

# Long-Term Electricity Supply Agreements



- Long-term contracts provide for 100% electricity supply at market-based prices for BrAZ and IrkAZ from Irkutskenergo starting on January 1<sup>st</sup>, 2010
- The amount of supply will be actual generation less obligatory supplies under regulated contracts (prior to complete market deregulation on January 1<sup>st</sup>, 2011) and supplies for households at regulated prices (until January 1<sup>st</sup>, 2014) in accordance with Federal Law No.36 on electric power market during the transition period
- Long-term contracts with Krasnoyarsk HPS and Irkutskenergo cover about 57 percent of UC RUSAL total energy needs in Russia for 2010 with further increase in subsequent period

Counterparties	Proposed term	Proposed cost definition	Current status
<b>Irkutskenergo</b> <b>Bratsk, Irkutsk and Taishet Smelters</b>	2009 - 2018	Set based on electricity production costs calculated pursuant to a fixed formula plus 12.5 % for overheads (with "top" and "bottom" limits)	Signed

- The BrAZ and IrkAZ contracts envisage
  - A cost-plus component with a floor of 15.57kopecks/kWh and a ceiling of 34.89 kopecks/kWh for BrAZ and 43.40 kopecks/kWh for IrkAZ (including electricity and generating capacity; without transmission tariff\*)
  - A LME-linked component, triggered if LME aluminium price exceeds a certain threshold level specified for every year of the contract (increasing from US\$1,949/t in 2010 to US\$2,000/t by 2018)
    - For every US\$100/t increase in the LME aluminium price above the threshold level, the electricity tariff increases by 3.5 kopecks/kWh
    - Changes in contractual prices with LME aluminium price shifting from 1800 to 1900 USD/t (other factors fixed for H2 2009) will cause extra energy expenditures (in mln roubles): 74,2 for BrAZ, 25,6 for IrkAZ\*\*

**For detailed description of the contracts see Appendix 5**

\* Transmission tariff in 1H 2009, kopecks/kWh: for BrAZ – 16, IrkAZ – 17,7.

\*\* Example for explanatory purposes only and not reflective of management's expectations as to future price performance

Source: UC RUSAL

# Long-Term Electricity Supply Agreements (continued)



- Long-term contract provides for 100% electricity supply at market-based prices for KrAZ from the Krasnoyarsk HPS
- The amount of supply will be actual generation less obligatory supplies under regulated contracts (prior to complete market deregulation on January 1<sup>st</sup>, 2011) and supplies for households at regulated prices (until January 1<sup>st</sup>, 2014) in accordance with Federal Law No.36 on electric power market during the transition period
- Long-term contracts with Krasnoyarsk HPS and Irkutskenergo cover about 57 percent of UC RUSAL total energy needs in Russia for 2010 with further increase in subsequent period

Counterparties	Proposed term	Proposed cost definition	Current status
Krasnoyarsk HPS Krasnoyarsk Smelter	2009 – 2020	Defined by formula linked to electricity market price and LME aluminium price (with “top” and “bottom” limits)	Approved by the Board of directors of Krasnoyarsk HPP and UC RUSAL

- The KrAZ contract has a duration of 11 years and envisages
  - A “base” tariff component of 11.3 kopecks/kWh in 2010, increasing to 17.4 kopecks/kWh by 2020 (including electricity and generating capacity; without transmission tariff\*), and
  - A component reflecting changes in the market prices and the LME, and combines
    - A non-LME component, calculated as the difference between average weighted market price (capped at 1.66 c/kWh or 49.8 kopecks/kWh) and the “base” price of 11.3 kopecks/kWh in 2010, increasing to 17.4 kopecks/kWh by 2020
    - A non-linear LME-linked component, which kicks in only if the LME aluminium price exceeds US\$1,800/t
    - Changes in contractual prices with LME aluminium price shifting from 1800 to 1900 USD/t (other factors fixed for H2 2009) will cause extra energy expenditures of 189 mln roubles for KrAZ\*\*

