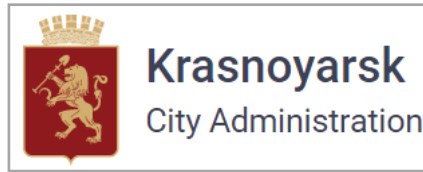


# Low-Carbon Model Town in Krasnoyarsk, The Russian Federation

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## APEC Low-Carbon Model Town Project Wrap-up Symposium

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# Introduction of Krasnoyarsk

- Location: 56° 00'43"N 92° 52'17"E
- Country: The Russian Federation
- Region of the Russian Federation: Krasnoyarsk Region
- Internal division: 7 administrative districts
- Mayor: Sergei Eremin
- Founded in: 1628
- Area: 379.5 km<sup>2</sup>
- Climate type: continental
- Time zone: UTC + 7:00
- Population: 1,092,851 (2021)
- Density: 2 765 people/km<sup>2</sup>
- Official language: Russian

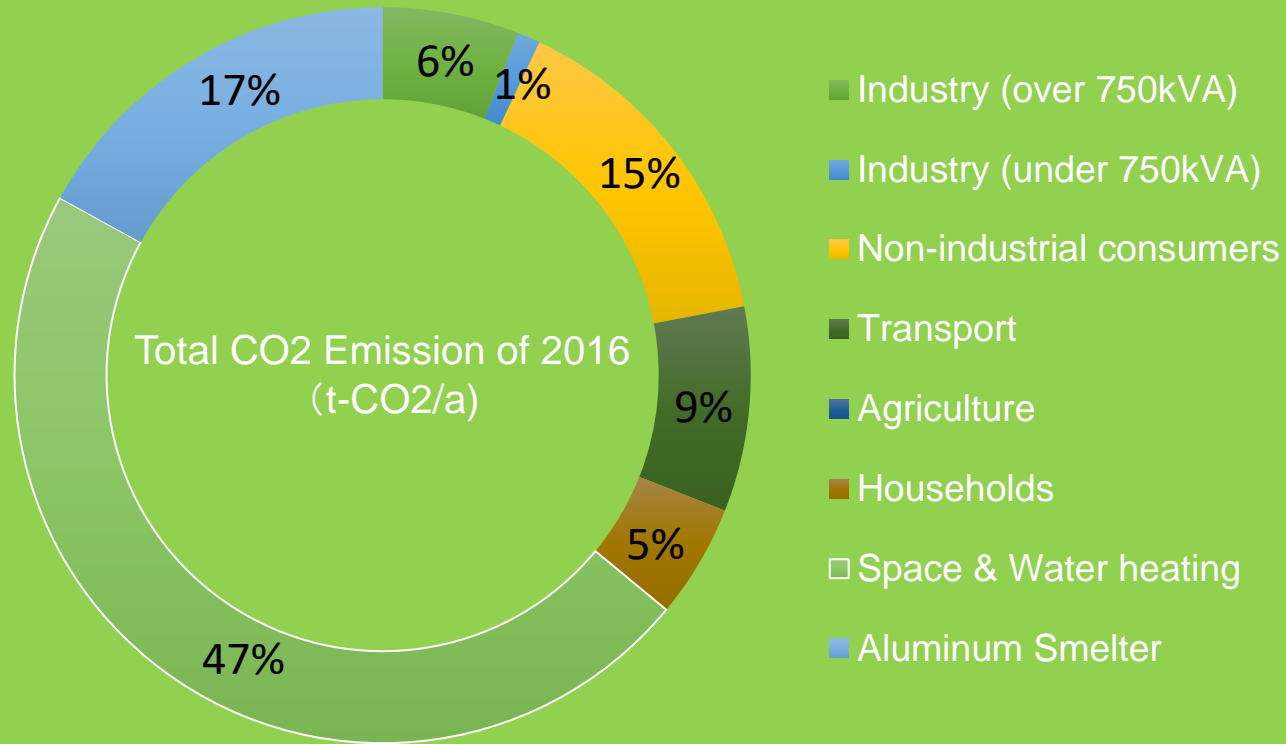


# Low-Carbon Model Development in Krasnoyarsk

- Sectors where low-carbon policies or actions were applied:
  - Town Structure
    - Promotion of the use of public transport
  - Transport
    - Restructuring and strengthening the public transportation network
    - Reducing CO2 emissions of transportation
  - Area Energy System
    - Shutting down small-scale boiler houses (heat only power plants) and gradually switching to high-efficient CHP plants
    - Reducing heat loss in the exist heating pipe network
  - Greenery
    - Conservation and creation
    - Creating a green network
  - Industry
    - Inducing local industries to implement measures aimed at pollution decrease

# CO<sub>2</sub> reduction results and roadmap

## CO<sub>2</sub> emission related to energy consumed in 2016



✓ In 2016 CO<sub>2</sub> emission intensity in Krasnoyarsk was **11 tons/capita**.

# Notable achievements

## Measures implemented by Krasnoyarsk City Administration:

- Energy efficient lighting was used in the city streets - new generation "smart" lamps were installed, which regulate energy consumption depending on the level of ambient light and traffic intensity;
- 246 135 hectares around the city of Krasnoyarsk in 2019 were allocated as a forest park green belt of the city with appropriate handling measures being implemented;
- 73 units of public transport with an environmental class of at least Euro-4, 26 new trolleybuses were purchased;
- 2 automated posts for monitoring atmospheric air pollution were commissioned in the Kirovsky and Sverdlovsky districts of Krasnoyarsk;
