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"10+10": Russian power sector anticipating new reforms to break investment pause

Reform results: investments and profit3

Russian power market is among the world's largest liberalized electricity markets4

...but the market comprises only a half of supplies from generating companies, two thirds of proceeds and almost all profit5

Low inflation to boost expenses for bad debt write-off6

Investment pause to persist until 2020s7

Appendix. Electricity tariff structure in Russia8

Russian electricity sector 2022 outlook

In July 2018, ten years will expire since the "5+5" reforms of RAO UES (five years for preparations, five years for implementation).

- **Low inflation to knock down regulatory risks...** Inflation is a key pricing driver for infrastructure monopolies. Low inflation that mitigates the negative effects of restricted tariffs on monopolies will support the credit quality in the sector.
- **...but to boost expenses for bad debt write-off.** Low inflation may aggravate payment delays persisting in the electric power sector (currently, the rate of overdue payments is 5%). High inflation accelerated depreciation of bad debts, but the forthcoming low-inflation period may push down the sector's profits by 0.7 pps, unless payment discipline turns for the better.
- **The period from 2018 to 2020 will bring the industry's historic high financials.** Cease of investments into new generation capacities and regulated by capacity supply agreements (CSA) and the growing payments under CSAs will increase the sector's margin up to 24–26% and decrease the Debt/EBITDA ratio down to 1.6x. But, starting from 2020s, electricity companies may resume to increase borrowings, fostered by the cease of CSA payments and the start of new investment projects.
- **Ten years later: main results of RAO UES reforms — higher investments and healthier financials.** In 2008–2017, the electricity tariffs for corporate consumers and households outpaced the inflation by 1.6 and 1.3 times, respectively. The reform has proved that market relations may exist under the classical natural monopoly (from 2011 to 2017, market competition restrained the price growth at 7%), provided that the market excludes socially sensitive segments (households, ill-developed regions).

The forecast is drawn up in line with ACRA's [General Principles of Socioeconomic Indicators Forecasting](#).

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Table 1. Russian electricity sector 2022 forecast

Indicator	UoM	Actual data			Estimate	Forecast			
		2015	2016	2017	2018	2019	2020	2021	2022
Generation									
UPS of Russia installed capacity, incl.	kW mln	235.3	236.3	236.3	238.0	238.2	237.7	238.6	238.6
TPPs	kW mln	160.2	160.2	162.8	163.6	162.2	159.1	157.7	156.2
HPPs, PSPs	kW mln	47.9	48.1	48.4	48.9	49.0	49.2	49.3	49.4
NPPs	kW mln	27.1	27.9	27.9	28.1	29.2	30.4	30.4	30.8
RESOPs (GPPs, WPPs, SPPs)	kW mln	0.1	0.1	0.3	0.4	0.9	2.1	4.4	5.2
Electricity generation by UPS of Russia	kWh bln	1,051	1,073	1,079	1,088	1,099	1,112	1,119	1,128
Electricity consumption by UPS of Russia	kWh bln	1,008	1,027	1,040	1,049	1,059	1,072	1,079	1,088
Electricity consumption dynamics in UPS of Russia	%, y-o-y	-0.6%	1.8%	1.3%	0.9%	0.9%	1.3%	0.6%	0.8%
Heat generation	Gcal mln	1,244	1,273	1,258	1,252	1,245	1,249	1,253	1,257
Investments									
Installation of new capacities, modernization at UPS of Russia, incl.	kW mln	5.1	4.6	3.9	3.9	2.9	3.1	2.9	4.0
TPPs	kW mln	4.0	3.1	3.3	2.1	1.3	0.5	0.5	0.5
HPPs, PSPs	kW mln	0.2	0.2	0.4	0.5	0.1	0.1	0.1	0.2
NPPs	kW mln	0.9	1.2	0.0	1.2	1.1	1.2	0.0	2.5
RESOPs (GPPs, WPPs, SPPs)	kW mln	0.06	0.02	0.2	0.1	0.4	1.2	2.3	0.8
Investments in generation in Russia	RUB bln	414	372	345	342	295	285	386	386
Investments in grid systems in Russia	RUB bln	290	272	307	306	288	253	306	356
Prices									
Electricity price for Russian consumers (except households)	RUB / kWh (net of VAT)	2.6	2.9	3.2	3.2	3.3	3.5	3.7	3.8
Electricity price for Russian consumers (except households)	%, y-o-y	105.7%	111.7%	109.3%	102.8%	102.9%	106.2%	104.2%	104.4%
Electricity price for Russian households	RUB / kWh (incl. VAT)	2.8	3.0	3.2	3.4	3.5	3.7	3.9	4.0
Electricity price for Russian households	%, y-o-y	105.1%	108.1%	106.3%	105.0%	105.0%	105.0%	105.0%	104.0%
Wholesale electricity market price (day-ahead market) in the first pricing zone (European Russia and Urals)	RUB / MWh (net of VAT)	1,153	1,202	1,204	1,249	1,304	1,359	1,401	1,493
Wholesale electricity market price (day-ahead market) in the second pricing zone (Siberia)	RUB / MWh (net of VAT)	914	866	865	875	909	937	1,003	1,033

