

Quality of Electricity Supply

Moldovan National Report

by

National Agency for Energy Regulation (ANRE)

General information on power system in Moldova

Four enterprises are active in the Moldovan energy system:

- One transport and system operator (TSO) – the state company “MOLDELECTRICA”;
- Three distribution system operators (DSO):
 - RED Union Fenosa – a private company, which serves 63,51% of the total number of consumers from Moldova and supply 73,94% of total volume of electricity;
 - RED Nord – a state company, which serves 22,93% of the total number of consumers from Moldova and supply 17,17% of total volume of electricity;
 - RED Nord-Vest – a state company, which serves 13,56% of the total number of consumers in Moldova and supply 8,89% of total volume of electricity;

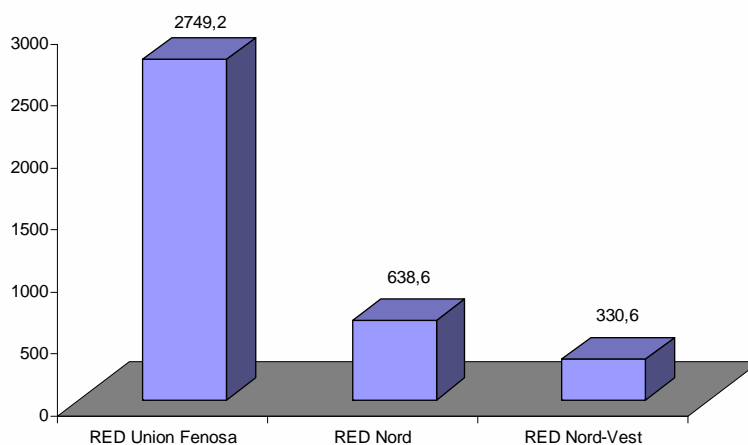


Figure 1: Distributed Energy, million kWh (2009)



Figure 2: Length of Network, km

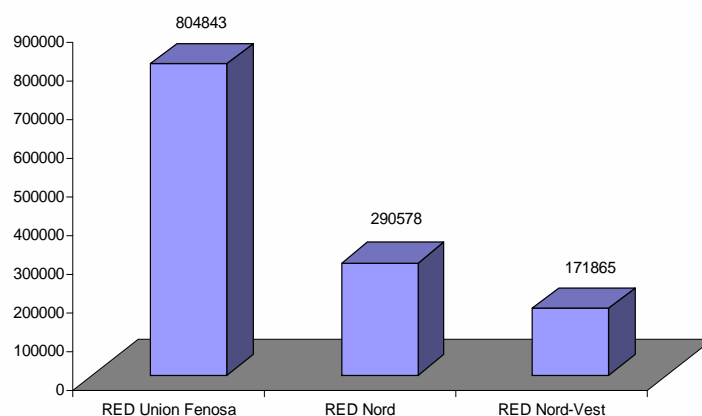


Figure 3: Number of customers

Legal framework

The legal framework concerning electricity supply consists of:

- Law on electric energy
- The regulation on quality of services of electricity supply and distribution
- Bilateral contracts of electricity supply
- The interstate standard on voltage quality (GOST-13109)

Continuity of supply

Reliability indexes that are systematically monitored by ANRE are SAIDI, SAIFI and CAIDI. These indexes are calculated for unplanned interruptions, longer than 3 minutes, which take place in the medium voltage (10 kV) networks.

According to the regulation on quality of services, approved by ANRE, all the DSO need to improve the level of SAIDI every year. The established levels of SAIDI for the period 2009-2013 are the next:

- 2009 – 12 hours,
- 2010 – 11 hours,
- 2011 – 10 hours,
- 2012 – 9 hours,
- 2013 – 8 hours.



In case if a DSO does not achieve the established level of SAIDI, ANRE has the right to apply penalties by reducing the tariff.

