

Quality of Electricity Supply

Annual Report 2008

Croatian Energy Regulatory Agency

Quality of electricity is defined and monitored in regard to:

- reliability of power supply,
- voltage quality and
- quality of service for the network users at the point of electricity delivery/takeover.

Reliability is defined as ability of the network to provide continuous supply of electricity in a given time period and is expressed by indicators related to the number and duration of interruptions in supply. Voltage quality is defined as continuity of physical voltage properties in comparison to standardized values (effective value, frequency, waveform, symmetry of phase voltage values, etc.).

In 2008, HEP OPS (Transmission System Operator) met almost entirely the demands of Croatian customers for electricity, without significant disturbances in the supply system and within the set boundaries of standardized technical values of voltage and frequency. Table 1 shows interruptions in electricity supply and their duration as well as the estimated undelivered electricity in the HEP-OPS network in 2008.

Table 1 Interruptions in electricity supply by HEP-OPS and their duration in 2008

No. of interruptions in supply	Duration of supply interruptions [min]	Average undelivered electricity [MWh]
131	4.844	666,3

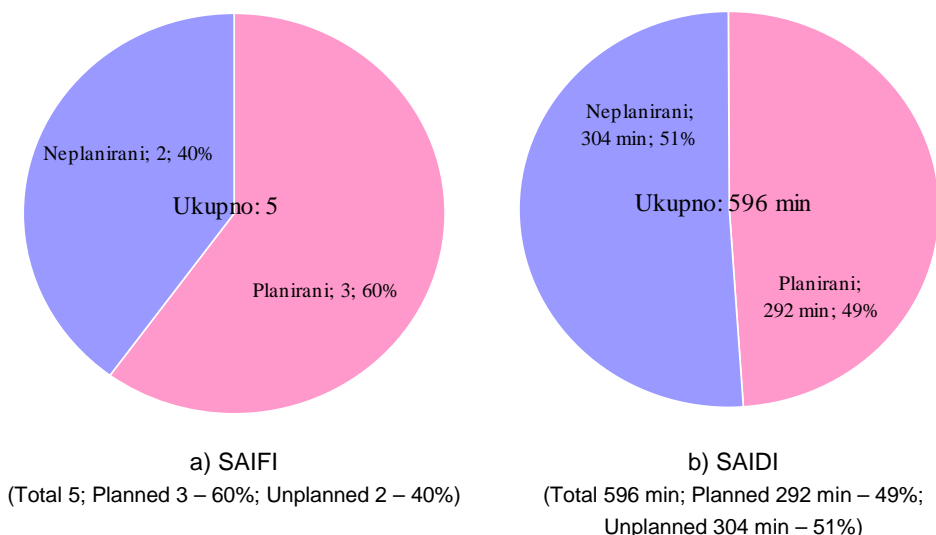
Source: HEP ODS

HEP ODS (Distribution System Operator) established in 2006 a system for monitoring power supply interruptions in all distribution areas by manually entering all interruptions lasting longer than 3 minutes into the DISPO program, down to the level of a sub-area office as the lowest organizational unit in HEP-ODS.

Reliability indices that are systematically monitored are *System Average Interruption Frequency Index (SAIFI)* and *System Average Interruption Duration Index (SAIDI)*.

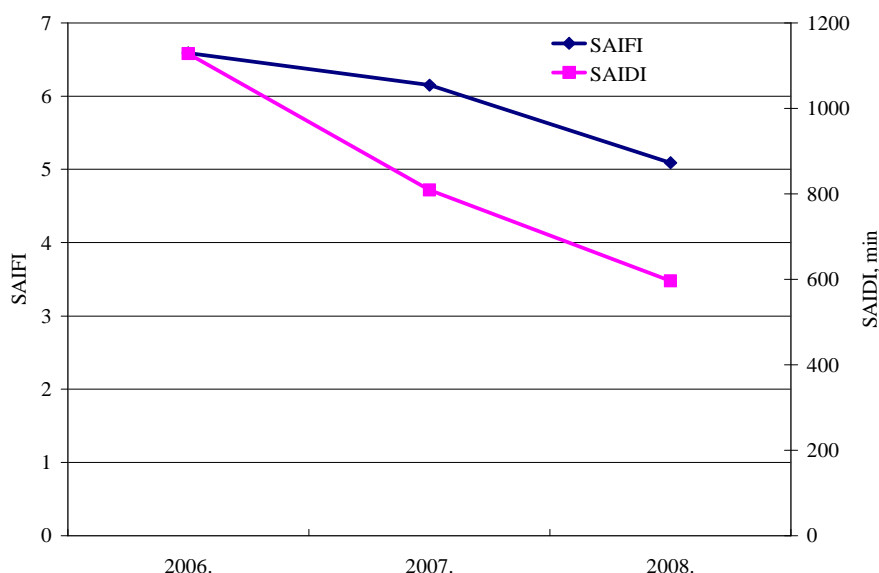
The DISPO program allows the analysis of recorded interruptions and their statistical processing needed for the calculation of defined reliability indices. Planned interruptions are as a rule caused by removal of faulty or aged equipment, regular maintenance, construction of facilities and the network, elimination of malfunctions and other consequences due to force majeure, elimination of malfunctions and other consequences due to activity of third parties, maintenance of third party plants, construction of third party facilities and interruptions in the supply of the distribution network. Forceful interruptions are due to failures in the distribution network, failures caused by the third parties, force majeure and interruptions in the supply of the distribution network.

