Official Gazette Date and Number:
21/12/2012 - 28504

Energy Market Regulatory Authority

REGULATION ON SERVICE QUALITY IN ELECTRICITY DISTRIBUTION AND RETAIL SALE

FIRST CHAPTER
Objective, scope, legal basis and definitions

Objective and scope

ARTICLE 1 – (1) This bay-law contains rules to be applied by distribution companies, retail sale companies and users regarding continuity of supply, commercial and technical quality and principles and procedures for the practice.

Legal basis

ARTICLE 2 – (1) This bay-law is based on clause (c) of the paragraph 6 of Article 5 of the Electricity Market Law dated 20/2/2001 and numbered 4628.

Definitions and abbreviations

ARTICLE 3 – (1) In this Regulation following terms and abbreviations are are used to mean as explained:

a) LV: Voltage level with 1000 Volt or lower effective value,

b) LV user: User with LV connection point,

c) Outage management system: The system creating records for failures and/or interruptions reported by users or identified by continuity of supply remote monitoring system, directing these information on reports and identifications when needed to failure crew to enable evaluation, recording identification, jobs done and result and sharing these data with other systems (this system may be a component of customer care center or a system integrated to customer care center or a combination of these two options),

ç) Connection point: The site or point where a user connects to distribution system according to connection agreements,

d) Declared voltage: The feeding voltage agreed between distribution company and user (unless stated differently, declared voltage is assumed to be equal to nominal voltage, agreement on different value is only possible for MV level),

e) Notification: Announcement of an interruption that will be caused by a programmed intervention in distribution or transmission system, including interruption's date, beginning and ending times to the final consumers via distribution company's internet site plus print media, audial or visual mass media and sending text message and/or e-mail to requiring users at least 48 (forty eight) hours before the beginning time of the interruption,

f) Notified interruption: A pre-notified interruption due to a programmed intervention in distribution or transmission system,

g) Unnotified interruption: An interruption that is not pre-notified,

ğ) Distribution: Transportation of electricity through lines with 36 kV or lower voltage,

h) Distribution region: A region defined in a distribution licence,

ı) Distribution system: Distribution facilities and network that a distribution company operates or owns in its defined region,

i) Distribution company: A legal person carrying out distribution activity in a defined region,

j) Distribution transformer: Power transformer that transforms voltage between MV network and LV network which are operated or owned by distribution company,

k) Distribution facility: Facilities and network established for electricity distribution starting from termination point of transmission facilities and facilities of distribution-connected generators,

l) Feeder: Line and cable extensions carrying energy from a central bus bar to a customer or a group of customers,

m) Flicker: Voltage oscillations below 50 Hz due to load fluctuations leading blinks in lighting fixtures,

n) Frequency: Cycling number per second for alternative current in the system which is denoted as Hertz,

o) Transient interruption (very short interruption): An interruption lasting one second or shorter,

ö) Line part: A part of MV or LV network which can be separated from the reaming part of the network via switching mechanism, protection unit, constant connection point etc.

p) Harmonic: Each of sinusoidal components existing in integer multiples of main frequency component in an alternative current or voltage distorted because of non-linear loads or generators without ideal shape wave,

r) Transmission: Transportation of electricity through lines with over 36 kV voltage,

s) Transmission system: Electricity transmission facilities and grid,

ş) Urban area: City, district and town centers,

t) Rural area: Area other than urban area

u) Quality factor: Percentage value indicating effect of difference between target and actual quality indicators on revenue cap,

ü) Law: Electricity Market Law dated 20/02/2001 and number 4628,

v) Steady state: The system situation in which operation indicators can be accepted stable after temporary regime conditions terminates,

y) Interruption: Decrease of the voltage at the final consumer delivery point below 5 % of nominal voltage value at one or more phases,

z) Short interruption: An interruption lasting more than one second and less than three minutes or less,

aa) User: A real or legal person using distribution system,

bb) Board: Energy Market Regulatory Board,

cc) Authority: Energy Market Regulatory Authority,

çç) Maximum load current (I_L): Current value calculated as maximum of average during 15 minutes or 30 minutes of efficient value of load current main component,

dd) Customer information system: The system containing relevant information about users and user facilities on which transactions of subscription, accruement and collection carried out,

ee) Nominal voltage: Voltage value referring to some working characteristics and displaying or presenting a feeding network,

ff) MV: Voltage level whose effective value is over 1000 Volt and up to 36 kV (including 36 kV),

gg) MV user: User whose connection point is in MV level,

ğğ) Measurement period: 1-week continuous period of measurement defined by TS EN 61000-4-30 standard,

hh) Retail sale company: Company holding retail sale licence,

ıı) P_{lt}: Flicker severity index calculated by the below formula using P_{st} values measured during a period of two hours (12 consecutive measurements),

$$P_{lt} = \sqrt[3]{\frac{1}{12}\sum_{j=1}^{12} P_{st_j}{}^3}$$

ii) P_{st}: Flicker severity index measured in 10 minutes periods,

jj) Connectivity model: The connectivity model covering at the minimum transformers, feeders and protection and switching mechanisms including the points that users connects to network, containing necessary information and electrical relations of these components,

kk) Continuity of supply recording system: The system creating and reporting interruption records (on which Table 1 based) receiving interruption data from continuity of supply remote monitoring system and/or outage management system and using data of connectivity model and customer information system to be

ll) Continuity of supply remote monitoring system: The system enabling identification of interruptions in the distribution network remotely and acquisition of interruption data, covering at the minimum the points where switching mechanisms as reclosers and circuit breakers that can create short and transient interruptions are placed and also can cover other points on which protection and switching mechanisms placed (this system can be a component of general distribution automation system [SCADA, automatic meter reading system etc.] or integrated to general distribution automation system, or a combination of these two options),

mm) TEİAŞ: Turkish Electricity Transmission Company,

nn) Total Harmonic Distortion: The value calculated using below formula and equal to the ratio of square root of sum of squares of voltage harmonic components' effective value over effective value of the main components expressing distortion of waveform as a

percentage,

$$THB_V = \frac{\sqrt{\sum_{h=2}^{40} (U_h)^2}}{U_1} x100$$

oo) Total Demand Distortion: The value calculated using below formula and equal to the ratio of square root of sum of squares of current harmonic components' effective value over maximum load current (I_L) expressing distortion of waveform as a percentage,

$$TTB = \frac{\sqrt{\sum_{h=2}^{40} (I_h)^2}}{I_L} x100$$

öö) Long interruption: Interruption lasting more than 3 minutes,
pp) HV: Voltage level over 36 kV effective value.

