

**EVGENIYA TRAUTMAN****Senior Analyst, Sovereign and Regional Ratings Group**+7 (495) 139 04 80, ext. 104  
evgeniya.trautman@acra-ratings.ru**ELENA ANISIMOVA****Senior Director, Head of Sovereign and Regional Ratings Group**+7 (495) 139 04 86  
elena.anisimova@acra-ratings.ru

Media contact:

**SVETLANA PANICHEVA**+7 (495) 139 04 80, ext. 169  
svetlana.panicheva@acra-ratings.ru

## REGIONS | RUSSIA

**USEFUL INDICATOR****Dynamics of the index of volume of productive electricity supply as an indicator of how fast the economies of Russian regions are adapting to the new reality**

The challenges that Russia faced in 2022 determined the start of a transformational period for the country's economy — the need for import substitution, reorientation of supplies and sales markets, formation of new supply chains, etc. Depending on economic characteristics, for some regions the prevailing conditions have become constraining, while for others they serve as a point of growth. In addition, a significant factor that now determines the stability of one region or another is external dependence, in other words, the dependence of regional companies on exports as well as imports<sup>1</sup>.

Prior to January 2022, regions' direct trade flows were reflected in the forms of customs statistics, however, their dependence on indirect imports has not yet been assessed due to a lack of methodology. An attempt to estimate this could be made by looking at the extent to which production volumes changed in 2022, however, the indicators<sup>2</sup> needed to carry out this sort of assessment have a significant time lag from the assessed period to the moment of information disclosure (from two months to a year).

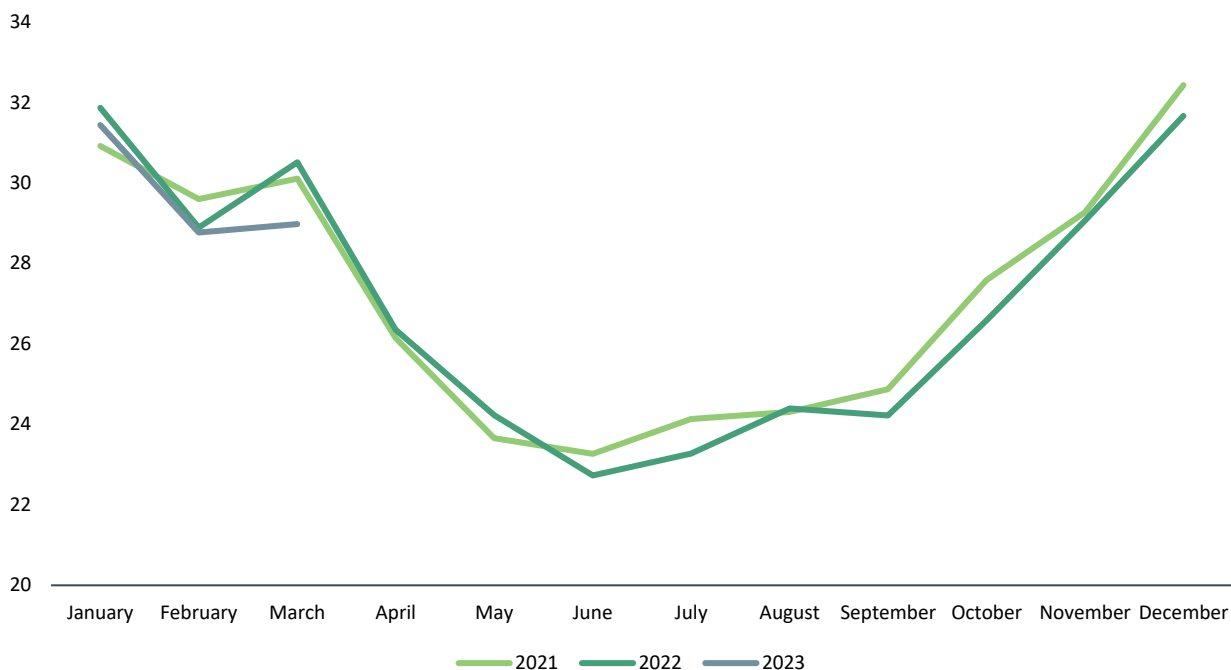
To increase the speed of assessing the processes taking place in regional economies, ACRA used their energy consumption indicators. In particular, as part of this analysis, the indicator of the volume of productive electricity supply by one or several guaranteeing suppliers of the Other Consumers category was used. This category includes the volume of electricity supplied to legal entities and state-funded consumers in a specific region, but excludes losses, as well as electricity supplied to the population and categories of consumers equated to it, which makes it possible to isolate the volume of electricity directed to production processes. Industrial production is the most energy-intensive, therefore, for regions with a high share of industry, electricity supply indicators demonstrate dynamics that in most cases are comparable to the dynamics of the industrial production index.