Reliability indices for 2008 are presented in the Figure 1, while Figure 2 represents the comparison of the supply reliability indices trend in HEP ODS from 2006 to 2008.



Source: HEP ODS

Figure 1 Indicators of power supply reliability in HEP ODS for 2008

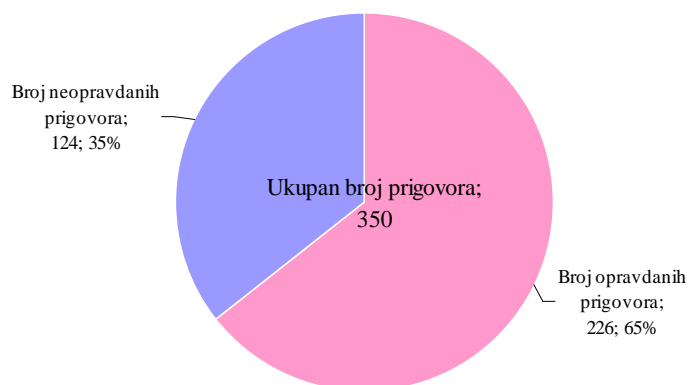


Source: HEP ODS

Figure 2 Trend of supply reliability indicators movement in HEP ODS from 2006 to 2008

With the aim of establishing systematic monitoring of voltage quality, HEP ODS carried out voltage quality control at the level of distribution areas and systematically kept record of all complaints regarding the voltage quality in 2008.

Figure 3 shows statistics of objections regarding the voltage quality in the HEP ODS distribution network in 2008. Out of a total of 2,282,998 metering points in the HEP ODS distribution network, a total of 350 complaints were received regarding the voltage quality, which makes a 0.02% compared to the total number of metering points. Justified objections amounted to 226 or 0.01% compared to the total number of metering points.



(Total no. of objections 350; No. of justified objections 226 – 65%; No. of unjustified objections 124 – 35%)

Source: HEP ODS

Figure 3 Objections regarding the voltage quality in HEP ODS distribution network in 2008

The quality of service is estimated based on the level of complaints from network users regarding the performance of services and the timeliness of services performed related to connections, network usage and regulated electricity supply.

Besides the energy activity of electricity distribution, HEP ODS also carries out the activity of supplying tariff customers with electricity as a public service under regulated conditions. HEP ODS separates services in the distribution and electricity supply in the following categories: 1) Service quality within the activities of electricity distribution; 2) Measurement services quality within the activities of electricity distribution; 3) Service quality within the activities of electricity supply; 4) Other attributable services; and 5) Business conduct quality control.

The statistics of issued prior connection approvals and connection approvals, and the average number of issuing days in HEP ODS in 2008 are shown in Table 2.

Table 2 Issued prior connection approvals and connection approvals and the average number of issuing days in HEP ODS in 2008

Type of approvals	Number of approvals	Average number of issuing days
PEES	34.983	26,08
EES – new customers	47.154	28,26
EES – construction site connection	2.430	12,53
EES – temporary connection	665	5,23

Source: HEP ODS

Table 3 represents the statistics of HEP ODS' contracting of electricity supply in 2008.

Table 3 Contracting HEP ODS electricity supply in 2008

Consumption category	No. of concluded contracts	No. of objections to the contracting process	
		Received	Accepted
Households	113.709	78	27
Businesses	24.968	58	28
Total	138.677	136	55
Share of objections in the no. of concluded contracts		0,10%	0,04%

Source: HEP ODS

Table 4 shows the statistics of charges and issuing of invoices in HEP ODS in 2008.

