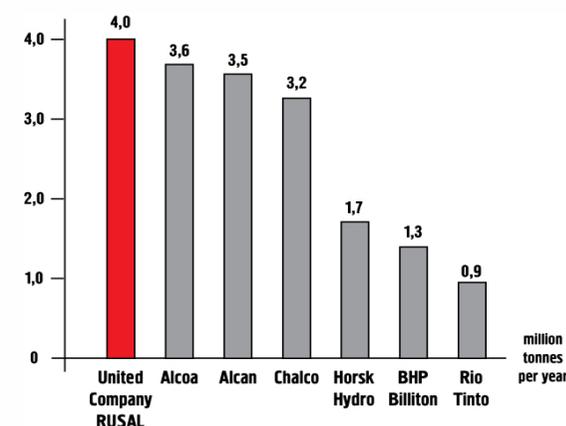
- China has become the largest primary producer and consumer in the world. The average aluminium consumption per capita is above 5 kg which is higher than the world average of 4,8 kg, but below the average of 20 kg and over in the developed countries
- China is moving towards production of more sophisticated products which will open more opportunities for the growth in aluminium consumption:
- Consumption has strong potential while primary production may have limitations caused by power price, raw materials (bauxite), necessity to shut down the obsolete small smelters which still produce large volume of production, environmental concerns, unbalanced distribution of smelting, power generating and fabricating industries.
- By existing forecasts demand may bypass the supply already in 2010. Primary capacity in 2010 will approach 15,7 mln. tons, while fabricating capacity will be over 23 million tons.

# UC RUSAL TODAY

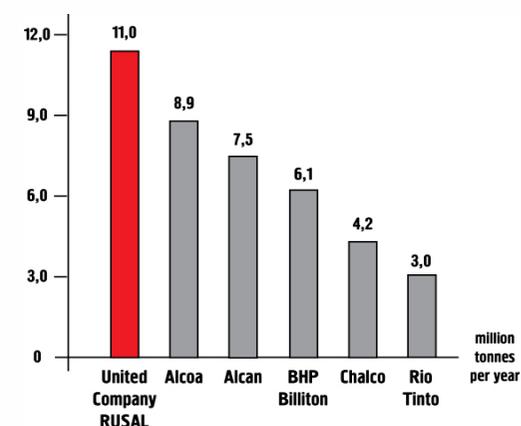
## The world's largest aluminium and alumina producer

- About 4 million tonnes of aluminium per year
- About 11 million tonnes of alumina per year
- Operations in 19 countries across 5 continents
- Own R&D and engineering capabilities, including RA-300 and RA-400 technologies
- Consumers in 70 countries worldwide
- Approximately 100,000 employees