Source: ACRA

RAO UES reform included division of the monopoly into competitive (generation and sales) and monopolistic (transmission) sectors. Power generation and sales companies were privatized.

For price and tariff formation diagram and main definitions see ACRA forecast [Inflation targeting to tighten tariff policy, but not to halt energy price growth in Russia](#) published April 24, 2017.

Reform results: investments and profit

In 2008, the RAO UES reforms were completed, the major reforms of the natural monopoly conducted in a rather short period of 10 years. Main positive reform results include higher investments and healthier financials. In 2008–2017, the installed capacity of the Russian energy system grew by 14% (vs the economy growth of 11% in the same period), and the average EBITDA margin grew from 16% to 25%.

In this period, the growth of electricity tariffs outpaced inflation by 1.3 times for households and 1.6 times for corporates (the peak growth was seen primarily in the first post-reform years, until 2011-2012, after which the regulatory policy was tightened in response to a sharp rise in prices for electricity). Tariffs for industrial enterprises grew at a higher rate (by 1.25 times), which means that one of the objectives of the reform to eliminate cross-subsidization has not been resolved.

Investments in the electric power industry have led to an improvement in the economic efficiency of the industry, which, nevertheless, lags far behind modern levels: fuel consumption at TPPs is 28% less efficient than at new power plants. Moreover, labor productivity even decreased in 2008-2017.

Table 2. Investments and profit have shown a maximum growth over the last ten years after the RAO UES reforms

	2007	2017	2017/2007 trends
Russia GDP			+11.0%
Power consumption	989.7 kWh bln	1039.9 kWh bln	+5.1%
Installed capacity, including:	210.0 GW	239.8 GW	+14.2%
TPPs	139.3 GW	162.8 GW	+16.9%
HPPs	47.2 GW	48.4 GW	+2.5%
NPPs	23.5 GW	27.9 GW	+18.7%
RESOPs (GPPs, WPPs, SPPs)	0.1 GW	0.7 GW	7 times
Inflation, Russia			+119%
Electricity prices, Russia (except households)	1.1 RUB / kWh (w/o VAT)	3.1 RUB / kWh (w/o VAT)	+193%
Electricity prices, Russia (households)	1.3 RUB / kWh (VAT incl.)	3.2 RUB / kWh (VAT incl.)	+155%
Labor productivity	1.54 kWh mln / employee	1.41 kWh mln / employee	-7.8%
Specific reference fuel consumption	332.6 g/kWh	319.3 g/kWh	-4.0%
Losses in grids	10.3%	9.8%	-0.5 pps
EBITDA margin	16%	25%	+9 pps

Source: ACRA estimates

For a long time, the electric power industry was categorized as a classical natural monopoly. The impossibility of developing competition in the electric power market for technical reasons became the main argument against the RAO UES reforms. Technical features of electricity production and consumption (limited storage capacity, inelastic supply and demand) restrain the development of simple market mechanisms and require indirect regulation.