For detailed description of the contracts see Appendix 5

\* Transmission tariff in 1H 2009 for KrAZ: 24,8 kopecks/kWh

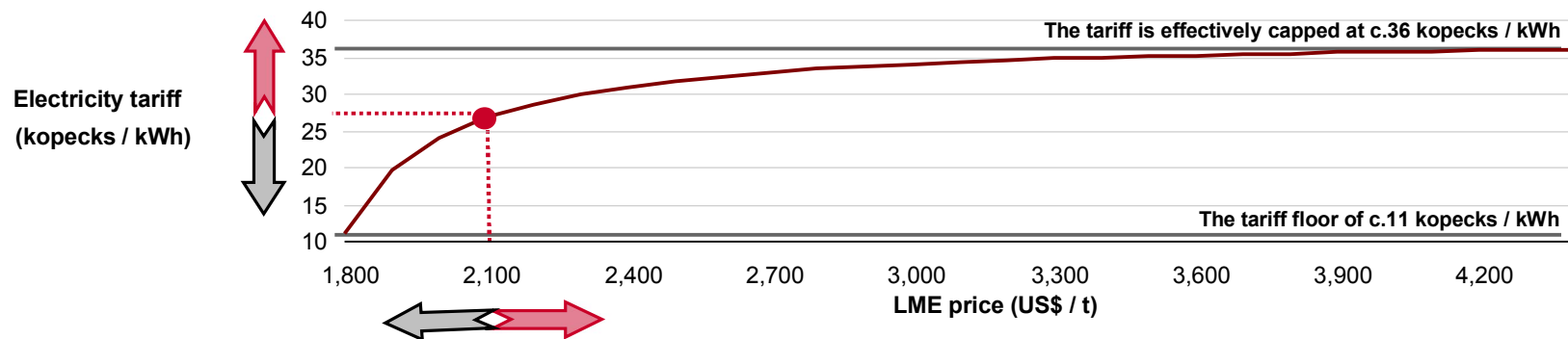
\*\* Example for explanatory purposes only and not reflective of management's expectations as to future price performance

Source: UC RUSAL

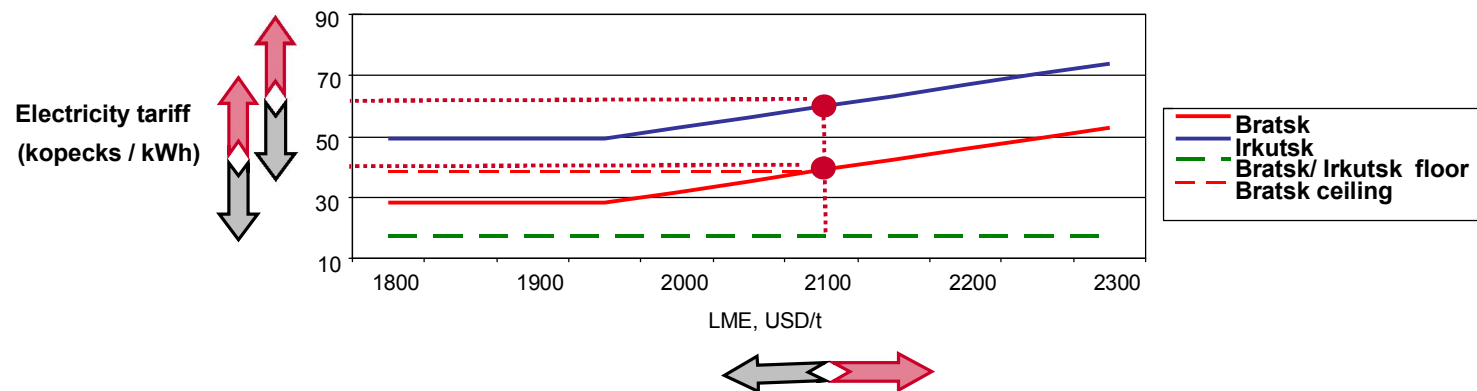
# Long-Term Electricity Supply Agreements (LME Sensivity)



## KrAZ



## BrAZ and IrkAZ



● e.g. LME AI for Dec, 4, 2009 = 2145 USD/t

For detailed description of the contracts see Appendix 5

Source: UC RUSAL

# Appendix 5 - KrAZ long term electricity contract (Board approved)



## Tariff formula

$$\text{Tariff} = \frac{T_b + (0.7 * (P_a - P_b) * V * \frac{(T_{fr} - T_b) * E}{(T_{fr} - T_b) * E + (P_a - P_b) * V})}{E}$$