Leader in aluminium production



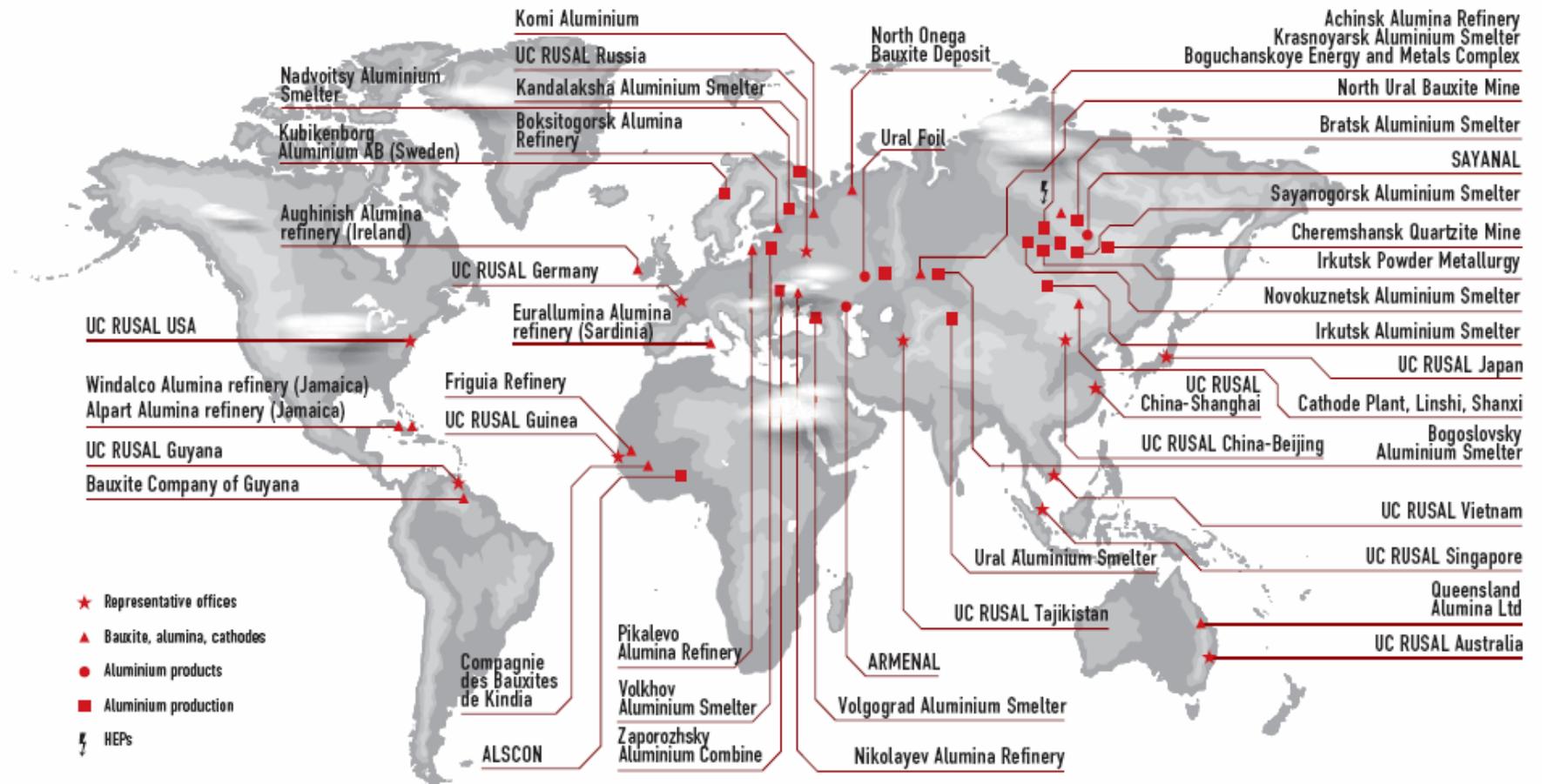
Leader in alumina production





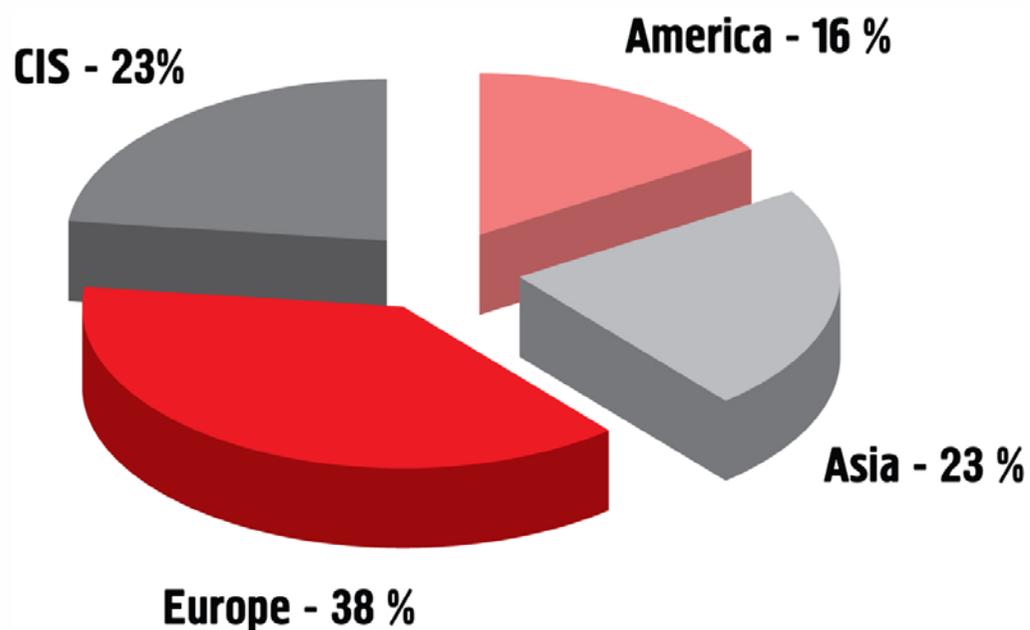
# TRULY GLOBAL PRESENCE

## UC RUSAL operates in 19 countries across 5 continents



## SALES GEOGRAPHY

United Company RUSAL's products are sold to customers in 70 countries



## VALUE FOR CUSTOMERS

Our customers are looking for value, quality and responsiveness. The combined company enables us to offer:

- Manufacturing expertise, research and resources
- Ability to provide longer-term partnerships
- Value-added focus
- Global presence enabling us to become closer to our end-users

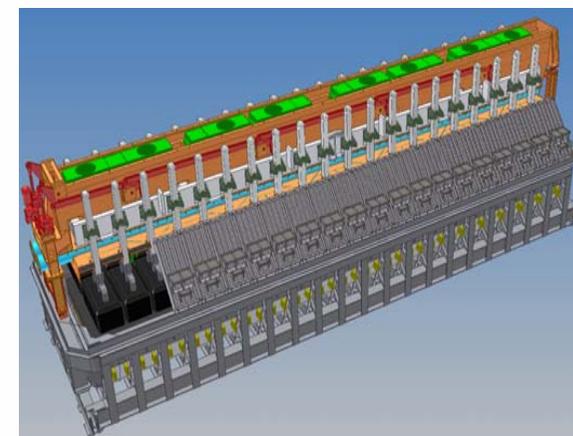
## PLATFORM FOR FURTHER GROWTH

- Vertical integration along the bauxite / alumina / aluminium value chain
- Financial scale and flexibility
- Ability to do business in challenging geographies
- Competitive cost position, driven by own resource base and access to the low cost energy
- Well-positioned to supply growing markets
- Proprietary technology (RA-300 and RA-400)
- Strong pipeline of expansion projects

## NEW CELL TECHNOLOGY

**UC RUSAL has developed technology that ranks among the best in the world**

- **RA-300 reduction cell – a global top-three reduction technology with daily capacity of 2 tonnes of aluminium;**
- **RA-400 reduction cell – the most powerful in Russia, launched at Sayanogorsk Smelter in Dec 2005 and designed to produce 3 tonnes of Al per day;**
- **RA-500 currently in testing mode at Krasnoyarsk Smelter;**
- **Colloidal anode – UC RUSAL’s proprietary break-through technology allowing to transform the Soderberg cell and make it environmentally-friendly**

