



Quality of Electricity Supply

National Report of FYR of Macedonia

by

Energy Regulatory Commission (ERC)

National Legal Framework

The Energy Law (Official Gazette of Republic of Macedonia, no. 63/2006, 36/2007 and 106/2008) governs: the objectives of the energy policy and the manner of its realization, energy activities and the manner of regulating the energy activities, construction of energy facilities, functioning of the Energy Regulatory Commission, introduction of market for electricity, market for natural gas, market for oil and oil derivatives, as well as market for thermal or geothermal energy, requirements for realization of energy efficiency and promotion of the utilization of renewable resources and other important issues from the energy field.

The objective of this law is to ensure:

- reliable, safe and good quality supply of energy and energy fuels to the consumers;
- creation of efficient, competitive and financially sustainable energy sector;
- efficient development of energy sector;
- stimulation of competition on the market, thus respecting the tenets of non-discrimination, publicity and transparency;
- energy efficiency enhancement and encouragement of the utilization of renewable resources; and
- protection of the environment from adverse impacts of energy sector activities.

Energy Regulatory Commission of the Republic of Macedonia is an independent authority regarding the operation and decision making process within the scope of competencies prescribed by the Energy Law (“Official Gazette of the Republic of Macedonia”, no. 63/06, 36/07 and 106/08).

In accordance with the Article 19 of the Energy Law, the Energy Regulatory Commission has the following authorizations:

- monitors the energy market operations and proposes measures for its promotion due to ensuring non-discrimination, efficient competition and efficient functioning of the market;
- monitors any mechanisms used to deal with congested capacity on the electricity system and on the natural gas pipelines within the Republic of Macedonia;
- ensures promotion of the protection of the rights of the energy users;
- delivers regulations on price formation of certain types of energy and services in relation to pursuing of regulated energy activities;
- prescribes Tariff systems for certain types of energy;
- adopts decisions for the prices of specific types of energy in compliance with the price setting methodologies and tariff systems for relevant types of energy and services related to the pursuing of different energy activities;



- issues, amends, revokes and monitors the compliance of the licensees in the pursuit of certain activities within the energy sector;
- participates in the resolution or resolves disputes that may arise among the participants on the energy market including cross-border disputes;
- establishes cooperation with the competent state authorities, local self-government units, energy entities, energy users and other organizations and institutions;
- proposes to the relevant authorities undertaking of measures, within the scope of their competencies and in a procedure as defined by this law, against the entities that pursue the activity contrary to the provisions of this law;
- gives initiative and proposes adoption of new and amendment to the existing laws and other regulations,
- participates in relevant regional and international organizations and cooperates with other regulatory authorities so as to contribute to the development of regional energy markets;
- adopts statute, rules of procedure and other internal acts pertaining to its operation, and
- issues regulations to carry out its responsibilities under this Law and performs such other tasks as are required by this or other law.

JSC “Elektrani na Makedonija” (JSC ELEM) is share hold, state owned company holder of the license for performing the energy activity: generation of electricity. JSC ELEM is regulated electricity producer obligated to provide public service and upon prior approval by the Energy Regulatory Commission, concludes contracts according to regulated prices and tariffs approved and published by the Energy Regulatory Commission with:

- The Operator of the power system (JSC MEPSO) for supply of ancillary services including also the electricity necessary for covering the technical losses that occur during transformation and transmission of electricity up to a level approved by the ERC,
- The Retail electricity supplier for tariff consumers (JSC EVN MAKEDONIJA Skopje) for delivering of power and electricity necessary to cover the entire needs of the tariff consumers to the extent the retail electricity supplier decides not to procure on the market excluding electricity losses in the transmission and distribution network,
- The Distribution system operator (JSC EVN MAKEDONIJA Skopje) for delivering of electricity necessary to cover the technical losses during the transformation and distribution, up to a level approved by the ERC.

The regulated electricity producer for the needs of the supplier with electricity for retail tariff consumers is obliged to provide the following:

- the necessary quantities of electricity from its own generation capacities and if necessary from other generators of electricity and/or traders with electricity,
- the necessary transmission capacity and regulated services.

The regulated electricity producer can conclude sale agreements or in other manner to execute sale of surplus of power and energy under market conditions, in open transparent and non-discriminatory manner.

