

Appendix № 3.1
to the Annual Report of IDGC of Centre
for 2019

**Additional information on electric energy transmission services provided.
Electric energy losses**

Amount of electric energy transmission services provided broken down by the branches in 2019

Branch name	Electricity supply to the grid, mln kWh	Supply of electric energy from the grid to consumers and adjacent Territorial Grid Companies within the balance and operating responsibility, mln kWh	Losses	
			mln kWh	%
Belgorodenergo	7 092,2	6 378,1	714,1	10,07%
Bryanskenergo	3 708,6	3 525,1	183,5	4,95%
Voronezhenergo	9 235,7	8 471,3	764,3	8,28%
Kostromaenergo	2 718,8	2 411,0	307,8	11,32%
Kurskenergo	3 558,6	3 159,0	399,7	11,23%
Lipetskenergo	5 304,7	4 693,8	610,9	11,52%
Orelenergo	2 428,8	2 203,4	225,3	9,28%
Smolenskenergo	3 909,1	3 410,1	499,0	12,77%
Tambovenergo	2 948,0	2 741,4	206,6	7,01%
Tverenergo	5 506,8	4 650,5	856,3	15,55%
Yarenergo	6 730,1	6 063,3	666,8	9,91%
Total	53 141,3	47 706,9	5 434,5	10,23%

Actual losses of electric energy in 2018-2019 broken down by the branches

Branch name	Electric energy losses					
	2018		2019		Change	
	mln kWh	%	mln kWh	%	mln kWh	pct
1	2	3	4	5	6 = 4 - 2	7 = 5 - 3
Belgorodenergo	772,6	10,25%	714,1	10,07%	-58,5	-0,18%
Bryanskenergo	225,8	5,94%	183,5	4,95%	-42,3	-0,99%
Voronezhenergo	819,4	8,78%	764,3	8,28%	-55,1	-0,50%
Kostromaenergo	324,8	11,78%	307,8	11,32%	-17,0	-0,45%
Kurskenergo	445,9	12,36%	399,7	11,23%	-46,3	-1,13%
Lipetskenergo	589,7	10,90%	610,9	11,52%	21,2	0,62%
Orelenergo	254,3	10,21%	225,3	9,28%	-29,0	-0,93%
Smolenskenergo	501,1	12,46%	499,0	12,77%	-2,1	0,31%
Tambovenergo	224,4	7,58%	206,6	7,01%	-17,8	-0,57%
Tverenergo	941,2	16,69%	856,3	15,55%	-84,9	-1,14%
Yarenergo	652,1	9,78%	666,8	9,91%	14,7	0,13%
Total for IDGC of Centre	5 751,5	10,60%	5 434,5	10,23%	-317,0	-0,38%

ENERGY CONSUMPTION WITHIN THE ORGANIZATION (302-1)

Resource	UoM	actual for 2017		actual for 2018		actual for 2019	
		Value	GJ	Value	GJ	Value	GJ
electricity	mln kWh	124,16	446,98	120,765	434,76	110,842	399,03
heating	Gcal	47 205,9	197,79	48 133	201,67	42 662,7	178,76
gas	thous. m3	1 305,83	44,24	1 487	50,29	1 348,1	45,59
other (diesel fuel, kerosene, gasoline, etc.)	thous. TFOE	29,60	867,28	30,595	896,45	27,57	807,82
Total	thous. TFOE	80,89	1556,3	81,07	1583,2	73,65	1431,2

ENERGY CONSUMPTION OUTSIDE OF THE ORGANIZATION (302-2)**REDUCTION OF ENERGY CONSUMPTION (302-4)**

Indicator	UoM	actual for 2017		actual for 2018		actual for 2019	
		Value	GJ	Value	GJ	Value	GJ
electricity	mln kWh	5,14	18,50	3,4	12,24	9,9	35,7
heating	Gcal	3 083,11	90,34	-	-	5 470,3	22,9
gas	thous. m3	-	-	-	-	138,9	4,7
Total	thous. TFOE	2,22	108,8	1,17	12,2	4,38	63,3

Recalculation of natural fuel for conditional one is carried out according to the formula

$$N_c = N_n \cdot Q_n / 29300.$$

where N_c is the amount of fuel equivalent, kg;

N_n is the amount of natural fuel, kg;

Q_n is the average calorific value of natural fuel, kJ/kg.

Recalculation of electric, thermal energy and fuel for fuel equivalent should be made according to their physical (energy) characteristics based on the following ratios:

1 kg fuel equivalent = 29,30 MJ = 7000 kcal;

1 kWh = 3,6 MJ = 0,12 kg fuel equivalent; (3)

1 kg of diesel fuel is equal to 1,45 kg fuel equivalent

1 kg of motor gasoline is equal to 1,52 kg fuel equivalent;

1 kcal = 427 kg/m = 4,19 kJ = 1,163 Wh;

1 hp/h = 2,65 MJ; 1 MJ = 0,278 kWh