- Automated traffic control system was launched, to which 487 traffic light objects are connected;
- A specialized mobile group of round-the-clock duty of the state environmental supervision was created, the main functions of which are: analysis and feedback on citizens' appeals; scheduled and unscheduled inspections of business entities; preparation and submission to the court of materials of cases on administrative offenses in the sphere of ecology

# Notable achievements

## Measures implemented by large industry located in Krasnoyarsk:

### JSC RUSAL Krasnoyarsk

- the transfer of electrolyzers to the Ecological Soderberg technology was completed. In total, 1 954 electrolyzers were transferred to this technology. The technology increases the efficiency of gas removal for the main harmful substance - fluorine compounds (F, fluorides);

### LLC "Siberian Generating Company"

- more than 99% of inorganic dust is captured by electrostatic precipitators, the installation of which began in 2020 at the second stage of the ecological modernization of CHP-1;
- 2 ineffective heat sources - boiler houses No. 1 and No. 2 permanently stopped their boilers in 2020. Houses of Svobodny Avenue (Krasnoyarsk), which received heat and hot water from them, have already been connected to the Krasnoyarsk CHP-2 (35 boiler houses in total are planned to be transferred, 9 boiler houses have already been transferred since 2019);
- pilot operation of a new chimney with a height of 275 meters, erected in 2019 in order to increase the dispersion of emissions and reduce the surface concentration of harmful substances, has begun;
- commissioning works on the installation of automatic sensors to control industrial emissions of pollutants into the atmospheric air at the Krasnoyarsk CHPs of Siberian Generating Company have been completed, the systems are being tested;

### LLC "Krasnoyarsk Cement"

- a new electrostatic precipitator was put into operation, which will allow stable operation of the gas cleaning system and reduce the amount of dust and waste gases;
- installation of an automatic measuring system for emission control on the chimney of the roasting furnaces (the system is operating in test mode).