In 2011, the Russian electricity market was completely liberalized (except supplies to households, as well as Far East, Kaliningrad, Arkhangelsk, Komi and North Caucasus regions).

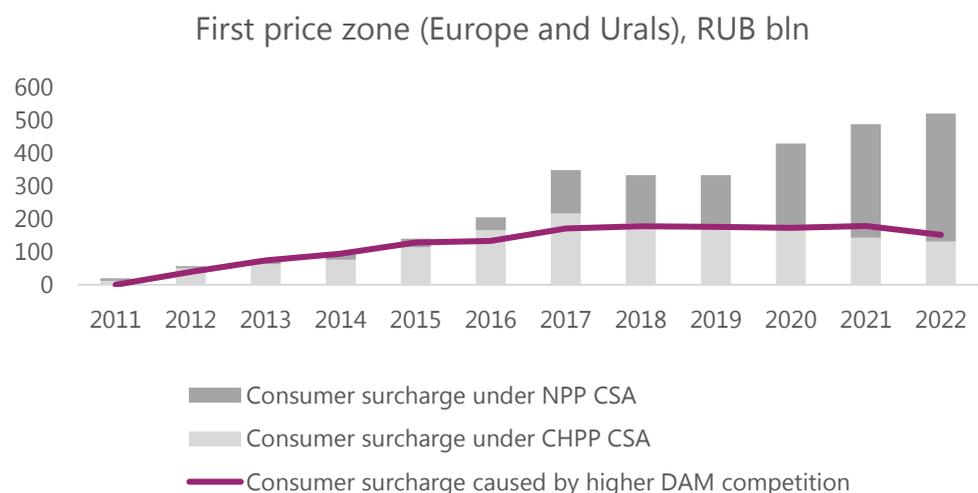
Russian power market is among the world's largest liberalized electricity markets...

In 2012-2017, the electricity tariff growth was restrained by competition (the contribution of this factor was at least 7% of the end consumer price). In 2011, following the electricity market liberalization, a surplus started to arise and competition intensified. From 2011 to 2017, the increase in electricity prices for industrial enterprises in Russia lagged behind inflation (49 and 52%, respectively).

From 2012 to 2017, gas prices rose by 49%, while wholesale electricity market tariffs rose by only 22% in the European part of Russia (the first price zone). As a result, consumers have saved RUB 171 billion (7.6% of the end consumer price). Consumers' benefits from the competition in the electricity market completely offset the negative effects of price increases caused by special surcharges for new TPPs (TPP CSA program). However, the competitive factor could not compensate for the increase in consumer surcharges for new NPPs (such surcharges were five to six times higher than for new TPPs, and commissioning of new TPPs was not accompanied by an equally significant decline in the DAM¹ prices). The surcharges for a new power plant are highly dependent on capital expenses, and today such expenses are determined not through a tender for NPPs only.

New NPPs with a total capacity of 3.5 GW expected to be commissioned in 2018–2022 will not be accompanied by higher competition in the day-ahead market and will become the main driver of electricity prices in the generation sector going above the inflation (in the mentioned period, the average price growth in the Russian generation sector is expected at +4.7%).

Figure 1. New TPPs drove surcharges within power tariffs but restricted the wholesale DAM prices



Source: ACRA estimates

¹ Day-ahead market

...but the market comprises only a half of supplies from generating companies, two thirds of proceeds and almost all profit

Successful development of competition in the electric power industry became possible mainly due to the fact that all "potentially problem" consumers (Far East and North Caucasus regions, households) were left "outside the market." The heat market (for TPPs, heat production is associated with electricity generation) is also still not liberalized. In 2017, the share of the market in terms of electricity and heat supplies by generating companies was 50%, in terms of revenue — 66%, and in terms of profit — up to 100%.

