

**ANCILLARY SERVICE AGREEMENT FOR THE SUPPLY OF
REACTIVE POWER SUPPORT**

EXECUTED BY AND BETWEEN

**TEİAŞ
TURKIYE ELEKTRİK İLETİM A.Ş.
“*TURKISH ELECTRICITY TRANSMISSION COMPANY*”**

AND

ON / /

**ANKARA
..... 2010**

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This Ancillary Service Agreement for Supply of Reactive Power Support (“Agreement”) was entered into by and between Türkiye Elektrik İletim A.Ş. (in this Agreement it shall be referred to as “TEİAŞ”) and [.....] Power Generation Company (in this Agreement it shall be referred to as “The Power Generation Company”) according to the Law # 4628 on the Electricity Market Network Regulation and under the scope of ancillary services agreements on reactive control apparent in Article 44 of the Electricity Market Ancillary Services Regulation.

1. SUBJECT

The subject matter of this Agreement is to set out conditions under which the Power Generation Company shall supply reactive power support service at each power generation plant apparent under the scope of Ancillary Service Agreement on Supply of Reactive Power Service within Electricity Market Ancillary Services Regulation in order for regulating bus bar voltage of relevant plant at value specified by Regional Load Despatching Centre and/or System Operator until the expiry of this Agreement.

According to provisions of this Agreement, fee to be paid by TEİAŞ against reactive power support service supplied by the Power Generation Company is calculated according to formulation and provisions specified in Electricity Market Ancillary Services Regulation.

2. DEFINITIONS

In this Agreement;

- 1- **Law:** shall mean the Electricity Market Law # 4628,
- 2- **Regional Load Despatching Centre (BYTM):** shall mean control centre which is included in TEİAŞ and which monitors generation, transmission and consumption activities belonging to a certain region of transmission system and conducts coordination and control of operating manoeuvres,
- 3- **Being Out Of Service:** shall mean that a part of plant and/or equipment is automatically or manually put out of service due to maintenance, repair or any failure,
- 4- **Voltage Regulator:** shall mean the system that regulates output voltage of generators,
- 5- **Relevant Legislation:** shall mean law, legislation, communiqué, memorandum, license or licenses owned by relevant corporate entities by Board Decisions on Electricity Market,
- 6- **Installed Capacity:** In case of more than one unit, shall mean total nominal power of all units of that powerhouse,

- 7- **Legislation:** shall mean the entire legislation of Republic of Turkey, including but not limited to any Law, Bylaw, Legislation, Government, Ministry or Supreme Board Decisions, administrative transaction and acts, and licenses owned by parties which have binding affect on parties,
- 8- **National Load Despatching Centre (MYTM):** shall mean department which is included in TEIAS and which is responsible for balancing of electric power supply and demand real-timely and operation of system,
- 9- **Nominal Power:** shall mean reachable active power value of each unit at ISO and design conditions (1atm pressure, 15 Celsius degree temperature, 60% relative humidity, design inlet vapour pressure and temperature and condenser vacuum value, design net head amount), which is stated in generation license or specified in powerhouse acceptance records,
- 10- **System Operator:** shall mean National Load Despatching Centre,
- 11- **Party:** shall mean TEIAS or the Power Generation Company,
- 12- **Parties:** shall mean both TEIAS and The Power Generation Company,
- 13- **Technical Committee:** shall mean committee established by participation of two engineers from TEIAS and two engineers from The Power Generation Company for examination and inspection of damage incurred by TEIAS in case of non-fulfilment and/or breach of obligations by The Power Generation Company,
- 14- **TURKAK:** shall mean the Turkish Accreditation Body,
- 15- **ENTSO-E:** shall mean the European Networks Electric Transmission System Operators,
- 16- **The Power Generation Company:** shall mean the legal corporate entities carrying out the generation activities and TETAS,
- 17- **Capability Curve:** shall mean the graphic showing load capability of a unit as active and reactive power,
- 20- **Generator Nominal Power Factor:** shall mean the lowest power factor, generator design factor at which the relevant unit's generator reaches nominal MVA value,
- 21- **Bus bar:** shall mean the high voltage bus bar to which relevant power generation plant is connected,
- 21- **MVAR:** shall mean Mega Volt Amperage Reactive Power,
- 22- **Off-Load Tap Changer:** shall mean the tap changer which regulates raise/drop level on transformer and which can only be used when transformer is off-load position,
- 23- **On-Load Tap Changer:** shall mean the tap changer which regulates raise/drop level on transformer and which can also be used when transformer is on-load position,
- 24- **MKUD:** shall mean the Minimum Stable Generation Level.