SECOND CHAPTER
Fundamental issues regarding quality

Service quality responsibility

ARTICLE 4 – (1) Distribution company is responsible for the quality of service they provide to users in the region determined by distribution licence and retail sale company is responsible for retail-sale-related commercial quality.

Classification of service quality

ARTICLE 5 – (1) Authority monitors service quality in distribution system in following main categories:

a) Continuity of supply,
b) Commercial quality,
c) Technical quality.

Audit of quality

ARTICLE 6 – (1) Distribution company and retail sale company is responsible for the accuracy of all the information and documents submitted to the Authority and all the data on which those information and documents are based on.

(2) Relevant authorities holding auditing power audit or get audited; measurement of recording of continuity of supply and technical quality by distribution company in accordance with related standards, recording of commercial quality by distribution company and retail sale company for the aspects they are responsible for, all the procedure and data for determination of performance of distribution company and retail sale company regarding those indicators and all other information and documents.

(3) On-site audit of companies are carried out if needed upon pre-examination of declarations and submittal of table and reports to the Authority by companies within the scope of this Regulation or upon customer complaints received from distribution regions.

(4) Distribution company is responsible for providing necessary means and all needed information without delay to real or legal persons assigned or empowered for examination and audit and to be in cooperation with these people while they execute their duty. By no means activities of these personal may be hindered or delayed.

CHAPTER TREE
Quality on Continuity of Supply

Quality on continuity of supply

ARTICLE 7 – (1) Continuity of supply means capacity to serve electrical energy to distribution system users with minimum possible interruption duration and frequency and with economically reasonable costs.

Recording data on continuity of supply

ARTICLE 8 – (1) Distribution company records long, short and transient interruptions affecting distribution system totally or partly. Only long interruptions are classified as notified or unnotified. Short and transient interruptions are regarded as unnotified interruption.

(2) Interruption records should contain:

a) Place of interruption,

b) Cause of interruption (for long interruptions),

c) Source of interruption,

ç) Beginning date and time of interruption,

d) Number of LV and/or MV users affected from interruption,

e) Ending date and time of interruption,

f) Duration of interruption,

g) In case of gradual resupply after interruption, data stated in (a), (c), (d), (e) and (f) subparagraphs for each resupply step.

(3) Distribution company keeps records of LV and/or MV feeders, line parts, distribution transformers or users affected from interruption to enable calculation of interruption duration and frequency data on which individual compensation payments are based.

(4) In order to record supply continuity, user may get distribution-company-approved devices installed to connection point or measurement-point-for-billing, in control of distribution company and in the way accepted by distribution company. Records of these devices are read with distribution company upon request of user and distribution company takes them into account for determination of duration and frequency data related to individual compensation payments by comparing with its own records.

Classification of interruptions

ARTICLE 9 – (1) Distribution company classifies interruption in the distribution system as follows:

a) According to source;

1) Transmission,

2) Distribution-MV,

3) Distribution-LV,

b) According to duration;

1) Long,

2) Short,

3) Transient,

c) According to cause;

1) Force Majeure,

2) Security and safety,

3) External,

4) Network operator,

ç) According to notification;

1) Notified,

2) Unnotified.

Source and cause of interruption

ARTICLE 10 – (1) Source of interruptions is determined as follows:

a) Transmission: Interruptions due to transmission system,

b) Distribution-MV: Interruptions in the MV distribution network which is in distribution company's responsibility.

c) Distribution-LV: Interruptions in the LV distribution network which is in distribution company's responsibility.

(2) Cause of interruptions with source of transmission is determined as follows:

a) Interruptions due to natural disasters, epidemic diseases, war, nuclear and chemical fallouts, mobilization, insurgence, attacks, terrorist actions, sabotage, strike, lockout and other labor movements and interruptions accepted as force majeure by the Board upon application of transmission company claiming that despite the necessary care and attention shown and all precautions are taken by transmission company, unavoidable, inevitable and ineradicable interruptions that stopped transmission company from fulfilling its responsibilities are regarded as caused by "force majeure",

b) Interruptions other than caused by force majeure are regarded as caused by network operator.

(3) Cause of interruptions with source of distribution-MV or distribution-LV is determined as follows

a) Interruptions due to natural disasters, epidemic diseases, war, nuclear and chemical fallouts, mobilization, insurgence, attacks, terrorist actions, sabotage, strike, lockout and other labor movements and interruptions accepted as force majeure by the Board upon application of distribution company in cases interruptions exceed intervention capacity of distribution company, interruptions affect big number of customers, interruptions take long time of resupply due to its nature, claimed by distribution company that despite the necessary care and attention shown and all precautions are taken by distribution company, unavoidable, inevitable and ineradicable interruptions that stopped distribution company from fulfilling its responsibilities are regarded as caused by "force majeure",

b) Cause of mandatory interruptions due to security and safety of life and property are stated as security and safety,

c) Provided that certified by distribution company below interruptions' causes are stated as "external" ;

1) Interruptions caused by user damages,

2) Interruptions caused by theft and fire damages and third party damages to line and cables.

ç) Causes of interruptions other than classified according to (a), (b) and (c) subparagraphs of this paragraph are stated as "network operator".

Beginning and ending times of interruptions

ARTICLE 11 – (1) Beginning and ending times of interruptions are recorded by continuity of supply recording system;

a) Using data provided by continuity of supply remote monitoring system for long, short and transient interruptions occurred in the points covered by this system,

b) Using data automatically created by outage management system or manually recorded data for long interruptions occurred in points other than above stated points.

Number of users affected from interruptions

ARTICLE 12 – (1) Distribution company records number of users affected from interruptions by grouping them according to urban/rural area.

(2) Number of users affected from long interruptions occurred in points not covered by continuity of supply remote monitoring system are determined by using connectivity model after identifying the place of interruption via outage management system and recorded.

(3) Number of customers affected from long, short and transient interruptions occurred in points covered by continuity of supply remote monitoring system automatically recorded after determined by the system after identification of interruption.

(4) Distribution company, prepares Table 2, Table 3 and Table 4 for distribution region every year using up-to-date information valid as of 31 December and submits to the Authority by 31 January.