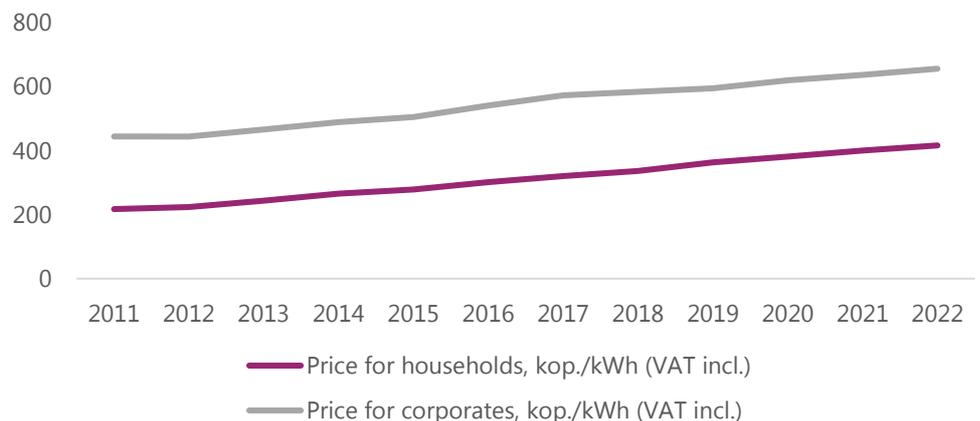
Supplies to those groups of consumers are carried out using various forms of cross-subsidization (which increases prices for other consumers) or accompanied by lower revenues of generating companies.

The share of cross-subsidization in the end consumer price is 7% or RUB 200 billion. The volume of income lost by generating companies from the sale of electricity and heat at non-market prices is 15% of their revenues (RUB 350 billion). In order to reduce cross-subsidization in the medium term, the electricity transmission tariffs will be increased by 5% for households and by 3% for industry enterprises. However, this will reduce the amount of cross-subsidization by mere RUB 8 billion (0.3% of the final price) from 2018 to 2022. Taking into account the government's plans to support consumers in the Far East, the share of cross-subsidization in the final price will remain at 7% in the medium term.

A high share of non-market supplies in revenues will continue to deter the credit quality of energy companies, especially in the TGC² segment (companies managing CHPPs).

See ACRA economic forecast until 2021 [Low inflation in Russia to force the government and businesses to seek new forms of flexibility](#) published October 9, 2017.

Figure 2. Electricity prices for households are 1.8 times lower than the prices for corporates consuming electric power on similar terms



Source: ACRA estimates

² Territorial generating companies

Low inflation to boost expenses for bad debt write-off

According to ACRA estimates for 2018–2022, the average inflation rate will be 4%, which is three times lower than the rate in 2000–2015 (prior to inflation targeting policy). For electric power companies, as well as other monopolies, the key price growth indicator is the rate of inflation. Low inflation may result in the following changes for electric power companies:

1) Lower regulatory risks

When the rate of inflation is low, a tighter tariff policy is less harmful for the profits of electricity companies. In 2014, the freeze of transmission tariffs resulted in a 12% decline in real incomes of the companies; in case such freeze took place in 2017, the decline would amount to mere 3%. In terms of rating analysis, we improve our regulatory risk factor assessments for grid companies.