JSC MEPSO is share hold, state owned company, holder of the licenses for performing the following energy activities: transmission of electricity, operation of the power system, operation and organization of the electricity market. JSC MEPSO, the transmission system operator in Republic of Macedonia is owner of the complete equipment for transmission of electricity and keeps the maintenance, planning, expansion and construction of the transmission network, management of the electricity system as well as, organising and management of the electricity market. JSC MEPSO as a market operator is responsible for the efficient functioning of the market, managing the system for electricity sale and purchase pursuant to the market-based principals and for development of the organised market



pursuant to the principals for transparency, non-discrimination and competition, provide all services pursuant to the conditions determined in the license, under regulated prices and conditions approved and published by the Energy Regulatory Commission.

JSC EVN MAKEDONIJA Skopje (90% by EVN – Austria, 10 % state owned) is holder of the licenses for performing the following energy activities: operation of the distribution system and distribution of electricity, generation of electricity (11 small hydro power plants), and retail supply of electricity for tariff customers.

JSC EVN MAKEDONIJA Skopje as supplier of electricity for the retail tariff consumers buys power and electricity from the regulated electricity producer, traders with electricity and from the distributed generators of electricity, as well as, necessary transmission and distribution capacity and regulated services for the needs of the tariff consumers of electricity connected on the distribution network under regulated prices. The supplier of electricity for retail tariff consumers can obtain power and electricity from other generators and/or traders with electricity only if the market conditions and prices are more favourable than the conditions and prices determined for the regulated electricity producer in a clearly defined, transparent and non-discriminatory manner that will guarantee equal access for all domestic and foreign legal persons. This purchase needs to be approved by the Energy Regulatory Commission.

The electricity traders purchase electricity for sale to the eligible consumers, the regulated electricity generator, and the supplier with electricity for retail tariff consumers and have function of trade mediator for sale and purchase of electricity in or out of the country.

In the Republic of Macedonia there are two types of consumers of electricity such as:

- Tariff consumers - purchase electricity under prescribed tariff positions for own consumption;
- Eligible consumers - freely purchase electricity from trader, independent generator of electricity and from import under own choice.

There are 9 eligible customers of electricity connected to the transmission network from 1st of January 2008.

Up to now Energy Regulatory Commission issued 48 licenses for performing energy activities in the electricity sector, from which 24 are licenses for trade with electricity.

Quality of Electricity Service

The quality of electricity service in Republic of Macedonia is covered by several bylaws:

- Rulebook on conditions for electricity supply (“Official Gazette of the Republic of Macedonia”, no.162/2009);
- Grid Code for distribution of electricity (“Official Gazette of the Republic of Macedonia”, no.83/2008);
- Rulebook on the manner for performing control on the quality of electricity in distribution grid (“Official Gazette of the Republic of Macedonia”, no.67/2009).

According to the Rulebook on conditions for electricity supply, the reliable, safe and quality electricity supply means fulfilment of the standards and criteria relating to:

- 1) continuity of supply;
- 2) voltage quality; and
- 3) commercial quality.



The distribution network in Macedonia is owned by the company JSC EVN MAKEDONIJA Skopje. This company owns 180 km of distribution network at a voltage level of 110 kV; 1.161 km at 35 kV; 1.541 km at 20 kV; 8.124 km at 10 kV; and 13.000 km at 0,4 kV.

JSC EVN MAKEDONIJA Skopje supplies with electricity 671.987 consumers from which 570.287 households.

Table 1. Number of customers connected on the distribution system

Customers on distribution system	Number
35 kV customers	16
35 kV customers directly connected	3
10 (20) kV customers	1.156
0,4 kV customers	670.812
- Households	570.287
- Others (I and II tariff degree)	94.741
- Public lightening	5.784
TOTAL:	671.987

The total consumption of electricity in Republic of Macedonia in 2009 is 6.593.496.767 kWh. The consumption of electricity by customer categories in 2009 is presented on the following table:

Table 2. Consumption of electricity by the customers connected on the distribution system in 2009

Customers connected to the distribution system	Consumption in 2009 (kWh)
35 kV customers	103.779.350
35 kV customers directly connected	7.719.832
10 (20) kV customers	729.525.294
Households	3.299.687.047
I tariff degree	234.770.245
II tariff degree	799.256.024
Public lightening	107.345.832
TOTAL:	5.282.083.624

The percentage of the share of each customer category in total consumption of electricity in 2009 is presented in the following table:

Table 3. Percentage of the share of each customer category in total consumption of electricity in 2009

Customers	%
Customers connected on transmission system (110 kV)	19,89%
35 kV customers	1,57%
35 kV customers directly connected	0,12%
10 (20) kV customers	11,06%
Households	50,04%
I tariff degree	3,56%
II tariff degree	12,12%
Public lightening	1,63%

JSC EVN MAKEDONIJA Skopje has 19 Electricity User Centres (EUC). A map with the division is provided below.