# Self-assessment results

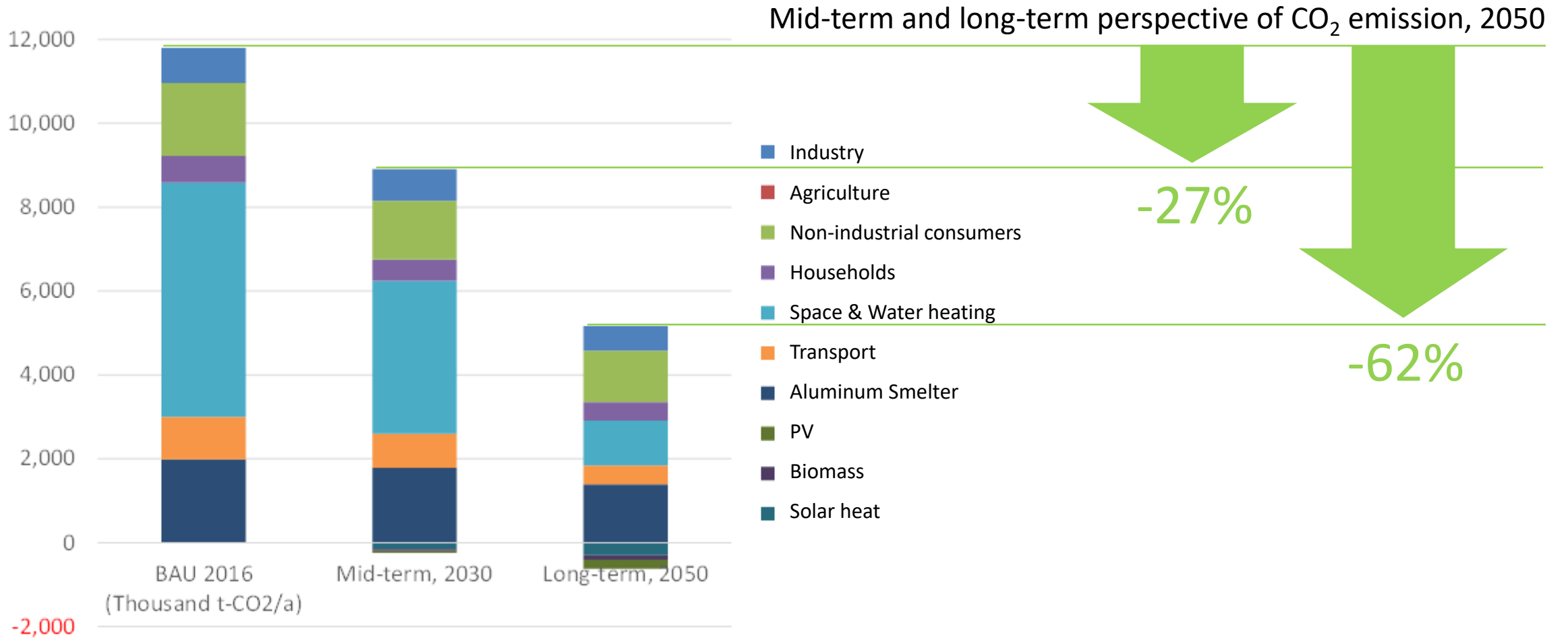
Until the introduction of the Russian national project “Ecology” main problem in the implementation of low-carbon policies in Krasnoyarsk was absence of necessary funding for the programs (measures) developed on the municipal level.

As for now, the budget allocated within this project allows for implementation of major changes in the city life (including widening the territory occupied by city trees, wider introduction of electric public transport, future gasification of the city’s CHPs).

One more implementation problem was grounded in the source of GHG and other air pollutants – industrial plants within Krasnoyarsk. Modernization of their infrastructure also demanded large budget, which were not always easy to allocate in the difficult economic situation.

Still, currently the situation is developing for the better and RUSAL and its Krasnoyarsk Aluminum Smelter (the greatest industrial emitter of CO<sub>2</sub> and other air pollutants in Krasnoyarsk) have announced plans to reduce the emissions and to make the company CO<sub>2</sub> neutral by 2050.

# Future plan





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**Thank you for your attention !**