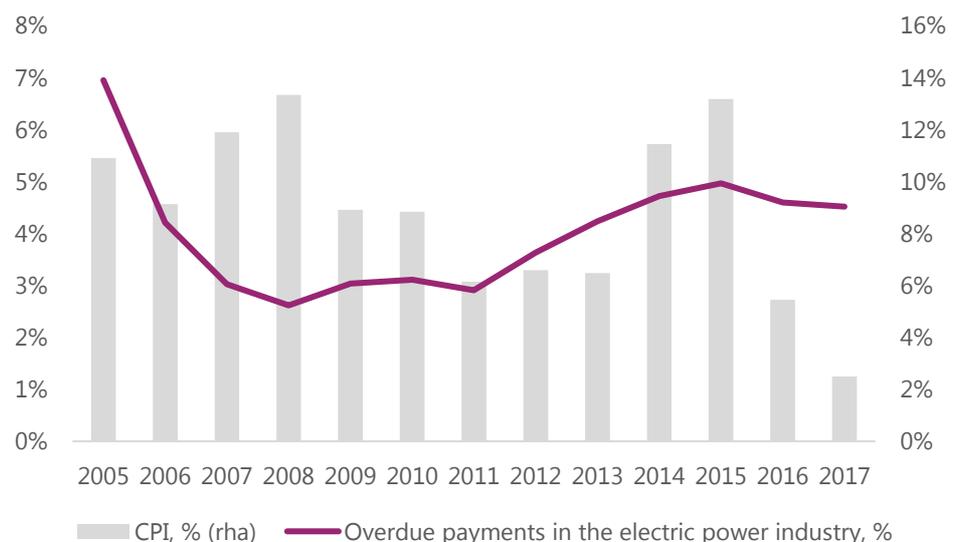
2) Lower flexibility in costs management

On the other hand, a low inflation rate is a challenge for operating efficiency. If, under the high inflation, tariffs are indexed following the inflation, grid companies may use their dominating market position and freeze contracts with personnel and suppliers and, thereby, push down real costs. Low inflation makes nominal values rigid, and monopolies may not increase their operating efficiency by freezing contracts in nominal terms.

3) Higher expenses for bad debt write-off

The higher the inflation the faster the impairment of bed debts. In 2017, the average share of overdue payments amounted to 5% of the sector's revenue. Without better payment discipline, low inflation (4%) will decrease the sector's profit by 0.7 pps.

Figure 3. Share of overdue electricity payments in Russia in 2017: 5%



Source: ACRA estimates

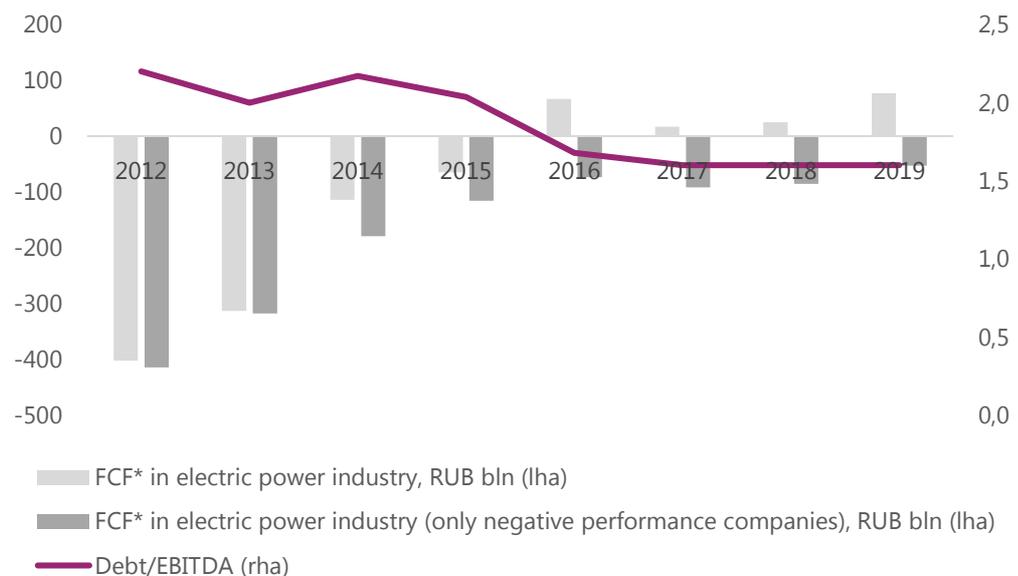
Investment pause to persist until 2020s

For the electric power industry, the period from 2018 to 2020 will be record-breaking in terms of returns, cash flow and dividends. It will be contributed by the completion of investment projects (except investment projects of Rosatom) and CSA payments (the peak of payments has fallen on the last four years).