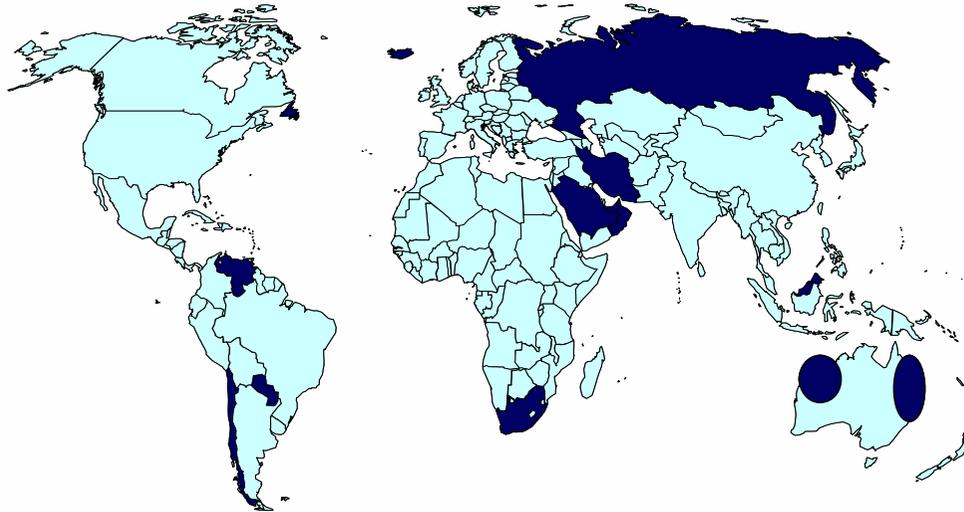


*Source: Internal Studies*

# BENEFITING FROM A POSITION ON ONE OF THE WORLD'S «POWER ISLANDS»



## Attractive Locations for Power-Intensive Industries Today



- **Since aluminium is the “solidified form of power”, Russia represents one of the most attractive locations for the aluminium industry long-term**
- **Major factor in global industrial capacity distribution changes is shrinkage in the world’s “power islands”**
- **Power-intensive industries (including aluminium) are expected to continue shifting to energy-rich regions (Russia, Middle East)**