Unplanned interruptions are also divided into 4 groups, depending on the cause of interruption:

- FM – interruptions, caused by special meteorological conditions (the wind speed is more than 30 m/s and/or the ice deposit is more than 20 mm) or force majeure;
- IC – interruptions, caused by incidents in consumer’s installations;
- AT – caused by actions of a third party (traffic accidents, fires in the protection zones of electric lines and other distribution installations, damages of TSO’s equipment etc.)
- AC - other causes – failures in the distribution network, which the DSO is responsible for.

Reliability indexes, which DSO may be penalized for, are calculated for interruptions, marked with AC.

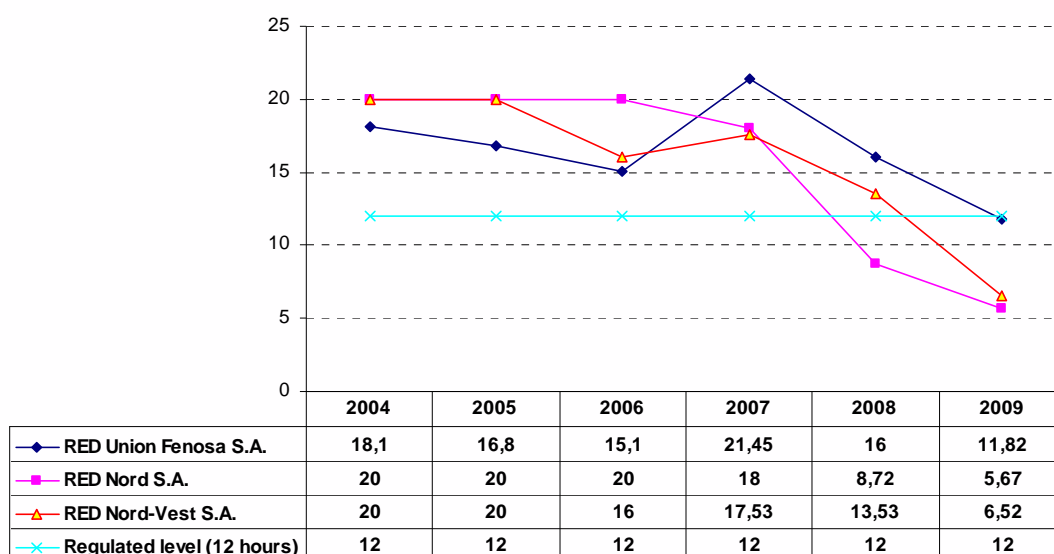


Figure 4: Reliability index SAIDI (hours), calculated for the period 2004 – 2009

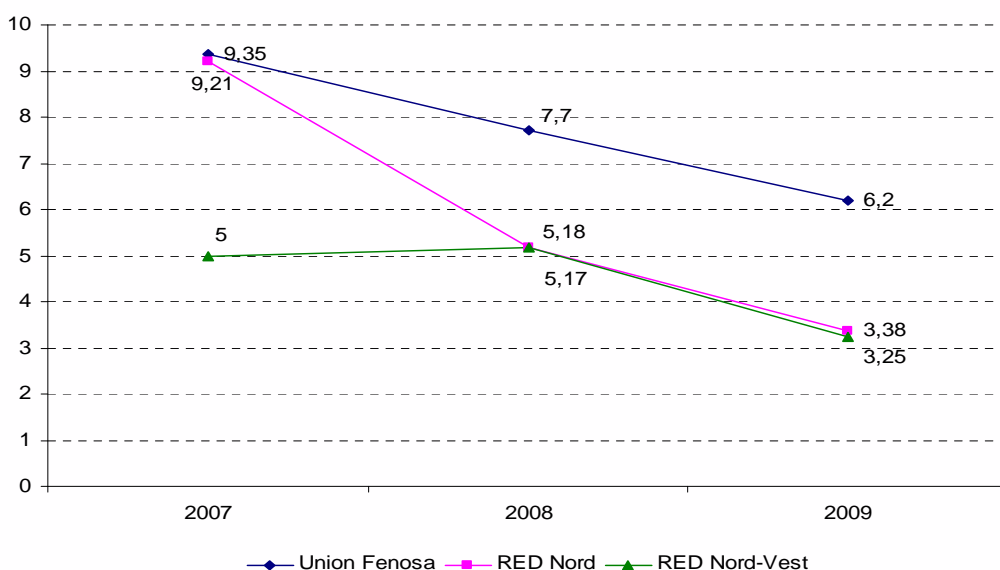


Figure 5: Reliability index SAIFI

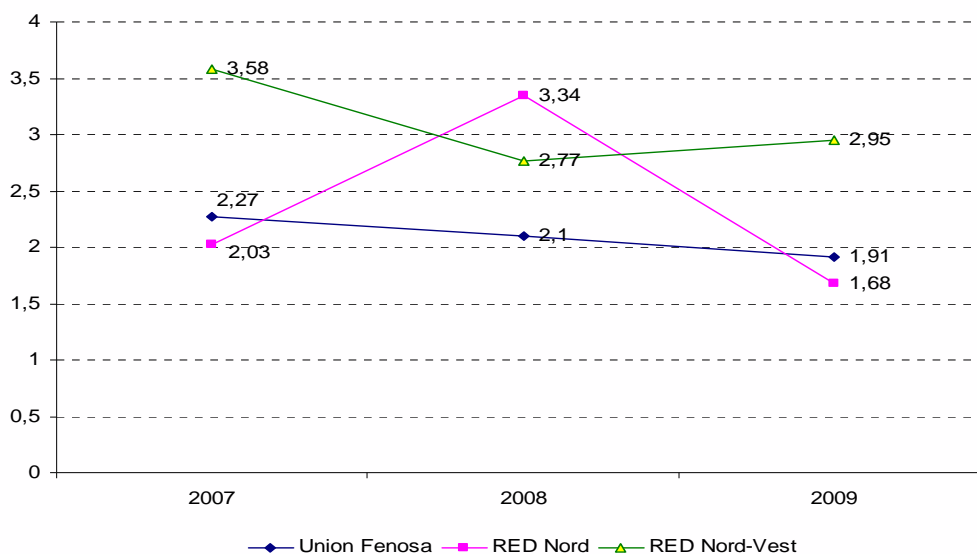


Figure 6: Reliability index CAIDI

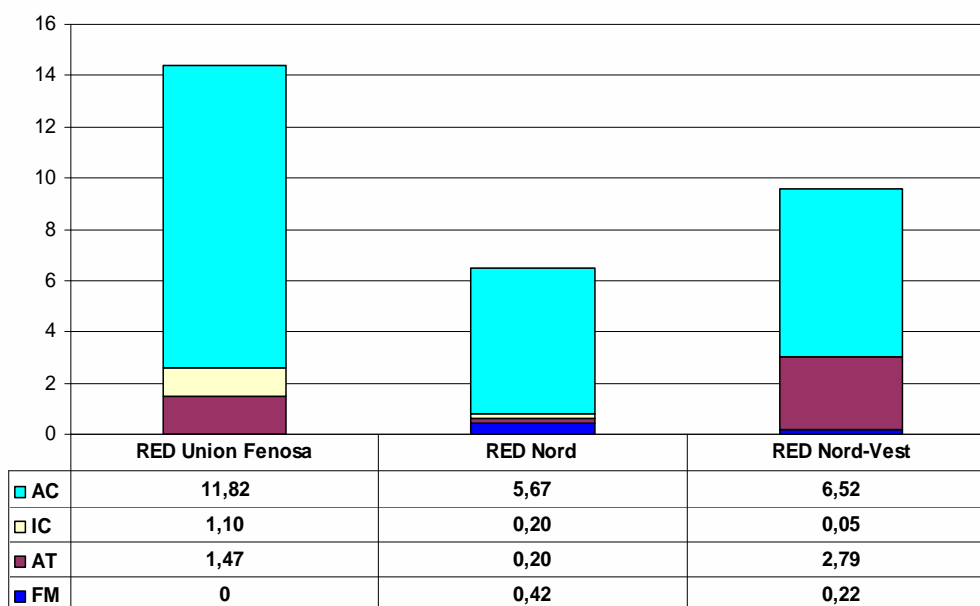


Figure 7: Level of SAIDI (hours), depending on the causes of interruptions (2009)