- $T_b$  = initial (base) price (11 kopecks / kWh)
- $T_{fr}$  = average weighted fixed-ratio price for electricity at the market (it is capped at 1.66c/ kWh)
- $P_a$  = average LME price for aluminium in the preceding quarter
- $P_b$  = basic aluminium price (US\$1,800 / t)
- $V$  = aluminium production volume
- $E$  = electricity consumption
- The tariff is bound by a minimum value specified by year in the below table

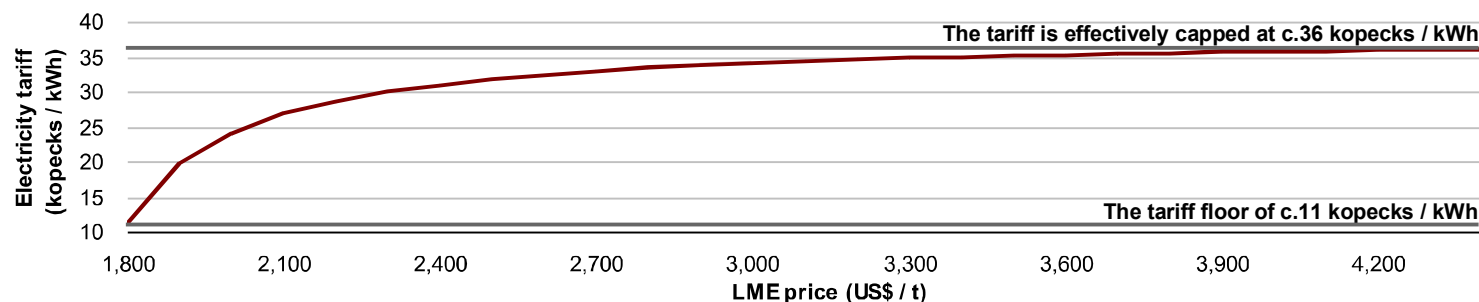
Kopecks / kWh	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Contract floor	11.3	11.9	12.5	13.0	13.5	14.1	14.7	15.3	16.0	16.7	17.4

## Description

- The contract amount is nominated in: 50% - US\$, 50% - RUR
- The tariff has a floor which increases annually, as illustrated above
- The premium/discount of the actual LME reference price over a US\$1,800 / t base price results in an increase/decrease in the tariff
- The change in the tariff is linked to the LME price, which is non-linear. As a consequence, the tariff is effectively capped at c.36 kopecks / kWh

LME price (US\$ / t)	1800	1850	1950	2050	2150	2250	2500	3000	3500	4000
Contract price (kopecks / kWh)	11.0	16.1	22.1	25.6	27.8	29.4	31.8	34.0	35.1	35.7

## LME sensitivity



**Notes:** Energy consumption rates per tonne of Aluminium are based on 2010 company forecasts  
For illustrative purposes, assumes a RUR/USD exchange rate of 30. KrAZ contract specifies a RUR/USD exchange rate of 30 (real terms)

# Appendix 5 - BrAZ and IrkAZ long term electricity contracts (signed)



## Tariff formula (BrAZ and IrkAZ)

$$\text{Tariff} = 1.125 * S$$

where

- S = net cost of electricity generation (see appendix for detailed calculation of S)

In addition, if the LME exceeds the levels stated in the below table, the tariff will be increased by A

- $A = 0.035 \text{ kopecks} / \$ * (Pr_m - Pr_t)$

where

- $Pr_m$  = average weighted LME rate for the quarter preceding the accounting quarter
- $Pr_t$  = maximum LME price in the respective year (threshold as specified in table below)

US\$ / t	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Threshold	1,890	1,949	1,990	2,002	1,998	1,987	1,976	2,000	2,000	2,000