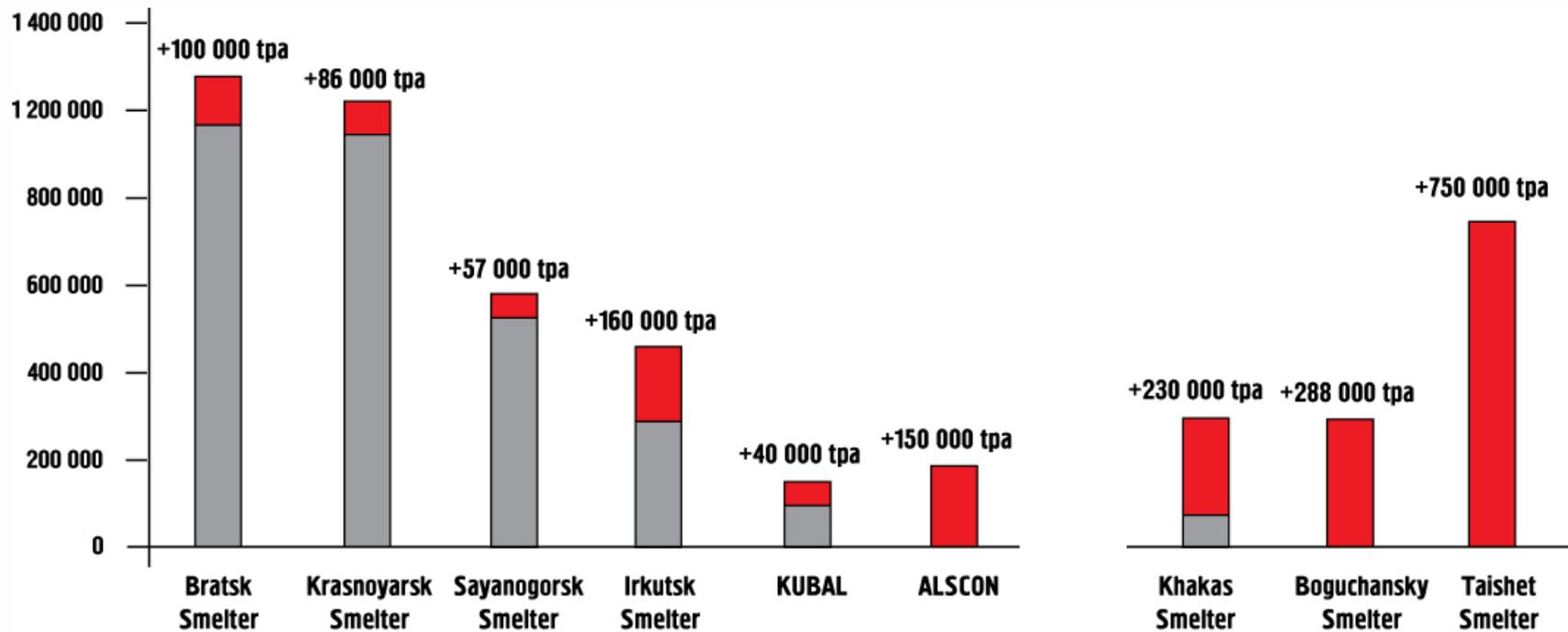
Source: CRU

# GROWTH OPPORTUNITIES: ALUMINIUM



## BROWNFIELD

## GREENFIELD

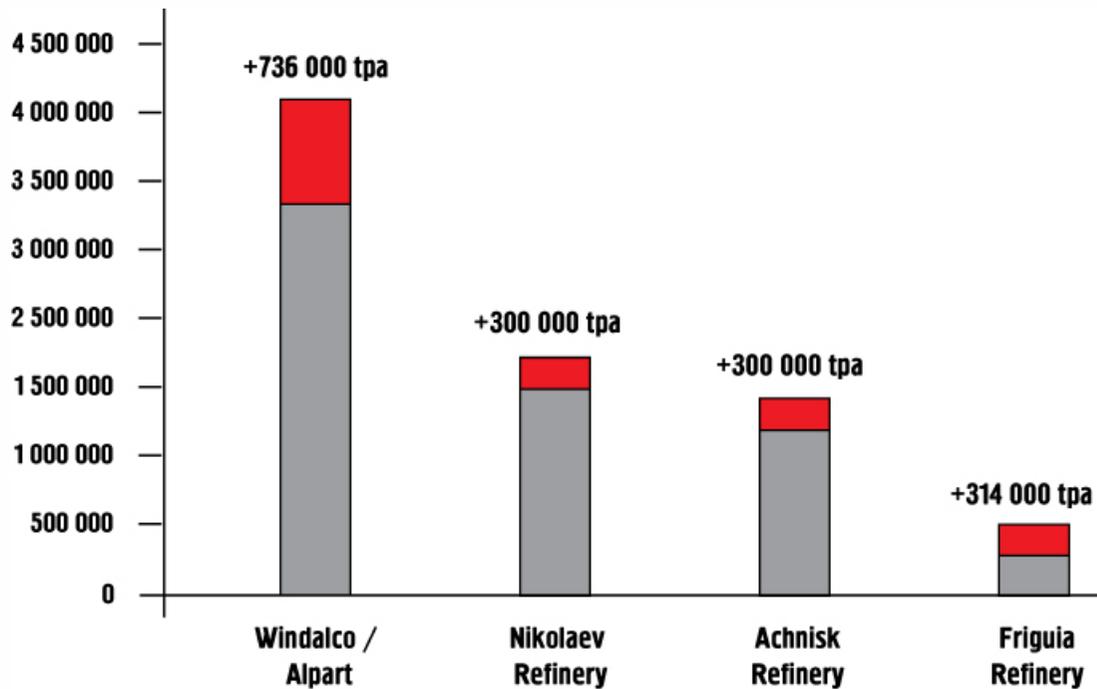


**+ 65% IN ALUMINIUM OUTPUT**

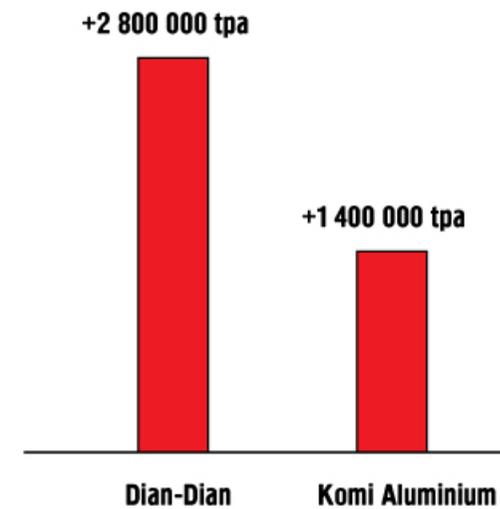
# GROWTH OPPORTUNITIES: ALUMINA / BAUXITES