Verification, security and reliability of recorded data

ARTICLE 13 – (1) Verification of recorded data is done through systems and/or documents used for creation of continuity of supply records and by taking interruption recording method or methods used by distribution company into account.

(2) For verification of recorded data, distribution company encodes each long, short and transient interruption data. Same codes are used in;

a) Operational records,

b) Printouts of any device or remote control/reading/monitoring system established for recording continuity of supply or digital media,

c) Telephone calls received from users for urgent repair or report lists,

ç) Job reports of operational staff, ,

d) Documents for procurement of device related to interruption and all the other necessary documents

In case different codes are used, matching should be enabled between these codes for relating records to each other.

(3) Distribution company keeps all the information and documents needed for verification of recorded data in a regular and reachable way.

(4) Ensuring security and reliability of information systems and data in these systems is the responsibility of distribution company.

(5) Distribution company ensures that data recorded in digital media cannot be deleted permanently later on and all processes on the records can be tracked. Distribution company is liable to certify these issues against the Authority.

Indicators of continuity of supply

ARTICLE 14 – (1) Distribution company calculates continuity of supply indicators listed below annually for the entire distribution region, for cities and for districts in accordance with Table 5:

a) For long interruptions in the related region, average interruption duration indices (SAIDI) in line with interruption classification,

b) For long interruptions in the related region, average interruption frequency indices (SAIFI) in line with interruption classification,

c) For short interruptions in the related region, average interruption frequency indices (MAIFI),

(2) For feeder, line part, distribution transformer or user, following values are calculated:

a) Separately for notified and unnotified interruptions, total interruption duration,

b) Separately for notified interruptions and unnotified long and short interruptions, total interruption number.

(3) Indicators in the first paragraph are used for the evaluation of and relating to revenue cap of distribution company's continuity of supply performance and values in the second paragraph are used for determination of individual compensations.

Calculation of continuity of supply indicators

ARTICLE 15 – (1) Average interruption duration index is calculated using the followingformula:

$$(\text{SAIDI}) = \frac{\sum_{i=1}^{n} U_i . t_i}{U_{top}}$$

In this formula following notations are used to mean as explained:

n: Number of all long interruptions occurred in a calendar year,

t_i: Duration of i^{th} interruption,

U_i: Number of users affected from i^{th} interruption,

U_{top}: Total number of users served by distribution company at the beginning of the calendar year.

(2) In case of gradual resupply, each interruption is added to SAIDI calculation according to resupply steps. In first step, resupplied number of users and duration they affected stated. In following steps, number of customers in each step and duration of effect which is calculated as difference between beginning time of the interruption and resupply time of the related step.

(3) Average interruption frequency index is calculated using the following formula:

$$(\text{SAIFI}) = \frac{\sum_{i=1}^{n} U_i}{U_{top}}$$

In this formula following notations are used to mean as explained:

n: Number of all long interruptions occurred in a calendar year,

U_i: Number of users affected from i^{th} interruption,

U_{top}: Total number of users served by distribution company at the beginning of the calendar year.

(4) Average interruption frequency index for short interruptions is calculated using the following formula:

$$(\text{MAIFI}) = \frac{\sum_{i=1}^{n} U_i}{U_{top}}$$

In this formula following notations are used to mean as explained:

n: Number of all short interruptions occurred in a calendar year,

U_i: Number of users affected from i^{th} interruption,

U_{top}: Total number of users served by distribution company at the beginning of the calendar year.

(5) Total interruption duration is calculated using the following formula:

$$(\text{TID}) = \sum_{i=1}^{n} t_i$$

In this formula following notations are used to mean as explained:

n: Number of all long interruptions occurred in a calendar year that affected the user,

t_i: Duration of i^{th} interruption,

(6) Total number of interruptions (TNI) is the sum of all long and short interruptions that user affected in the calendar year.

(7) TID and TNI are calculated separately for notified and unnotified interruptions. If necessary, TID and TNI may also be calculated for network components as distribution transformer, feeder or line part.

(8) When calculated TID and TNI exceeds Table 9 limit values for notified interruptions, remaining notified interruptions are added to unnotified interruptions while evaluating these values.

(9) When calculating TID and TNI for distribution transformer, interruption occurred in LV level in which all of the users connected to this distribution transformer affected are added to calculation.

Calculation and payment of individual compensations

ARTICLE 16 – (1) In case limit values in Table 9 is exceeded for unnotified interruptions, distribution company pays compensation to user pursuant to this article not conditional to user's application. Payment to a user deserving compensation is made beginning from next April of year following the year compensation is related to and continues during following periods until finished. Payment is made by netting from distribution system usage fees and as a single payment in case of cancellation of subscription.

(2) Compensation payment based on TID is calculated using the following formula:

$ACP_{DURATION}$=20 TL+(TID-LID)xUCPxAD

In this formula following notations are used to mean as explained:

LID: Limit duration defined by Table 9,

ACP: Amount of compensation payment to user (TL),

UCP: Unit compensation price equal to 5 (five) times distribution system usage fee at the payment date of the tariff group to which user is subject to,

AD: Average demand of the related user calculated for the year of compensation in kW (for duration of subscription if subscription period is less than one year).

(3) Compensation payment based on TNI is calculated using the following formula:

ACP_{NUMBER}=(TNI-LNI)x(TID/TNI)xUCPxAD

In this formula following notations are used to mean as explained:

ACP: Amount of compensation payment to user (TL),

LNI: Limit number of interruptions defined by Table 9,

UCP: Unit compensation price equal to 5 (five) times distribution system usage fee at the payment date of the tariff group to which user is subject to,

AD: Average demand of the related user calculated for the year of compensation in kW (for duration of subscription if subscription period is less than one year).

(4) In case both limits regarding TID and TNI exceeded for a feeder, user or distribution transformer in a calendar year, distribution company pays the compensation with higher amount to the user.

(5) Compensation paid to user does not terminate user's right of demanding compensation of damage to his/her appliances provided that damage is not caused by user's own fault,

(6) Expenses of compensations paid can by no means be reflected to tariffs.

(7) Limit values defined by Table 9 can be amended annually by Board Resolution.

(8) In calculation of compensations, interruptions caused by force majeure and security and safety are excluded. Interruptions whose cause stated as external are added in TID and excluded in TNI calculation

(9) Upper limit of total compensation payment amount to users is 1 % of revenue cap for related year. If calculated amount exceed this limit, compensation of each user is decreased proportionally for equalizing to this limit.