Table 4 Charging and issuing invoices in HEP ODS in 2008

Consumption category	No. of issued invoices	Objections to invoices and instalments		Complaints to charging	
		Received	Accepted	Received	Accepted
Households	30.647.084	116.574	95.214	24.808	19.640
Corporate	2.107.352	15.017	11.304	6.371	5.480
Total	32.754.436	131.591	106.518	31.179	25.120
Share of objections in the no. of issued invoices		0,40%	0,33%	0,10%	0,076%

Source: HEP ODS

Table 5 represents the statistics of collecting debts via regular HEP ODS procedure in 2008.

Table 5 Collection of debts through a regular procedure by HEP ODS in 2008

Consumption category	No. of paid invoices without dunning letter	No. of objections to the regular collection procedure	
		Received	Accepted
Households	18.829.208	13.968	2.852
Businesses	1.526.154	1.531	770
Total	20.355.362	15.499	3.622
Share of complaints in the no. of invoices paid without dunning letter		0,08%	0,02%

Source: HEP ODS

Table 6 shows the statistics of replies to questions, requests and complaints received from HEP ODS customers in 2008.

Table 6 Replies to questions, requests and complaints from HEP ODS customers in 2008

Consumption category	Number of questions, requests and complaints from customers	No. of replies within legally provided deadline
Households	1.019.792	893.840
Businesses	67.725	58.180
Total	1.087.517	952.020
Share in the total no. of questions, requests and complaints from customers		88%

Source: HEP ODS

Table 7 shows the statistics of non-standard services of calculation and issuing of invoices by HEP ODS in 2008.

Table 7 *Non-standard services of calculation and issuing invoices in HEP ODS in 2008*

Consumption category	No. of non-standard services of calculation and issuing of invoices				No. of complaints on non-standard services of calculation and issuing of invoices	
	Special calculation	Self-reading	Copies of payment slips and certified invoices	Total	Received	Accepted
Households	377.669	178.880	11.937	568.486	2.910	2.608
Businesses	3.243	-	2.178	5.421	256	34
Total	380.912	178.880	14.115	573.907	3.166	2.642
Share	66,3%	31,2%	2,5%	100,0%	0,6%	0,5%

Source: HEP ODS

Table 8 represents the statistics of collecting debts via non-standard procedure (sending dunning letters) by HEP ODS in 2008.

 Table 8 *Collection of debts through a non-standard procedure (sending dunning letters) by HEP ODS in 2008*

Consumption category	No. of sent dunning letters	No. of complaints on dunning letters	
		Received	Accepted
Households	1.428.480	10.637	2.947
Businesses	385.596	5.376	729
Total	1.814.076	16.013	3.676
Share in the no. of sent dunning letters		0,88%	0,20%

Source: HEP ODS

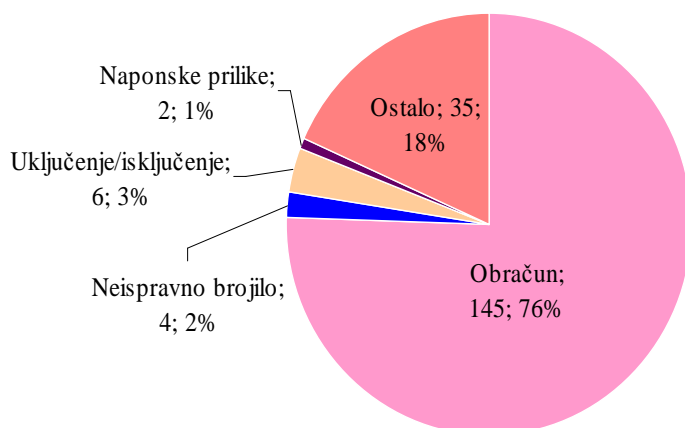
The Customer Complaint Committee of HEP ODS held 71 meetings and the results of their work are presented in Table 9. Out of 192 complaints in total, processed by the Customer Complaint Committee, 54 were accepted and 138 rejected.

 Table 9 *Analysis of operations of the Customer Complaint Commission of HEP ODS in 2008*

Meetings held	Total complaints	Total accepted	Total rejected
71	192	54	138

Source: HEP ODS

Complaints structure is shown in Figure 4.



(Billing 145 – 76%; Faulty meter 4 – 2%; Connection/disconnection 6 – 3%; Voltage conditions 2 – 1%; Other 35 – 18%)

Source: HEP ODS

Figure 4 Share of certain types of customer complaints resolved by the Customer Complaint Commission