## BROWNFIELD



## GREENFIELD

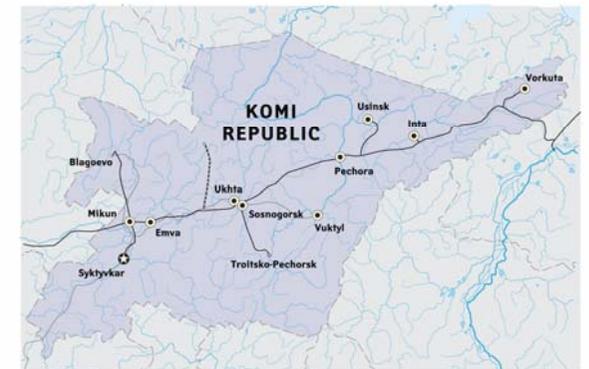


**+ 66% IN ALUMINA OUTPUT**

# EXAMPLE 1: KOMI ALUMINIUM BAUXITE AND ALUMINA COMPLEX



- Phase I: Expansion of bauxite production at existing Timan Bauxite mine up to 6 mln tonnes per annum by 2009;
- Phase II: Construction of refining capacity of 1.4 mln tonnes per annum, when fully operational in 2009;
- Site connected to the federal rail network by a private 157 km railroad;
- Total cost USD 1.8 bln;
- Current status: site works started;
- First alumina to be produced by end of 2008;
- Full capacity to be reached in 2009.



## EXAMPLE 2: KHAKAS ALUMINIUM SMELTER



- The first smelter to have been built in Russia in 20 years: launched in Dec 2006
- Sayanogorsk smelter site, 100% UC RUSAL
- Sayano-Shushenskaya Hydropower: 6,700 megawatts with spare capacity
- Full smelting capacity of 300,000 tpa by end of 2007
- UC RUSAL RA-300 reduction technology



## EXAMPLE 3: BOGUCHANSKOYE ENERGY AND METALS COMPLEX



- Krasnoyarsk Region
- 50/50 JV with RAO UES sub's HydroOGK
- Budget of USD 3.6 bln
- Hydropower: 3,000 MW
- 1<sup>st</sup> phase to be complete in 2009
- 2<sup>nd</sup> phase to be complete in 2012
- Smelting capacity: 600,000 tonnes per year – 300,000 tonnes in 1<sup>st</sup> phase
- UC RUSAL RA-300 technology



# THE FUTURE

## OUR VISION

Building upon the position of a global leader in one commodity to become a leader in metals and mining industry world-wide

## GROWTH PLATFORM

- Core competencies in aluminium and energy
- Size, scale, leading technology, financial strengths and substantial synergies in the core business
- Emerging markets know-how

## NEXT STEPS

- New projects in bauxite / alumina / power / aluminium:  
Middle East, Africa, Venezuela, China, India, Vietnam, Laos, Indonesia, Australia, Papua New Guinea, etc.
- Vertical integration into power and fuels (coal / gas)
- Consider diversification opportunities

**UC RUSAL: THE GROWTH PLATFORM FOR NEW MINING CHAMPION**

# UC RUSAL'S CURRENT POSITION IN CHINA



- Linshi cathode plant in Shanxi province with annual capacity 15 000 tonnes. Rusal plans to increase capacity up to 25 000 tonnes
- Representative office in Beijing
- Representative office in Shanghai