<sup>1</sup> This implies both direct imports (purchases of components from foreign partners) and indirect ones (purchases of raw materials and components from Russian companies from other regions that are dependent on imports).

<sup>2</sup> Industrial production index, volume of shipped goods of own production, level of capacity utilization, structure of gross value added.

Despite the development of energy-saving technologies, the volume of productive supply, and consequently, consumption of electricity is growing every year, fueling an increasing volume of production in the course of economic growth. This indicator falls during crisis periods characterized by a decline in production.

**Figure 1. Dynamics of the total indicator of electricity supplied in Russia in 2021–2023 (supply in the Other Consumers category, bln kWh)**



Sources: data of sales companies, ACRA

*Fig. 1* shows that since June 2022, productive electricity supply in Russia has been lower than the level of 2021. As of the start of 2023 (first three months), the indicator of the total productive supply of electricity has not recorded growth. However, the situation varies widely across Russia's regions.

The monthly performance of the indicator has a pronounced seasonality, both for the country as a whole and when broken down into regions, which is due to the natural decline in electricity supply in the summer months.

In view of the clear seasonality of the indicator, the most effective method for comparing electricity supply in different regions is by comparing its annual dynamics.

The analysis of regional dynamics was performed using data from 70<sup>3</sup> regions. Regions with a nominal gross regional product (GRP) of less than 0.2% of the total GRP of Russian regions for 2021 were not included.

During the analysis of data for 2021 and 2022, several groups of regions were identified, which, due to the comparability of the structure of the economy and the degree of external dependence, demonstrate similar dynamics in the productive supply of electricity.

Last year, a substantial decline in the productive supply of electricity associated with a decrease in production load in energy-intensive sectors was observed in regions

<sup>3</sup> Data for the Tyumen Region is indicated including the Khanty-Mansiysk Autonomous Okrug–Yugra and Yamalo-Nenets Autonomous Okrug. The following regions were excluded due to the size of their GRP: Mari El Republic, Republic of North Ossetia – Alania, Kabardino-Balkarian Republic, Republic of Kalmykia, Republic of Adygea, Karachay-Cherkess Republic, Tyva Republic, Republic of Ingushetia, Altai Republic, Pskov Region, Sevastopol, Chukotka Autonomous Okrug, and the Jewish Autonomous Region. The analysis did not include the DPR, LPR, Zaporozhye and Kherson Regions; in addition, the Chechen Republic was excluded due to the incompleteness of the available statistical information.

whose economies are highly concentrated on the manufacturing sector, in particular on metallurgy, the chemical industry and mechanical engineering, which indicates the high external dependence of this group of regions. The average depth of the downturn in these regions in 2022 was around 7% year-on-year.

**Table 1. A decrease in productive electricity supply in 2022 was observed mainly in regions with high external dependence<sup>4</sup>**

REGION <sup>5</sup>	PRODUCTIVE SUPPLY INDEX IN 2022 COMPARED TO 2021, %	SHARE OF MANUFACTURING IN GRP, %
Novgorod Region	69.33	41.00
Republic of Mordovia	91.27	28.60
Kaluga Region	93.43	42.90
Perm Krai	95.41	26.80
Vologda Region	95.90	54.60
Ivanovo Region	96.00	22.70
Samara Region	96.99	21.50
Murmansk Region	98.84	33.60
Republic of Karelia	99.18	30.70
Chelyabinsk Region	99.35	37.20

Sources: Rosstat, data of sales companies, ACRA

At the same time, a number of regions whose economies are also focused on manufacturing did not record declines in 2022, which may indicate their lower external dependence and faster transformation of production processes. In addition, the absence of a decline may be due to the presence of larger supplies of raw materials and components held by companies in these regions. However, this thesis can only be proven by analyzing the dynamics of production indicators in a region over a longer period. The leaders of this group are listed in *Table 2*.

**Table 2. Regions with moderate external dependence maintained positive dynamics of electricity supply**

REGION	PRODUCTIVE SUPPLY INDEX IN 2022 COMPARED TO 2021, %	SHARE OF MANUFACTURING IN GRP, %
Moscow	100.16	15.60
Tula Region	100.49	42.80
Omsk Region	102.89	28.00
Republic of Bashkortostan	103.32	30.30
Udmurt Republic	103.38	17.00
Komi Republic	103.69	9.80
Republic of Tatarstan	106.26	18.90
Irkutsk Region	112.80	10.90

Sources: Rosstat, data of sales companies, ACRA

<sup>4</sup> Hereinafter, this implies the dependence of an economy on the countries that imposed trade restrictions on Russia, which existed until 2022.