Guaranteed standards for final customers

Duration of one planned interruption:

- 24 hours (interruptions, linked with overhaul of the distribution networks);
- 12 hours (other planned interruptions);

Duration of one unplanned interruption:

- 24 hours (in case of difficult accidents);
- 16 hours (interruptions, which take place during the night, due to failures in the medium voltage (10 kV) networks);
- 6 hours (urban area), 8 hours (rural area) – other incidents;



Annual number of unplanned interruptions:

- for consumers, connected to medium voltage level (10 kV):
 - in the urban area – 6
 - in the rural area - 9
- for consumers, connected to low voltage level (0.4 kV):
 - in the urban area – 9
 - in the rural area - 12

Annual duration of unplanned interruptions:

- in the urban area – 36 hours
- in the rural area - 48 hours

Table 1: Data on customer interruption by DSOs and types of interruptions

		Union Fenosa		RED Nord		RED Nord-Vest	
		Urban area	Rural area	Urban area	Rural area	Urban area	Rural area
Duration of one interruption for a consumer							
Planned interruptions	Total	3784		8697		3496	
	Repaired in more than 12 hours	1		8		0	
	Linked with overhaule	98		173		7	
	Repaired in more than 24 hours	3		41		0	
Unplanned interruptions							
Caused by difficult accidents	Total	640		94		113	
	Repaired in more than 24 hours	20		0		0	
Interruptions, which took place during the night, due to failures in the medium voltage (10 kV) networks	Total	1242		201		294	
	Repaired in more than 16 hours	52		0		11	
Other unplanned interruptions	Total	3854		2655		922	
	Repaired in more than 6/8 hours	68	174	5	47	0	0
Annual number of unplanned interruptions for a final customer							
The number of customers, for which the number of interruptions during the year exceeded the established one		50569	14213 7	1756	18340	7029	5397
Annual duration of unplanned interruption for a final consumer							
The number of customers, for which the annual duration of interruptions was more than 36/48 hours		10921	31732	0	0	1	2249

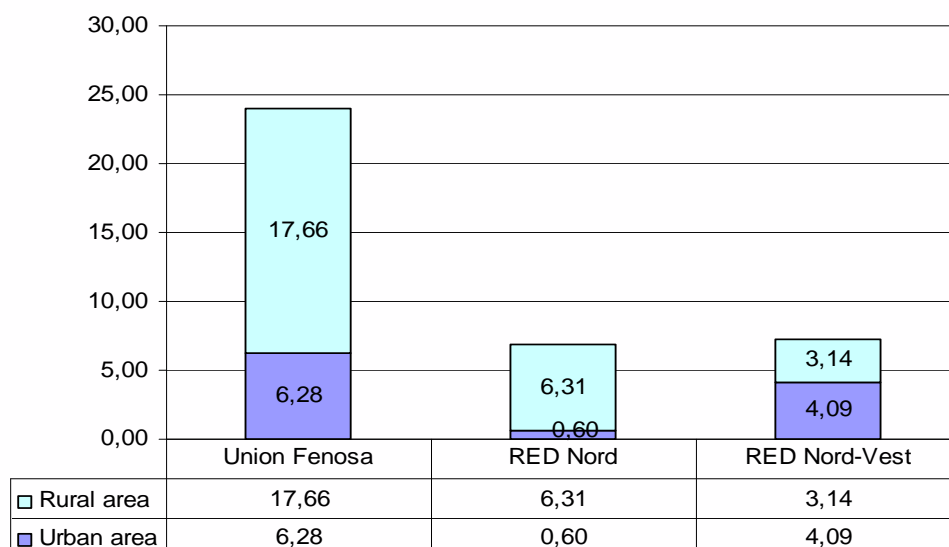


Figure 8: The percentage of final customers, for whom the guaranteed standards were not respected by DSO.

Voltage quality

For measuring the voltage quality, in Moldova is used the standard GOST-13109 “Power quality. Electromagnetic compatibility of technical equipment. Power quality limits in public electrical systems”. This is an interstate standard, used in the former USSR, that establishes the quality parameters of electric energy.