# UC RUSAL IS PERFECTLY POSITIONED TO SUPPLY CHINA

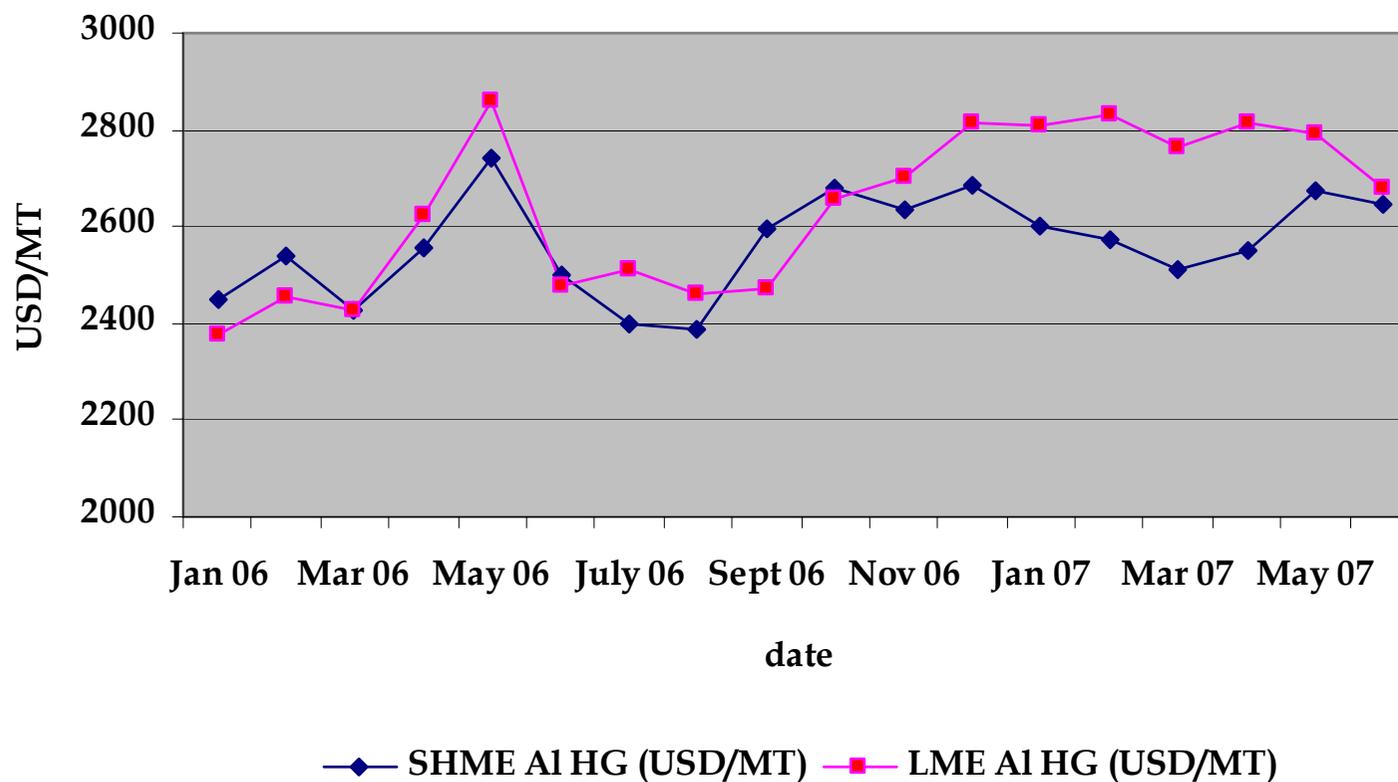


Major smelters of UC Rusal and new projects are located in Southern and Eastern Siberia which allows them to reach China through Russian Far East ports and cross-border stations



# PRICE DIFFERENCE BARRIERS

One of the main barriers for UC RUSAL in Chinese market is the price difference at LME vs SHME.



## POSSIBLE IMPLICATIONS

- UC RUSAL can offer wide range of products, including primary aluminium, slabs for rolling, extrusion billets, wire rod , primary foundry alloys which can add to the domestic supply from Chinese smelters to local fabricating plants
- UC RUSAL offers high quality aluminium products, including big variety of dimensions and opportunity to match the requirements of the customers, wide range of alloys for different applications
- Growth of UC RUSAL primary aluminium output is based on the hydro-power energy and self-sufficiency with raw materials including new bauxite deposit developed in Russia
- UC RUSAL is planning to strengthen its presence in Chinese market through Rusal China branch office.