<sup>5</sup> Share of manufacturing industries in GRP is at least 20%.

The decline in production in the extractive industry was the result of a reduction in oil production by the OPEC+ countries and the refusal of a number of foreign trading partners to import Russian minerals. The degree of dependence of the specified factors on a region depended on restrictions imposed on the main minerals mined within it, as well as on the location of key sales markets. Oil producing regions that prior to 2022 were focused on supplying China (for example, the Irkutsk Region) did not record a decline in the volume of productive supply, while regions such as the Nenets Autonomous Okrug, whose markets prior to 2022 were primarily western countries, experienced a decline in the volume of productive electricity supply of around 9%. The Kemerovo, Belgorod and Magadan Regions, which focus on extracting minerals that are not impacted by OPEC+ limitations (coal, ferrous metals), but whose main trade partners were countries that partly or completely reduced their purchases of Russian minerals, also recorded a decline in productive supply. However, as of the end of last year, the decline in indicators in extractive regions on average was not as significant (4%) as in regions with a high share of manufacturing.

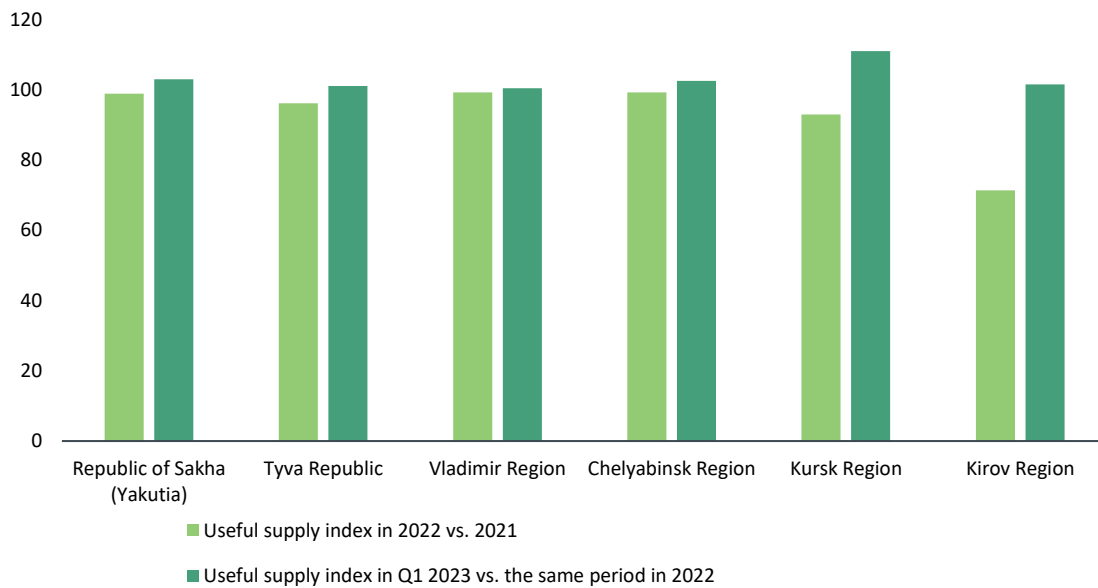
**Table 3. A decrease in electricity supply was observed in extractive regions with high dependence**

REGION	PRODUCTIVE ELECTRICITY SUPPLY INDEX, %	SHARE OF EXTRACTIVE SECTOR, %	SHARE OF MANUFACTURING SECTOR, %
Nenets Autonomous Okrug	91.36	86.00	0.10
Kemerovo Region — Kuzbass	92.55	39.70	13.80
Kursk Region	93.06	20.00	13.70
Zabaykalsky Krai	93.14	30.10	2.00
Amur Region	95.72	14.50	3.40
Tyva Republic	96.18	14.30	0.70
Belgorod Region	98.09	31.60	14.20
Republic of Sakha (Yakutia)	98.97	59.00	0.90
Magadan Region	99.13	55.00	1.00
Astrakhan Region	99.47	49.00	3.60
Jewish Autonomous Region	99.95	23.70	4.10

Sources: Rosstat, data of sales companies, ACRA

At the beginning of the current year, regions also demonstrated diverse dynamics in terms of productive electricity supply. Thus, in a number of regions, signs of adaptation to the current situation have already been observed. For regions in which transformation processes are taking place more actively, one can consider the current conditions as a point of growth and an opportunity to successfully take part in import substitution. Below are the regions with a share of industry in GRP of more than 20%, which managed to record an increase in use electricity supply in the first quarter of this year after a decline in 2022.