According to ACRA estimates, in this period the debt load of the sector will drop to 1.6x Debt/EBITDA, and the EBITDA margin will grow up to 24–26%. In 2016, the free cash flow in the sector became positive—for the first time since the start of investments in CSA. ACRA forecasts that it will remain in the positive zone until the beginning of the 2020s. This situation can stimulate the growth of dividend payments in the sector.

At the beginning of the 2020s, a new investment cycle may start, driven by the TPP upgrade program and power grids digitalization projects. This period will coincide with the period of declining CSA payments, which currently form 3/4 of EBITDA in the thermal power sector. Therefore, to implement a new investment program, the sector will resume borrowing more.

Figure 4. Since 2016, free cash flow has been positive in the electric power industry

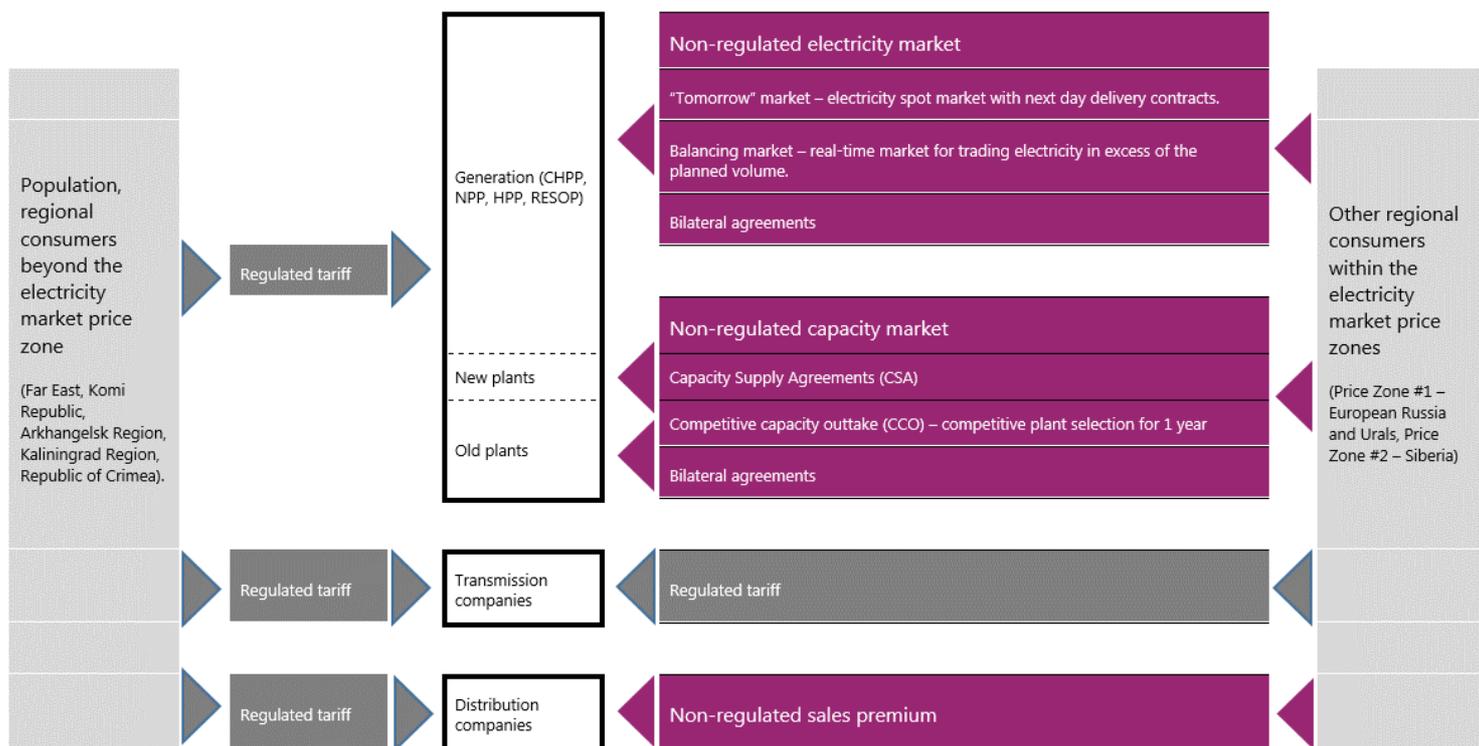


* Free cash flow

Source: ACRA estimates

Appendix. Electricity tariff structure in Russia

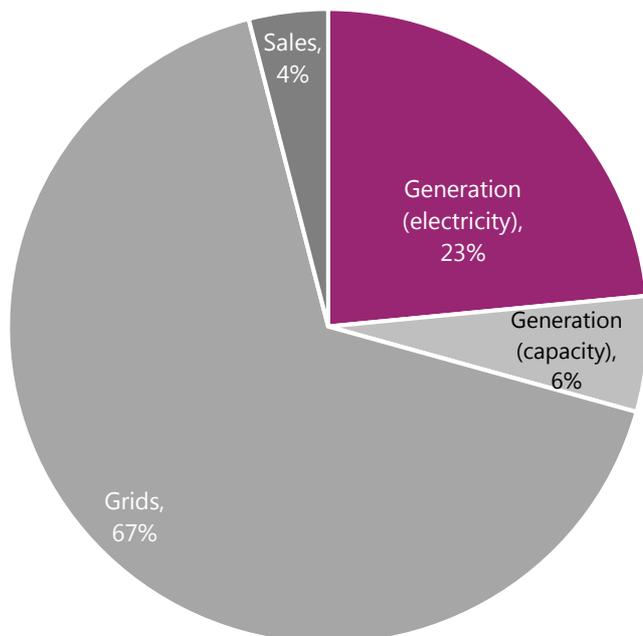
Tariff setting scheme in Russia



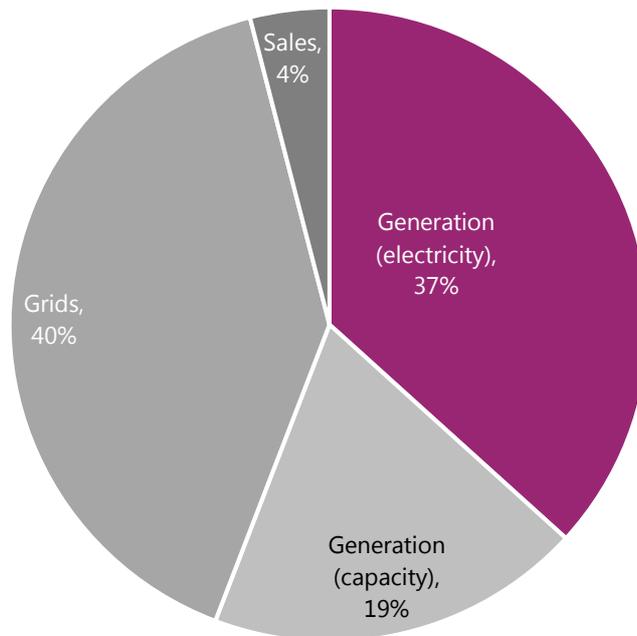
Source: ACRA

Tariff setting scheme in Russia

Households



Other consumers (industry, agriculture, services)



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