(10) Distribution company seeks recourse against transmission system operator in proportion to its responsibility regarding compensation paid to user.

Announcement and submittal to the Authority of continuity of supply indicators

ARTICLE 17 – (1) Indicators of supply continuity prepared for entire distribution region and for cities of this region in Table 5 format and in line with table explanations is submitted to the Authority by 31 March of every year both in written and electronic form.

(2) Distribution company submits information of interruptions to the Authority by 31 March of the year following the year they occurred in Table 1 format of the by law's annex in

electronic format. Distribution company also submits method or methods used for recording interruptions.

(3) Table 1 is made available on distribution company's internet site by the end of the month following the month these interruptions occurred. Listing of interruptions by cities and districts is enabled in published Table 1.

(4) Distribution company publishes quality indicators calculated using records kept for the entire distribution region, cities and districts in its internet site.

(5) Distribution company provides users with the list of interruptions in Table 1 format and TID and TNI values calculated from these interruptions upon their request.

CHAPTER FOUR
Commercial Quality

Commercial quality

MADDE 18 – (1) Commercial quality is the capacity of exercising transactions regarding energy sale and/or service provision pursuant to standards determined by the Authority in each phase of relations between users requiring connection or connected to the network and service providers.

Commercial quality indicators and related works

ARTICLE 19 – (1) Minimum quality standards and related compensation payments/processes to be carried out in case of breaching these standards for which distribution/retail sale company is liable to met are determined by Table 6, annexed to this Regulation. This table can be amended annually by Board Decision.

(2) For monitoring commercial quality indicators, distribution/retail sale company uses Table 7 annexed to this Regulation.

(3) Distribution/retail sale company certifies dates and/or times used for determination of standard times in Table 6 for each transaction subject to commercial quality.

(4) Users deserving compensation payment by the end of each month are identified by the 20th day of the following month and they are notified of the payment. Payment is made to user as a single sum upon personal application and in 3 (three) working days upon written application in the way user prefers. .

Announcement and submittal to the Authority of commercial quality indicators

ARTICLE 20 – (1) Distribution/retail sale company, submits information of a calendar year prepared pursuant to Table 7 and Table 8 annexed to this Regulation to the Authority for distribution region and showing the cities in the region by 30 April of the year following the year they are related to.

(2) Distribution/retail sale companies publish commercial quality indicators in their internet sites monthly.

CHAPTER FIVE
Technical Quality

Technical quality

ARTICLE 21 – (1) Technical quality is the capacity of distribution system to meet electrical energy demand of users within acceptable fluctuation limits in terms of voltage frequency, amplitude, waveform and three phase symmetry, continuously and with high quality.

System voltages

ARTICLE 22 – (1) Methods aiming standardization of voltage levels in distribution system throughout the country and principles and procedures for the practice comes into force upon Board's approval. Until the regulation aiming standardization comes into force, allowed nominal MV values for distribution system are 34,5; 33, 31,5; 15,8; 10,5 and 6,3 kV, LV values are 400 V between phases and 230 V between phase and neutral.

Conditions of technical quality

ARTICLE 23 – (1) System frequency is controlled by TEİAŞ within the margins defined in Electricity Market Network Code published on the Official Gazette dated 22/01/2003 and number 25001.

(2) Distribution company is liable for meeting operation conditions below regarding quality of electrical energy it serves:

a) In distribution system operation, voltage effective values in steady state and temporary regime conditions should be in accordance with the below values defined in TS EN 50160:2011 standard in steady state:

1) For LV level; at least 95 % of 10-minutes-averages for voltage effective values during measurement period should vary ±10 % of nominal effective voltage value at the maximum and total variation should be in +10 % -15 % interval of nominal effective voltage value at the maximum.

2) For MV level; at least 99 % of 10-minutes-averages for voltage effective values during measurement period defined in TS EN 61000-4-30 (continuously one week) should not exceed + 10 % of declared effective voltage and again at least 99 % of these averages should be not lower than -10 % of declared effective voltage value. Any of the measured 10-minutes-averages of voltage effective values should not be out of the interval of ±15 %. Performance of distribution company regarding voltage regulation is measured principally at the connection point or can be measured at any point in consumer facility upon consent of distribution company. In case a dispute occurs between TEİAŞ and any distribution company and cannot be solved by parties, the Board executes mediation function for solution of the dispute.

b) In distribution system operation, voltage imbalances in steady state for LV level should be compatible with values below which are defined by TS EN 50160:2011 standard

1) The ratio of 10-minutes averages of effective values of negative voltage components during measurement period over positive components should be 2 % at the maximum for at least 95 % them.

2) At the points where single phase or double phase loads fed, this ratio can be as high as 3 %. Performance of distribution company regarding voltage imbalance is measured principally at the connection point or at any point in consumer facility upon consent of distribution company. In case of violating this condition on voltage imbalance, legal process initiated against distribution company within the context of 11th Article provisions of the Law.

c) Distribution company is responsible for complying with voltage harmonic values shown at Table 10 and defined by TS EN 50160:2011 standard. Values at Table 10 express proportional values of each voltage harmonic according to main component. At least 95 % of 10-minutes averages of each voltage harmonic effective value for measurement period should be lower than or equal to values at Table 10. Nonetheless, THD value (including values up to 40th harmonic) is applied as 8 % at the maximum. Performance of distribution company regarding voltage harmonics are measured principally at connection point for MV and LV levels. However, upon consent of distribution company, measurement can also be executed at the measurement point for billing. In case of violating this condition on harmonic distortion, legal process initiated against distribution company within the context of 11th Article provisions of the Law.

ç) Distribution system users subject to reactive energy fee are liable to comply with harmonic limit values below determined by IEEE Std.519-1992 standard or its revisions. Effective value of each current harmonic during measurement period and 3-second-averages of TDD proportional values to I_L should be lower than or equal to values stated in Table 11. Performance of user regarding current harmonic for MV and LV level is principally measured at connection point. However, if distribution company needs, measurement can also be made at the point for billing. In the latter case, current harmonics in transformer windings should be taken into consideration. Distribution company gives 60 working days at most for LV user and 120 working days at most for MV user for fixing harmonic distortion. In the notification send to user, it is stated that connection will be removed in case distortion is not fixed after given time. If fault is not corrected after given time, connection is removed.

d) Distribution company ensures compliance of the users to limit values stated in Table 12 regarding contribution to flicker in network. Flicker severity is measured with the means of "P_{st} and P_{lt}" indicators and flickermeters compatible with TS EN 61000-4-15. In case one of the limits are exceeded, 120 working days at most given to the responsible user for fixing the fault. In the notification send to user, it is stated that connection will be removed in case fault is not fixed after given time. If fault is not corrected after given time, connection is removed. Provisions of 11th Article of the law is applied for the distribution company which is found not fulfilling duly procedures and not following flicker issues.