Figure 1. Electricity User Centres within JSC EVN MAKEDONIJA Skopje

Continuity of supply

In accordance with the license for performing the operation of the electricity distribution system and distribution of electricity, JSC EVN MAKEDONIJA Skopje as DSO has clear obligation to keep data on the number and duration of planned and unplanned interruptions for each voltage level, and also on the reasons for the interruptions and to inform the Energy Regulatory Commission on monthly level.

DSO has implemented the SCADA system.

For the planned interruption of delivery of electricity, DSO is obliged to select the least unfavourable time period for the consumers.

For the planned interruption of delivery of electricity, DSO is obliged to timely inform the consumers in written form, and in the cases of interruption of a larger group of consumers through media, at least within 24 hours before the interruption. Also, DSO publishes daily information on the planned interruptions on their website: www.evn.com.mk.

According to the Rulebook on conditions for electricity supply, DSO is obligated to keep records of all interruptions in electricity supply and develop an adequate database and report to the Energy Regulatory Commission on monthly and yearly level.

There is no data on the indicators (SAIDI, SAIFI, etc.), but the Energy Regulatory Commission will introduce these indicators and the terms and manner of indemnity of electricity consumers in the case of reduced delivery or interruption within the new Rulebook on the quality of electricity service, which will be issued by the end of 2010.

According to the Rulebook on conditions for electricity supply, force majeure is defined as all unpredictable natural events, disasters and circumstances determined by the law.



Electricity supply interruption is defined as state in which there is no electricity voltage at the point of electricity delivery, longer than 1.5 seconds.

The data for interruptions in 2009 are presented at the following tables:

Table 4. Planned and unplanned interruptions on the 35 kV voltage level in 2009

No.	Month	Total number of planned interruptions	Total duration of planned interruptions (min)	Total number of unplanned interruptions	Total duration of unplanned interruptions (min)
1	January	4	322	8	776
2	February	13	547	15	417
3	March	20	737	39	1.458
4	April	7	431	7	50
5	May	21	1.411	27	4.112
6	June	28	1.439	38	3.464
7	July	26	1.052	28	1.077
8	August	16	619	28	3.953
9	September	11	663	23	486
10	October	26	1.750	48	2.877
11	November	9	622	41	1.203
12	December	14	431	32	1.664
Total:		195	10.024	334	21.537

Table 5. Force majeure and total interruptions on the 35 kV voltage level in 2009

No.	Month	Total number of interruptions cause force majeure	Total duration of interruptions cause force majeure (min)	Total number of all interruptions	Total duration of all interruptions (min)
1	January	1	25	13	1.123
2	February	0	0	28	964
3	March	2	4	61	2.199
4	April	1	8	15	489
5	May	39	2.787	87	8.310
6	June	69	2.238	135	7.141
7	July	18	309	72	2.438
8	August	39	3.327	83	7.899
9	September	2	97	36	1.246
10	October	3	113	77	4.740
11	November	2	85	52	1.910
12	December	3	40	49	2.135
Total:		179	9.033	708	40.594



Table 6. Planned and unplanned interruptions on the 20 (10) kV and 6 kV voltage level in 2009

No.	Month	Total number of planned interruptions	Total duration of planned interruptions (min)	Total number of unplanned interruptions	Total duration of unplanned interruptions (min)
1	January	273	9.442	270	25
2	February	341	12.531	307	0
3	March	463	14.198	415	4
4	April	333	11.978	376	8
5	May	424	18.589	408	2.787
6	June	535	17.441	796	2.238
7	July	570	23.344	760	309
8	August	507	17.225	830	3.327
9	September	393	16.744	549	97
10	October	458	24.206	583	113
11	November	508	27.094	487	85
12	December	470	21.725	545	40
Total:		5.275	214.517	6.326	9.033

Table 7. Force majeure and total interruptions on the 20 (10) kV and 6 kV voltage level in 2009

No.	Month	Total number of interruptions cause force majeure	Total duration of interruptions cause force majeure (min)	Total number of all interruptions	Total duration of all interruptions (min)
1	January	63	5.297	606	14.764
2	February	72	5.217	720	17.748
3	March	209	12.356	1.087	26.558
4	April	95	8.284	804	20.270
5	May	353	26.826	1.185	48.202
6	June	388	30.526	1.719	50.205
7	July	202	10.707	1.532	34.360
8	August	389	26.119	1.726	46.671
9	September	49	1.840	991	18.681
10	October	127	5.049	1.168	29.368
11	November	95	3.609	1.090	30.788
12	December	71	5.566	1.086	27.331
Total:		2.113	141.396	13.714	364.946