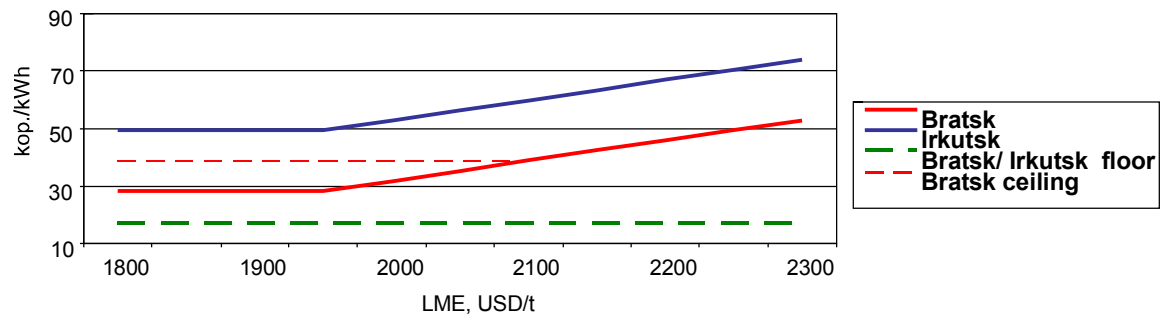
## BrAZ description and LME sensitivity

- The tariff has a floor of c.15.57 kopecks / kWh and a ceiling of c.34.89 kopecks / kWh, which is adjusted annually for inflation
- For every US\$1 that the LME reference rate exceeds the thresholds specified above, the tariff per kWh will increase by 0.035 kopecks
- If the reference LME price per ton is US\$100 higher than the threshold, the cash operating cost increases by approximately US\$19.93 / t

## IrkAZ description and LME sensitivity

- The tariff has a floor of c.15.57 kopecks / kWh and a ceiling of c.43.30 kopecks / kWh, which is adjusted annually for inflation
- For every US\$1 that the LME reference rate exceeds the thresholds specified above, the tariff per kWh will increase by 0.035 kopecks
- If the reference LME price per ton is US\$100 higher than the threshold, the cash operating cost increases by approximately US\$19.31 / t

## LME sensitivity



## Appendix 5 - BrAZ/IrkAZ contractual electricity (capacity) generation cost formula



### BrAZ

- The net cost of electricity generation,  $S$ , used in the formula for the BrAZ contract price is defined as follows

$$S = \left( \frac{16,995 * (0.85 * S_{\text{hydropower plant}} + 0.15 * S_{\text{CHP}}) + (P_{\text{consumption}} - 16,995) * S_{\text{remainder}}}{P_{\text{consumption}}} \right) * \left( 1 + \frac{CPI}{100} \right)$$

- $S_{\text{hydropowerplant}}$  = net cost of the electrical energy transmitted through the buses of the hydropower plant in the previous year
- $S_{\text{CHP}}$  = net cost of the electrical energy transmitted through the buses of the CHP in the previous year
- $P_{\text{consumption}}$  = power consumption during the accounting year
- $S_{\text{remainder}} = \frac{S_{\text{hydropower plant}} * 0.15 * P_{\text{hydropower plant}} + S_{\text{CHP}} * (P_{\text{CHP}} - 22,660 + 0.85 * P_{\text{hydropower plant}})}{P_{\text{hydropower plant}} + P_{\text{CHP}} - 22,660}$
- $P_{\text{hydropowerplant}}$  = electrical energy transmitted through buses of the hydropower plant in the previous year
- $P_{\text{CHP}}$  = electrical energy transmitted through buses of the CHP in the previous year

### IrkAZ

- The net cost of electricity generation,  $S$ , used in the formula for the IrkAZ contract price is defined as follows

$$S = \left( \frac{5,665 * (0.85 * S_{\text{hydropower plant}} + 0.15 * S_{\text{CHP}}) + (P_{\text{consumption}} - 5,665) * S_{\text{remainder}}}{P_{\text{consumption}}} \right) * \left( 1 + \frac{CPI}{100} \right)$$

- $S_{\text{hydropowerplant}}$  = net cost of the electrical energy transmitted through the buses of the hydropower plant in the previous year
- $S_{\text{CHP}}$  = net cost of the electrical energy transmitted through the buses of the CHP in the previous year
- $P_{\text{consumption}}$  = power consumption during the accounting year
- $S_{\text{remainder}} = \frac{S_{\text{hydropower plant}} * 0.15 * P_{\text{hydropower plant}} + S_{\text{CHP}} * (P_{\text{CHP}} - 22,660 + 0.85 * P_{\text{hydropower plant}})}{P_{\text{hydropower plant}} + P_{\text{CHP}} - 22,660}$
- $P_{\text{hydropowerplant}}$  = electrical energy transmitted through buses of the hydropower plant in the previous year
- $P_{\text{CHP}}$  = electrical energy transmitted through buses of the CHP in the previous year