(3) For the purpose of evaluation of complaints regarding technical quality, users can require measurement from distribution company. In case distortion of technical quality parameters is not caused by the user or 1-week measurement results exceed technical quality limits defined in this Regulation, distribution company cannot charge users for measurement within the context of this Regulation.

Submittal of technical quality indicators to the Authority

ARTICLE 24 – (1) Measurement results obtained after the installation of technical quality measurement devices are submitted on annual basis to the Authority in accordance with TS EN 50160:2011 standard by 31 March of following year in a report for distribution region. Upon request of the Authority or in case required in audits, distribution company repeats technical quality measurements.

(2) Devices to be used for technical quality parameters should be making A Class measurement determined by TS EN 61000-4-30 standard. Measurements are made in MV and LV levels. Measurements should be made in the points of different network characteristics, load profiles, customers groups, network parts serving areas with different population density, from lowest short circuit currents to highest short circuit currents in order to enable evaluation of the population by sampling. Number of technical quality measurement devices to be installed in a distribution company's region is calculated as follows:

a) Number of measurement devices in MV level, 1 device for 1000 (a thousand) transformer (sum of distribution transformers and MV user transformers) plus 10,

b) Number of measurement devices in LV level, 1 device for 50000 (fifty thousand) user plus 20.

(3) Regarding the places that devices can be installed, distribution company submits Table 13 to the Authority in electronical form in 15 days with up-to-date data as of end of October. Points chosen by the Authority from this table are notified to distribution company by 15th day of December. Distribution companies install/replace these devices in the month of January to execute measurements regarding related year.

(4) In audits carried out by authorities empowered with auditing, measurement of different points by these devices may be required.

CHAPTER SIX
Effect of Indicators on Distribution Revenue Cap and Compensation of User Losses

Determination of quality indicators' effect on revenue cap

ARTICLE 25 – (1) In line with target and limit values determined by the Authority regarding continuity of supply, commercial quality and technical quality, performance of distribution company is reflected to its revenue cap, quality indicators to be taken into consideration for calculation of Quality Factor, boundaries of the dead band in which quality factor does not affect revenue cap as shown by Graphic 1, limit values of increase/decrease on revenue cap as to performance of distribution company and the date quality factor application will begin are determined by Board Resolution.

Compensation of user loss

ARTICLE 26 – (1) User can apply to distribution company for compensation of loss regarding damage of user devices caused by distribution network, provided that damage is not caused by user's own fault, in 10 (ten) working days as of the date of loss.

(2) For compensation of the loss to be exercised, loss in question should be identified to be caused by distribution network upon examination and evaluation of the distribution company regarding character of the damage, situation of user facility, interruptions, failures, fluctuations etc. occurred in distribution network. As of 10 (ten) days after compensation application received, distribution company informs user regarding whether application recognized or not upon the examination and evaluation, if recognized procedure to be followed for compensation to be exercised. In cases of not recognizing the application, information should be given to user with justifications and their supporting arguments.

(3) Distribution company can undertake repair of device or prefer undertaking cost of repair that user has got completed. Distribution company can direct user to contracted repairer/repairers if repair will be done by user. Distribution company is liable to behave in a way to protect user's warranty rights on the device to be repaired.

(4) Repair to be exercised by distribution company may either be in place of usage or by transporting to another place within 10 (ten) days after user's application is recognized.

(5) If costs of repair is undertaken, 3 (three) working days after presentation of repair invoice by user, related amount is paid in the way user prefers (cash, via bank/post office etc.) or user is notified for withdrawing cash.

(6) In cases when damaged device should be in working order immediately with acceptable justifications, upon request of the user regarding this situation, distribution company either finishes examination and evaluation immediately or informs user repairer/repairers that it

consents for repair. Cost of repair incurred paid to user provided that application is recognized after examination and evaluation procedure.

(7) In case damaged device cannot be repaired, the current price determined/get determined by distribution company, or price required by the user if distribution company agrees, paid to the user.

(8) User makes complaints regarding processes carried out by the distribution company to the Authority.

Quality reports

ARTICLE 27 – (1) Distribution companies submits annual reports containing past and planned enhancement works with regards to actual results of continuity of supply, commercial quality and technical quality. When necessary, these reports also contain feasibility studies and comments and advices of impartial experts and institutions.

CHAPTER SEVEN
Miscellaneous and Final Provisions

Circumstances in which number of users affected cannot be determined

TEMPORARY ARTICLE 1 – (1) Below approach is used for each interruption in circumstances when number of urban and rural users affected from interruptions cannot be determined:

a) For MV users until 01/01/2014 at the latest,

1) If only feeder/feeders are subject to interruption, number of interrupted feeders multiplied by average number of MV user per MV feeder stated in Table 2,

2) If substation/substations are subject to interruption, number of interrupted substations multiplied by average number of MV users per substation stated in Table 2.

b) For LV users until 01/01/2015 at the latest,

1) For interruptions in transmission system or MV network, number of average LV user per substations/MV feeders/distribution transformers stated in Table 3 are multiplied by number of affected transformers when only distribution transformer/transformers affected, number of affected feeders when multiple feeders affected, number of affected substations if at least one substation affected.

2) For interruptions in LV network, number of interrupted LV feeders are multiplied by average number of LV users per LV feeder stated in Table 4.

Establishment of MV connectivity model and continuity of supply recording system

TEMPORARY ARTICLE 2 – (1) Distribution companies set up MV connectivity model and continuity of supply recording system until 01/01/2014. Distribution company begins recording interruptions as explained by Article 8 occurred in or affected distribution system using this recording system. After this system set up, number of MV users affected from all long interruptions are determined and recorded by this system using MV connectivity model.

(2) It is not mandatory to keep records of short and transient interruptions for the years 2013 and 2014.