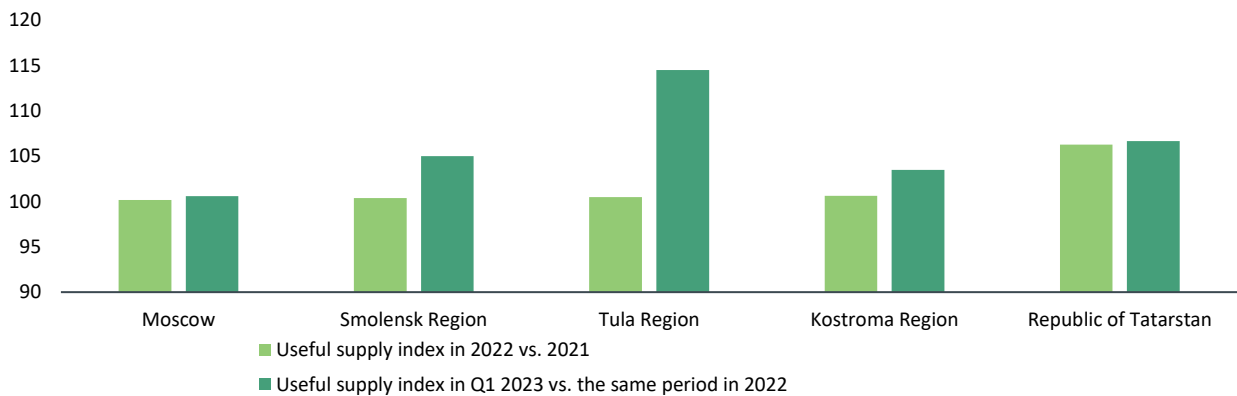
**Figure 2. In Q1 2023, regions with moderately high speed of adaptation demonstrated growth after the decline in 2022 (productive electricity supply index in the Other Consumers category, %)**



Sources: Rosstat, data of sales companies, ACRA

*Fig. 3* shows that five regions, which maintained positive dynamics in 2022, accelerated the growth of productive electricity supply. This makes it possible to claim that they have successfully adapted to the new conditions and refute the hypothesis that continued growth in productive electricity supply last year was due to the presence of significant reserves of raw materials and supplies.

**Figure 3. In Q1 2023, the regions with the highest rate of adaptation accelerated growth (productive electricity supply index in the Other Consumers category, %)**



Sources: data of sales companies, ACRA

However, a number of regions recorded negative dynamics.

**Table 4. A decrease in productive electricity supply in Q1 2023 was observed to varying degrees mainly in regions with a moderate adaptation rate**

REGION	PRODUCTIVE SUPPLY INDEX IN 2022 COMPARED TO 2021, %	PRODUCTIVE SUPPLY INDEX IN Q1 2023 VS. THE SAME PERIOD IN 2022, %
Kaluga Region	93.43	79.07
Kaliningrad Region	97.82	93.98
Vologda Region	95.90	94.26
Rostov Region	98.17	95.03
Murmansk Region	98.84	93.12
Moscow Region	99.25	97.93
Republic of Karelia	99.18	82.77
Primorsky Krai	99.00	97.75
Magadan Region	99.13	92.04
Khabarovsk Region	99.65	99.56
Stavropol Krai	101.03	96.68
Oryol Region	101.89	101.42
Republic of Bashkortostan	103.32	100.69
Komi Republic	103.69	96.54
Arkhangelsk Region	110.00	100.52
Republic of Dagestan	110.92	105.01
Tyumen Region	112.01	109.59
Tomsk Region	112.54	112.28
Irkutsk Region	112.80	94.25

Sources: Rosstat, data of sales companies, ACRA

The observed trend in this case does not mean a negative forecast, however, it indicates a more significant external dependence of the regions, which slows down transformation processes. Regions that had significant ties with western countries in the past in terms of the automotive industry, chemical industry, metallurgy, and mining in 2022 were forced to revise production and logistics chains, which increased production costs, led to the need to revise the terms of long-term contracts with counterparties and, as a result, often became the reason for reducing production volumes or filling warehouses with finished products.

Monitoring the dynamics of production processes is the basis for planning and making forecasts both at corporate level and at the level of regional and federal authorities, and therefore the analysis of the productive supply of electricity, disclosed in open sources with a shorter time lag compared to the industrial production index, can be used as an operational indicator of the state of the economy.

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Analytical Credit Rating Agency (Joint-Stock Company), ACRA (JSC)  
75, Sadovnicheskaya embankment, Moscow, Russia  
[www.acra-ratings.com](http://www.acra-ratings.com)

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