All terms not covered by articles of this Agreement have meanings attributed to them by relevant Legislation.

3. OBLIGATIONS OF THE PARTIES

3.1. Obligations of The Power Generation Company

Within the frame of Electricity Market Ancillary Services Regulation, Electricity Market Network Regulation and terms and conditions of this Agreement, excluding off-times of The Power Generation Company's unit/nits apparent under ANNEX-2, in order to regulate bus bar voltage of each power generation plant under this Agreement at set value determined by BYTM and/or System Operator, each unit of power generation plants, at generator terminal;

- (a) Shall reach to imperative MVAR values to be determined as over excited or under excited and be put under record in ANNEX-2 within this Agreement at each point between nominal output power and minimum stable generation levels, when required and
- (b) The Power Generation Company shall, beyond mandatory values, provide reactive power support service also within limits of generator capability curve under operating conditions at that time in accordance with instructions of BYTM and/or System Operator.

In cases where reactive power support shall be provided beyond imperative MVAR values, if there is any difference above 10% of MVAR value observed on capability curve, between reactive power amount observed within the limits of generator capability curve and reactive power amount reached by The Power Generation Company under conditions at that time, TEIAS may request from The Power Generation Company to make explanation about causes of such difference and if necessary to conduct test and adjustment studies for review of protection factors like Over-Excited Limiter, Under-Excited Limiter, Stator Current Limiter, V/f Limiter in order for elimination of this difference. Performance of these test and adjustment studies in compliance with Article 4.2 and Article 5 under this Agreement is under the responsibility of The Power Generation Company.

3.2. Obligations of TEIAS

TEIAS is entitled to test power generation plants itself or through others to determine if such plants provide service in accordance with Electricity Market Network Regulation and their capacity to supply services under the Agreement;

- (a) Prior to completion of provisional acceptance procedures,
- (b) Prior to signing of Ancillary Service Agreement on Supply of Reactive Power Support and/or prior to addition of a new power generation plant to the scope of Agreement,

- (c) In cases where it is determined that a plant offering reactive power support service does not supply such service properly as a result of monitoring and controls made by TEIAS.

4. DEFINITION, CHARACTERISTICS OF THE SERVICE AND SUPPLY PROCESS

4.1. Definition and Characteristics of The Reactive Power Support Service

The Power Generation Company, in order to regulate bus bar voltage of relevant plant in each unit of power generation plants apparent under Ancillary Service Agreement on Supply of Reactive Power Support at set value designated by BYTM and/or System Operator, on generator terminal;

- (a) Shall, mandatorily, ensure ability of reaching reactive power values, corresponding to 0.85 power factor as over excited, 0.95 power factor as under excited according to that unit's nominal power, at every point between nominal output power and minimum stable generation levels, when required (Figure 1-2)
- (b) Shall, in cases where bus bar voltage cannot be regulated at required bus bar set value although these specified imperative values have been reached, give reactive power support service also within limits of generator capability curve under conditions at that time in accordance with instructions to be given by BYTM and/or System Operator, if required.

The Power Generation Company shall, for each unit existing in power generation plants listed in ANNEX-1 and in operation at the signing time of this Agreement, submit nominal power value designated in acceptance records or generation license of that unit, nominal power factor and MVA value of generator connected to that unit, cooling type and generator capability curve including such information to TEIAS under ANNEX-2 included in the Agreement. As a result of such information, in order to regulate bus bar voltage of generation plant, MVAR values expected to be reached on each unit when required as over or under excited shall be determined.

Details relating to unit/units providing reactive power support service shall be entered into record by parties under ANNEX-2 attached to this Agreement. Under the obligation of reactive power support service, The Power Generation Company shall not change values entered into record by parties during the course of service period, unless otherwise stated by TEIAS.

4.1.1. Exceptional Situations on The Determination of Imperative MVAR Value Expected to be Reached When Required to Regulate Bus Bar Voltage

- (a) When the power generation plants' project approval of which under the Provisional Clause 11 of Electricity Market Network Regulation had been given before 22.01.2003 by the Ministry of

Energy and Natural Resources or units of power generation plants affiliated to Elektrik Uretim A.S./Power Generation Company, enforcement date of the power generation plant construction agreement of which corresponds prior to 22.01.2003 are assessed in terms of MVA capacity of generator to be prepared within the legislation applicable at the time of project approval or enforcement date of power generation plant construction agreement and be submitted under ANNEX-2, nominal power factor of generator, generator capability curve including such information, cooling type and turbine nominal power, if it is understood under the light of information in ANNEX-2 that the unit shall not be capable to provide MVAR value which will correspond to 0,83 power factor as over excited and 0,95 power factor as under excited when unit supplies nominal output power to system, then imperative MVAR value expected to be reached at each point between nominal output power and minimum stable generation levels shall reassessed over specified parameters. (Figure 3)