Establishment of LV connectivity model and continuity of supply remote monitoring system

TEMPORARY ARTICLE 3 – (1) Until 01/01/2015, distribution companies:

a) Extend connectivity model to cover LV level and number of LV users affected from interruptions occurred in or affected distribution system are determined and recorded by continuity of supply recording system using MV and LV connectivity models.

b) Set up continuity of supply remote monitoring system in MV level covering the points where short and transient interruptions can occur. Short and transient interruptions in the MV level are determined by this system and recording as explained by Article 8 by continuity of supply recording system begins.

Submittal of quality report

TEMPORARY ARTICLE 4 – (1) Distribution company submits first quality report to the Authority in 2014 in which actual figures for 2013 contained.

Interruption notifications via e-mail and text messages

TEMPORARY ARTICLE 5 – (1) Works for notification of interruptions by sending text message and/or e-mail to requiring users will be completed and service to users begins by 01/01/2014.

Calculation of individual compensations

TEMPORARY ARTICLE 6 – (1) Individual compensation payments regarding continuity of supply based on actual results of the years 2012 and 2013 are made upon user's request. Requests should be made until the end of March of the year following related year.

(2) For evaluation of applications for the year 2012, limit values stated in Table 9 of the Regulation on Supply Continuity, Commercial and Technical Quality of Electrical Energy Supplied in Distribution System published at the Official Gazette dated 12/9/2006 and number 26287. In determination of the compensation amount, one third of the calculated amount by using the provisions of the Regulation on Service Quality In Electricity Distribution And Retail Sale.

(3) Until LV connectivity model is set up, SAIDI and SAIFI values of distribution transformers they are connected to are used as TID and TNI values for LV users.

Determination of power quality measurement service fee

TEMPORARY ARTICLE 7 – (1) Distribution companies send their proposals regarding technical quality measurement fees they will charge users based on cost items, within 30 days after this by law comes into force. Fees determined by Board Resolution cannot be increased before 12 months after date of enforcement. Increase is made according to last 12 months customer price index by distribution company and announced via its internet sites.

Submission of data regarding the year 2012

TEMPORARY ARTICLE 8 – (1) Data submission regarding the year 2012 in 2013 is made according to the provisions of the Regulation on Supply Continuity, Commercial and Technical Quality of Electrical Energy Supplied in Distribution System.

Installation of technical quality measurement devices

TEMPORARY ARTICLE 9 – (1) Technical quality measurement devices are installed in places determined by distribution company until 31/12/2013 with the number stated in Article 24 and in line with principles stated by aforementioned Article and list of these places are sent to the Authority. Measurements are performed in these points until replacements in January 2015.

(2) Submission of Table 13 to the Authority according to 3rd paragraph of Article 24 begins in 2014.

Installation of recorder devices by user

TEMPORARY ARTICLE 10 – (1) Application defined in Article 8's fourth paragraph begins on 01/01/2015.

Annulment

ARTICLE 28 – (1) The Regulation on Supply Continuity, Commercial and Technical Quality of Electrical Energy Supplied in Distribution System published at the Official Gazette dated 12/9/2006 and number 26287 is annulled.

Enforcement

ARTICLE 29 – (1) This Regulation comes into force on 01/01/2013.

Execution

ARTICLE 30 – (1) This Regulation is executed by Chairman of Energy Market Regulatory Authority.

http://www.resmigazete.gov.tr/eskiler/2012/12/20121221-12-1.doc

TABLE-1 INTERRUPTIONS

CODE	STEP (2)	PLACE (3)	NOTE ON CAUSE	CLASS OF INTERRUPTION (5)	BEGINNING DATE AND TIME (6)	ENDING DATE AND TI	DURATION (HOUR) (8)=(7)-(6)	NUMBER OF USERS AFFECTED (9)		TOTAL AFFECTED DURATION (10)	
								URBAN	RURAL	URBAN	RURAL

		CITY (3A)	DISTRICT (3B)	NEWTORK COMPONENT (3C)		OF SOURCE	OF DURATION	OF CAUSE	OF NOTIFICATION		ME (7)		MV (9A)	LV (9B)	MV (9C)	LV (9D)	MV (10A) = (9A) x(8)	LV (10B) = (9B) x(8)	MV (10C) = (9C) x(8)	LV (10D) = (9D) x(8)

EXPLANATIONS:

1-Class of interruption fulfilled according to classification in Article 9.

2- Will be submitted to the Authority for cities and for entire distribution region.

3- In "network component" column of "place of interruption", necessary information to show place of the interruption should explicitly be stated as Substation, feeder exiting substation, MV/LV Transformer, MV Feeder, Distribution Transformer, LV Feeder, Box, Box's Exit , LV Post, Subscriber Facility.

4- In case of gradual resupply, multiple rows recorded under same code. These rows reflect differences in number of users affected, ending date/time of interruption and other items due to gradual resupply.

TABLE-2

MV	TOTAL MV USER (A)	NUMBER OF SUBSTATIONS (B)	MV USER/ NUMBER OF SUBSTATIONS (A/B)	NUMBER OF MV FEEDERS (C)	NUM MV NUM MV FEE (A/C
URBAN					
RURAL					
TOTAL					

EXPLANATIONS:

1-Number of substations column is filled in by total number of substations for decreasing between MV network part, urban and rural substations.

2-Number of MV feeders means number of MV feeders exiting from TEİAŞ transformer stations and substations.

3- Classification of substations/MV feeders as urban or rural is done according to majority of users they serve.

TABLE-3

MV	TOTAL NUMBER OF LV USERS (A)	NUMBER OF SUBSTATIONS (B)	NUMBER OF LV USERS / NUMBER OF SUBSTATIONS (A/B)	NUMBER OF MV FEEDERS (C)	NUMBER OF LV USERS / NUMBER OF	NUMBER OF DISTRIBUTION TRANSFORMERS (D)	NUMBER OF LV USERS /NUMBER OF DISTRIBUTION TRANSFOR

					MV FEEDERS (A/C)		MERS (A/D)
URBAN							
RURAL							
TOTAL							

EXPLANATIONS:

1-Number of substations column is filled in by total number of substations for decreasing between MV network part, urban and rural substations.

2-Number of MV feeders means number of MV feeders exiting from TEİAŞ transformer stations and substations.

3- Classification of substations/MV feeders/transformers as urban or rural is done according to majority of users they serve.