According to the Regulation on quality of services, approved by ANRE, in case of consumers’ complains, regarding the voltage quality, DSO has a limited period of time to restore the voltage quality:

- Consumers’ calls:
 - 24 hours after the call, in case of overvoltage or repeated voltage dips;
- Written complains:
 - 5 days after receiving the complain – if for restoring the quality it is necessary to execute some simple activities, like redistributing of electric load on phases, regulating the voltage from power transformers etc.;
 - 30 days – in case of increasing of existent networks’ capacity or the necessity to replace a power transformer etc;
 - 60 days – in case of necessity to elaborate projects and building new line sectors;
 - If DSO does not solve 10% of customers’ complains in fixed terms, ANRE can reduce the tariff.

Table 2: Data on voltage quality by DSOs

		Union Fenosa	RED Nord	RED Nord-Vest
Customers’ calls, regarding overvoltage or repeated voltage dips	Total	11614	186	64
	Solved in more than 24 hours	776	27	0
	% from total	6,7	14,5	0,0



		Union Fenosa	RED Nord	RED Nord-Vest
Written complains, regarding voltage deviations, for which solving DSO executed some simple activities	Total	160	138	26
	Solved in more than 5 days	15	9	0
	<i>% from total</i>	<i>9,4</i>	<i>6,5</i>	<i>0,0</i>
Written complains, regarding voltage deviations, for which solving DSO executed activities to increase the capacity of existent network	Total	97	16	0
	Solved in more than 30 days	6	1	0
	<i>% from total</i>	<i>6,2</i>	<i>6,3</i>	<i>0,0</i>
Written complains, regarding voltage deviations, for which solving DSO executed activities to elaborate projects and building new line sectors	Total	43	5	1
	Solved in more than 60 days	3	0	0
	<i>% from total</i>	<i>7,0</i>	<i>0,0</i>	<i>0,0</i>

Commercial quality

ANRE monitors the following situations, regarding commercial quality:

- 1) Notifying of planned interruptions (3 days before interruption for small customers and 7 days before interruption for customers with power more than 100 kW).
- 2) Issuing of prior connection approvals (15 calendar days)
- 3) Contracting of electricity supply (2 working-days for householders and 5 working-days for other consumers);
- 4) Connecting to distribution network (3 calendar days). If DSO doesn't respect this term, the consumer can demand a compensation (25% of the connection fee for every overdue day).
- 5) Reconnecting of a customers' installation to the network (2 working-days). If the supplier (DSO) doesn't respect this term, the consumer can demand a compensation (25% of the reconnection fee for every overdue day).
- 6) Proceeding of consumers' written petitions (not more than 30 calendar days)

Table 3: Data on commercial quality by DSOs

Commercial quality indicator	Union Fenosa	RED Nord	RED Nord-Vest
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Notifying of planned interruptions

The total number of planned interruptions during 2009	12424	5406	3483
Unnotified interruptions	2	26	0

Issuing of prior connection approvals

The total number of requests	18624	2771	974
Number of prior connections, issued in more than 15days	566	543	0
Number of rejected requests	989	17	0



Commercial quality indicator	Union Fenosa	RED Nord	RED Nord-Vest
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Contracting of electricity supply

The total number of contracting requests	Householders	13069	4518	837
	Other consumers	3630	623	173
Contracts, concluded in more than 2/5 working days	Householders	4	0	0
	Other consumers	0	18	0

Connecting to distribution network

The total number of connecting requests	14612	1636	844
Number of consumers, connected in more than 4 days	1191	64	0
Number of requests for paying a compensation	0	0	0

Reconnecting of a customers' installation to the network

The total number of reconnected consumers	46638	8204	3014
Number of consumers, connected in more than 2 working-days	1650	557	0
Number of requests for paying a compensation	0	0	0

Proceeding of consumers' written complains

The total number of consumers' written complains	5291	751	530
The number of written complains, which were proceeded in 15 calendar days	1836	681	487
The number of written complains, which were proceeded in 15 calendar days	5215	70	30