Table 8. Unplanned interruptions on the 0,4 kV voltage level in 2009

No.	Month	Total number of unplanned interruptions	Total duration of unplanned interruptions (min)
1	January	4.144	239.578
2	February	2.372	174.165
3	March	2.862	247.042
4	April	1.519	143.116
5	May	1.617	158.880
6	June	1.544	150.506
7	July	1.385	137.379
8	August	1.317	126.790
9	September	1.065	92.975
10	October	1.488	128.445
11	November	1.076	88.904
12	December	1.840	148.097
Total:		22.229	1.835.877

Electricity supply interruption may be short-term interruption lasting to 3 minutes or long-term interruption lasting for more than 3 minutes.

The data for short-term and long-term interruptions in 2009 are presented at the following tables:

Table 9. Short-term and long-term interruptions on the 35 kV voltage level in 2009

No.	Month	Total number of short-term interruptions (< 3min)	Total duration of short-term interruptions (min)	Total number of long-term interruptions (≥ 3min)	Total duration of long-term interruptions (min)
1	January	2	5	7	771
2	February	1	3	14	414
3	March	14	38	13	1.177
4	April	3	5	5	45
5	May	7	16	59	4.096
6	June	26	64	81	3.400
7	July	12	29	34	1.048
8	August	16	35	51	3.918
9	September	9	27	16	459
10	October	4	11	47	2.866
11	November	14	35	29	1.168
12	December	6	17	28	627
Total:		114	285	384	19.989

Table 10. Short-term and long-term interruptions on the 20 (10) kV and 6 kV voltage level in 2009

No.	Month	Total number of short-term interruptions (< 3min)	Total duration of short-term interruptions (min)	Total number of long-term interruptions (≥ 3min)	Total duration of long-term interruptions (min)
1	January	77	163	256	22.666
2	February	74	180	305	22.386
3	March	191	496	433	32.014
4	April	110	253	360	27.537
5	May	170	412	591	54.407
6	June	349	889	835	60.205
7	July	372	929	590	38.767
8	August	437	1.149	776	58.868
9	September	223	548	375	23.153
10	October	267	671	443	32.058
11	November	208	521	374	23.643
12	December	214	519	402	29.892
Total:		2.692	6.730	5.740	425.596

Voltage quality

According to the Grid code for distribution of electricity and the Rulebook on conditions for electricity supply, general standard for nominal voltage quality means providing of nominal voltage values by voltage level at the points of delivery and allowed variations from the nominal voltage values per voltage level.

Under normal conditions, allowed range of variation from the nominal voltage values under voltage level may be as follows:

- 1) for voltage level over 110 kV, from: - 5% to + 5%;
- 2) for voltage level 110 kV, 35 kV, 20 kV, 10 kV and 6 kV, from: - 10% to + 10%;
- 3) for voltage level under 1 kV, from: - 10% to + 5%.

Distribution system operator is obliged to, at the request of the consumer, measure the voltage at the electricity delivery point and inform the consumer in writing on the results obtained.

The Rulebook on the manner for performing control on the quality of electricity in distribution grid ("Official Gazette of the Republic of Macedonia", no.67/2009), issued by the Ministry of economy, prescribes the manner for performing control on the quality of electricity delivered by the DSO to the customers connected to the distribution grid.

The control on the quality of electricity is performed by the State Inspectorate for Technical Inspection with certificated meters, as official duty and by request of customer. The measures for control on the quality of electricity are performed by the State Inspectorate for Technical Inspection in presence of the DSO with duration of 7 days.

In case when the customer has doubts regarding the quality of electricity, it may inform the DSO with request to perform measurement on the quality of electricity. DSO should start with the measurement within 8 days from the submitted request and the results from the measurement along with statement on voltage quality should be delivered to the customer within 8 days. If the customer has doubts regarding the measurement, it may submit a



request for measurement of the quality of electricity to the State Inspectorate for Technical Inspection.

According to the Rulebook on conditions for electricity supply, DSO is obligated to keep records of the voltage quality and develop an adequate database and report to the Energy Regulatory Commission on monthly and yearly level.