TABLE-4

LV	TOTAL NUMBER OF LV USERS (A)	NUMBER OF LV FEEDERS (B)	NUMBER OF USERS / NUMBER OF FEEDERS (A/B)
URBAN			
RURAL			
TOTAL			

EXPLANATIONS:

1-When classifying LV feeder as urban or rural, assumed to be the same with the distribution transformers it is connected to.

TABLE-5 INTERRUPTION DURATION AND FREQUENCY

A) SAIDI (Unnotified)

		URBAN USERS			**RURAL US**
SOURCE	**CAUSE**	**OG**	**AG**	**TOTAL**	**OG**
TRANSMISSION	**Network Operator**				
TRANSMISSION	**Force Majeure**				
DISTRIBUTION-MV	**Network Operator**				
DISTRIBUTION-MV	**External**				
DISTRIBUTION-MV	**Force Majeure**				
DISTRIBUTION-MV	**Security&Safety**				
DISTRIBUTION-LV	**Network Operator**				

DISTRIBUTION-LV	**External**					
DISTRIBUTION-LV	**Force Majeure**					
DISTRIBUTION-LV	**Security&Safety**					
GRAND TOTAL						

B) SAIDI (Unnotified)

		URBAN USERS			**RURAL US**
SOURCE	**CAUSE**	**MV**	**LV**	**TOTAL**	**MV**
TRANSMISSION	**Network Operator**				
DISTRIBUTION-MV	**Network Operator**				
DISTRIBUTION-MV	**Security&Safety**				
DISTRIBUTION-LV	**Network Operator**				
DISTRIBUTION-LV	**Security&Safety**				
GRAND TOTAL					

C) SAIFI (Unnotified)

		URBAN USERS			**RURAL US**
SOURCE	**CAUSE**	**MV**	**LV**	**TOTAL**	**MV**
TRANSMISSION	**Network Operator**				
TRANSMISSION	**Force Majeure**				
DISTRIBUTION-MV	**Network Operator**				
DISTRIBUTION-MV	**External**				
DISTRIBUTION-MV	**Force Majeure**				
DISTRIBUTION-MV	**Security&Safety**				
DISTRIBUTION-LV	**Network Operator**				
DISTRIBUTION-LV	**External**				

DISTRIBUTION-LV	**Force Majeure**					
DISTRIBUTION-LV	**Security&Safety**					
GRAND TOTAL						

D) SAIFI (Notified)

		URBAN USERS			**RURAL US**
SOURCE	**CAUSE**	**MV**	**LV**	**TOTAL**	**MV**
TRANSMISSION	**Network Operator**				
DISTRIBUTION-MV	**Network Operator**				
DISTRIBUTION-MV	**Security&Safety**				
DISTRIBUTION-LV	**Network Operator**				
DISTRIBUTION-LV	**Security&Safety**				
GRAND TOTAL					

E) MAIFI

	URBAN USERS			**RURAL USE**
SOURCE	**MV**	**LV**	**TOTAL**	**MV**
TRANSMISSION				
DISTRIBUTION-MV				
GRAND TOTAL				

EXPLANATIONS:

1-Table is fulfilled according to place of usage (urban or rural) and connection point (MV or LV).

2-While calculating SAIDI and SAIFI for cities, number of users in the city is used.

3-While calculating SAIDI and SAIFI for distribution region, number of users in the distribution region is used. (Total SAIDI and SAIDI indices of cities is not equal to SAIDI and SAIFI value of distribution region).

TABLE-6

A) COMMERCIAL QUALITY TABLE FOR DISTRIBUTION COMPANIES

COMMERCIAL QUALITY CODE	**COMMERCIAL QUALITY INDICATOR**	**STANDARD DURATION**
1.1	Notifying applicant in written form with justifications about when connection can be set up	In ten working days; in case existing situa distribution system is not suitable for mee connection request and extension investm investment is needed, if site study not nee

1.2	Notifying applicant in written form with justifications about when connection can be set up	In twenty working days; in case existing situ distribution system is not suitable for meetir connection request and extension investmen investment is needed, if site study needed
2	Project approval or return for revision in case investment regarding connection is made by applicant	In five working days after project submissio
3	In case of connection power change, written reply to user for result of project examination and procedure to follow	In fifteen working days
4	Notification of user about programmed interruptions via print media, audial and visual media and internet site of distribution company (as of 01/01/2014, also via e-mail and text message to requested users)	At least forty eight hours prior to interruptio
5.1	Proposing connection or system usage contract to user	Sixty days after necessary information given distribution company regarding facility and/ appliance that will be connected to distributi
5.2	Proposing connection or system usage contract to user	Ninety days after necessary information giv to distribution company regarding facility ar appliance that will be connected to distributi in case additional information required
6	Concluding applications to customer services center and notifying applicant in written form if requested	In fifteen working days
7	Resupply of interrupted user due to debt or user fault, after reasons removed	Two working days in urban areas, three wo in rural areas
8	Appointments given to users for jobs on place of usage	With three hours of delay at the maximum
9.1	Concluding application of user loss compensation	In twenty working days
9.2	Payment of user loss or repair of user device	Times determined in 26th Article of this Reg should be complied
10	Daily maximum notified interruption duration	Daily interruption duration cannot exceed tv hours even if interruptions are notified

B) COMMERCIAL QUALITY TABLE FOR RETAIL SALE COMPANIES

COMMERCIAL QUALITY CODE	COMMERCIAL QUALITY INDICATOR	STANDARD DURATION

1	Concluding applications to customer services center and notifying applicant in written form if requested	In fifteen working days
2	Written notice of the bill	At least ten days before due date
3	Notifying user in written form about result of incorrect billing complaints	10 working days at the latest following date application
4	In case of recognizing incorrect billing complaint, return of excess collected amount	In three working days
5	Return of cash deposit to customer upon termination or cancellation of retail sale contract	Provided that all debts are paid, three worki the latest with updated amount
6	Proposing retail sale contract to user	On the same day
7	Informing distribution company in written form about signed retail sale contract	Three working days following date of acting

C) OTHER COMMERCIAL QUALITY INDICATORS FOR DISTRIBUTION AND RETAIL SALE COMPANIES

1	Total number of complaints per 100 users	This indicator monitored annually ar
2	Replying telephone calls received by customer care center.	Received telephone calls are replied

AÇIKLAMALAR:

1) According to first paragraph of Article 19, this table can be amended annually by Board Resolution.

TABLE-7 ACTUAL RESULTS REGARDING COMMERCIAL QUALITY

TRANSACTION NUMBER	COMMERCIAL	NAME/SURNAME OF RELATED	ADRESS AND TELEPHO	REFERENCE DATE/TI	REFERENCE DUE

	QUALITY CODE	REAL/LEGAL PERSON	NE NUMBER OF RELATED REAL/LEGAL PERSON	ME FOR BEGINNING	DATE/TIME

EXPLANATIONS:

1-Beginning date and time for processes are date and time of user's written application to distribution company for service subject to standards in Table 6.

2-Date and time for fulfilling service subject to commercial standard is the date and time when service subject to standard in Table 6 is fully and finally served.

3-Person names, addresses and telephone numbers are not published in internet.

4-In this table, complaints of not in time billing are fulfilled regarding number 2 indicator of Table 6.

TABLE-8 SUMMARY OF COMMERCIAL QUALITY INDICATORS

A) DISTRIBUTION COMPANY

COMMERCIAL QUALITY CODE	TOTAL NUMBER OF APPLICATIONS /TRANSACTIONS (A)	NUMBER OF THEM COMPATIBLE WITH STANDARD DURATION	NUMBER OF THEM NOT COMPATIBLE WITH STANDARD DURATION (B)	PERCENTAGE OF NOT COMPATIBLE ONES (%) (B/A*100)
1.1				
1.2				
2				
3				
4				
5.1				
5.2				
6				
7				
8				
9.1				
9.2				
10				

B) RETAIL SALE COMPANY

COMMERCIAL QUALITY CODE	TOTAL NUMBER OF APPLICATIONS / TRANSACTIONS (A)	NUMBER OF APPLICATIONS/ TRANSACTIONS SOLVED IN	NUMBER OF APPLICATIONS/ TRANSACTIONS NOT SOLVED IN STANDARD	APPLICATIONS/TRANSACTIONS NOT SOLVED IN STANDARD DURATION/ TOTAL APPLICATIONS/TRANSACTIONS (%) – (100xB/A)

		STANDARD DURATION	DURATION (B)	
1				
2*				
3				
4				
5				
6				
7				

*(A) parameter for this row is calculated by dividing total bills prepared by retail sale company by 1000. (B) parameter is number of recognized complaints. Last column is calculated for number of recognized complaints per 1000 users (1000xB/A).

C) OTHER COMMERCIAL QUALITY INDICATORS FOR DISTRIBUTION AND RETAIL SALE COMPANIES

1	Total number of users (A)	Total number of complaints (B)
2	Total telephone calls (A)	Number of calls replied in 30 seconds (B)

EXPLANATIONS:

1- These tables are filled in accordance with Table 6.

2- Total number of users mean total number of users at the beginning of the year to which table is related.

TABLE-9 LIMIT INTERRUPTION DURATIONS AND FREQUENCIES

LIMIT NAME	CLASS OF INTERRUPTION	URBAN USERS		RURAL USERS	
		LV	MV	LV	MV
LID (Hour)	Unnotified	48	24	72	36
LNI (Times)		56	56	72	72
LID (Hour)	Notified	24	16	32	24
LNI (Times)		6	4	8	6

EXPLANATIONS:

1- Limit values in this table can be amended annually by Board Resolution according to Article 16, paragraph 7.

TABLE-10 LIMIT VALUES FOR VOLTAGE HARMONICS

Single Harmonics				Double Harmonics	
Not Multiples of 3		Multiples of 3			
Harmonic Order h	Limit Value (%)	Harmonic Order h	Limit Value (%)	Harmonic Order h	Limit Value (%)
5 7 11 13 17 19 23 25	% 6 % 5 % 3,5 % 3 % 2 % 1,5 % 1,5 % 1,5	3 9 15 21	% 5 % 1,5 % 0,5 % 0,5	2 4 6…..24	% 2 % 1 % 0,5

TABLE-11 LIMIT VALUES FOR CURRENT HARMONICS ACCORDING TO MAXIMUM LOAD CURRENT (I_L)

Single Harmonics						
I_{SC}/I_L	<11	11≤h<17	17≤h<23	23≤h<35	35≤h	TDD
<20	4.0	2.0	1.5	0.6	0.3	5.0
20<50	7.0	3.5	2.5	1.0	0.5	8.0
50<100	10.0	4.5	4.0	1.5	0.7	12.0
100<1000	12.0	5.5	5.0	2.0	1.0	15.0
>1000	15.0	7.0	6.0	2.5	1.4	20.0
Double harmonics are restricted to 25 % of the value defined for the single harmonic after them.						

TABLE-12 LIMIT VALUES FOR FLICKER SEVERITY

Flicker Severity Index	Limit Values
P_{st}	≤ 1.0
P_{lt}	≤ 0.8

TABLE-13 LIST OF PLACES WHERE TECHNICAL QUALITY MEASUREMENT DEVICES CAN BE INSTALLED

A) FOR DEVICES TO BE INSTALLED IN MV LEVEL

Substation's (Transmission and other types)							Feeder's									
											Fed:					
											Majority of customers group	Number of distribution transformers	Urban		Rural	
Code number	Name	Type	City	District	E	N	Code	Name	Design	Short circuit current			Number of MV users	Number of LV users	Number of MV users	Number of LV users

EXPLANATIONS:

1-Code number is the unique expression to the substation with letters and numbers.
2-Type means TEİAŞ Transmission substations and other substation types.
3-E and N are latitude and longitude values in UTM 6° coordinate system.
4-Majority of customer group is the majority of customers fed by feeder.
5-Design means feeder's conductor/cable type.
6-Short circuit current calculated as three phase short circuit current.

B) FOR DEVICES TO BE INSTALLED IN LV LEVEL

Distribution transformer's								Feeder's				
						E	N					Fed:

Code number	Name	Type	City	District	Town/ Village			Code	Name	Design	Short circuit current	Majority of customers group	Number of urban LV users	Number of rural LV users

EXPLANATIONS:

1- Code number is the unique expression to the distribution transformer with letters and numbers.

2- Type means post or kiosk.

3- E and N are latitude and longitude values in UTM 6° coordinate system.

4- Majority of customer group is the majority of customers fed by feeder.

5- Design means feeder's conductor/cable type.

6- Short circuit current calculated as three phase short circuit current.

FIGURE 1: EFFECT OF QUALITY FACTOR ON REVENUE CAP