Commercial Quality

According to the Rulebook on conditions for electricity supply, the retail supplier is obligated to keep records and develop an adequate database and report to the Energy Regulatory Commission on monthly and yearly level on the:

- 1) number of submitted objections on the accuracy of the bills or invoices for the consumed electricity, by voltage level and consumer category;
- 2) number of disconnected consumers due to non-payment of bills or invoices for the consumed electricity, by voltage level and consumer category;
- 3) number of calls in the Customers Centre responsible for consumer protection and giving information, consulting and support.

According to the Grid Code for distribution of electricity, DSO is obligated to respond and issue consent for connection in 15 days on the request for connection submitted by the customer and to provide detailed cost analyses for the connection.

In case when the DSO does not issue consent for connection or the issued consent is not in accordance with the Grid Code, the customer may submit an appeal to the Energy Regulatory Commission.

The customer is obligated to sign contract for connection of the distribution system with the DSO. The DSO is obligated to put the connection under voltage within 15 days from the day of submitting the request for putting under the voltage by the customer.

Also, DSO published manual for connection to the distribution system available on the website: www.evn.com.mk.

Data on issued and realized resolutions for consent of connection in 2009 are presented on the following table:

Table 11. Number of issued and realized resolutions for consent of connection in 2009

Issued resolutions for consent of connection of standard connections	Issued resolutions for consent of connection of nonstandard connections	Realized resolutions for consent of connection of standard connections	Realized resolutions for consent of connection of nonstandard connections
8214	1700	11404	1111

According to the Rulebook on conditions for electricity supply, DSO is obligated to read the meters in time of 8:00h to 20:00h. The customer has right to submit an objection regarding the read data and if the objection is justified, the DSO shall make a correction of the read data. DSO is obliged to submit the read data from the meters to the retail supplier. The retail supplier is obligated to make the calculation for the delivered electricity to the customer, to issue and deliver an invoice for the calculation period to the customer within 10 days. The customer is obligated to pay the invoice for the delivered electricity within 15 days from the



date of closure of the calculation period. The customer has right to submit an objection to the invoice for electricity for the calculation month in 15 days from the day of delivery of the invoice. The retail supplier is obligated to respond to the customer objection in written within 15 days from the day of receiving the objection. If the objection is justified the retail supplier is obligated to issue new invoice to the customer for the same calculation month.

The retail supplier is obligated to inform the tariff consumers via the media on the change of the electricity price, prior its application. Also the retail supplier publishes the electricity prices on the website: www.evn.com.mk.

Data on issued, paid and objected invoices in 2009 are presented on the following table:

Table 12. Number of invoices and number of submitted objections regarding the accuracy of the invoices for consumed electricity in 2009

No.	Customers	Total number of issued invoices	Total number of paid invoices	Total number of submitted objections	Total number of accepted objections	Total number of rejected objections
1	Households	8.922.494	6.915.504			
2	All customers (except households)	453.258	321.812			
Total:		9.375.752	7.237.316	1.428	414	1.014

JSC EVN MAKEDONIJA Skopje as DSO and retail supplier has established Customers Centre for information, consulting and services for the customers and free on charge phone number: 089012345, Centre for defects where customers may be informed on interruptions and other services on the free on charge phone number: 0890 88888, and also an Ombudsman for customer care, where customers may complain on the employees and abuse of their position.

Table 13. Number of calls in the Customers Centre on phone number 0890 12345 in 2009

No.	Month	Total number of calls in the Customers Centre: information, consulting and services
1	January	6.242
2	February	4.679
3	March	6.025
4	April	4.678
5	May	4.753
6	June	5.740
7	July	4.595
8	August	4.627
9	September	6.427
10	October	7.852
11	November	7.088
12	December	9.296
Total:		72.002



Table 14. Number of calls in the Centre for defects on phone number 0890 88888 in 2009

No.	Month	Total number of calls in the Centre for defects	Total number of calls on which action has been taken within 3 hours of receiving the information	Total number of calls on which action has been taken after 3 hours of receiving the information
1	January	20.477	2.551	329
2	February	6.907	1.225	61
3	March	12.487	1.461	249
4	April	5.032	794	41
5	May	9.379	985	114
6	June	8.078	1.196	72
7	July	7.731	1.118	35
8	August	8.480	1.119	80
9	September	6.801	817	19
10	October	10.722	1.190	58
11	November	10.148	1.225	32
12	December	18.707	1.846	116
Total:		124.949	15.527	1.206

The Energy Regulatory Commission will introduce indicators, penalties and define the terms and manner of indemnity of electricity consumers within the new Rulebook on the quality of electricity service, which will be issued by the end of 2010.