- (b) The imperative MVAR value necessary to be reached when reached as over or under excited for power generation plants apparent under the scope of Provisional Clause 4 of Electricity Market Ancillary Services Regulation shall be MVAR value corresponding to power factors specified in Energy Sales Agreement signed with TETAS, and it shall be expected to reach this value at each point between nominal output power and minimum stable generation levels, even required (Figure 4).

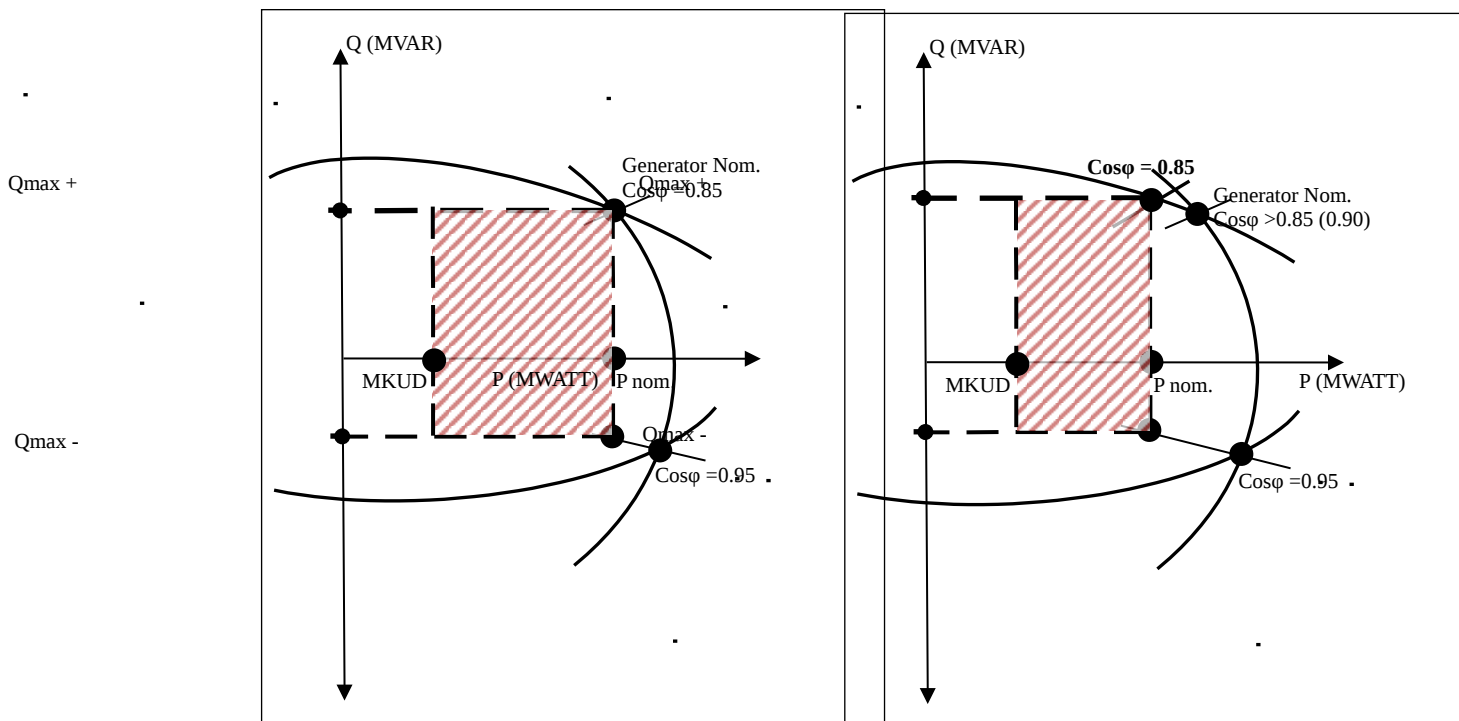


Figure 1-2: Cases where mandatory expectations are met

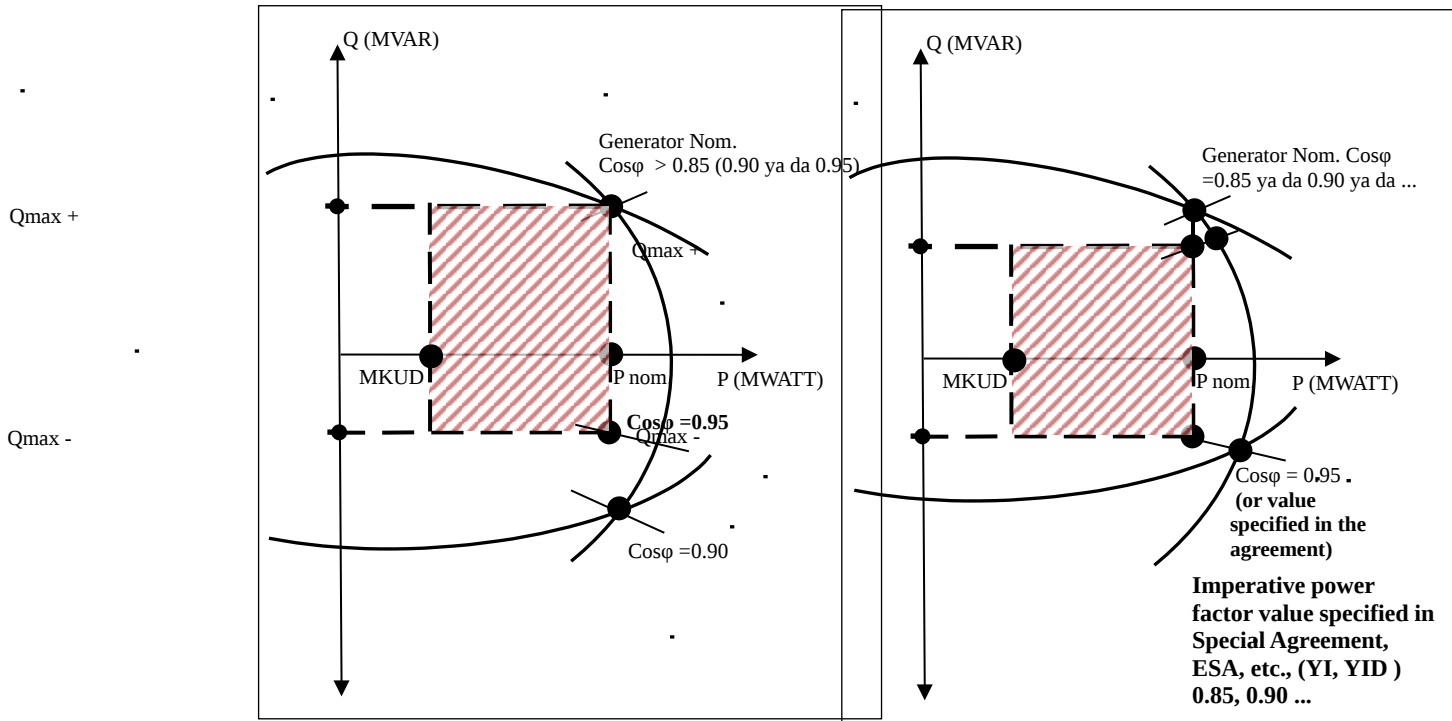


Figure 3-4: Exceptional situations which would occur while calculating the imperative MVAR value

4.1.2. Operating Principles and Performance Test Procedures for the Supply of Reactive Power Support Service

Operating principles and performance test procedures during the process of supplying reactive power support service shall be applied in the manner specified at www.teias.gov.tr, Part “Ancillary Services” in accordance with Electricity Market Network Regulation.

4.1.3. Operating Voltage Ranges and Requisite to Change Unit Transformer Steps

The imperative reactive power output of units should always be available within $\pm 10\%$ band range of nominal voltage of bus bar to which relevant plant is connected. Continuous operating range of generator terminal voltage should **never** be narrower than 95% and 105% band of nominal terminal voltage.

If the bus bar voltage cannot be regulated at set value because that specified imperative MVAR values have not been reached due to that limits of operating range of generator terminal voltage like V/f limiting, generator high voltage protection value have been reached during operation and this situation shows a continuity, in this case, unit’s off-load transformer tap changers are changed by means of providing necessary conditions through a coordination to be established between The Power Generation Company

and BYTM and/or System Operator. In line with the specified principles, use of on-load tap changers when required shall be under the responsibility of The Power Generation Company.

Similarly, if The Power Generation Company's inner need voltage reaches up to unacceptable levels while acting in the manner to regulate set value of specified bus bar voltage, By coordination to be provided between The Power Generation Company and BYTM and/or System Operator, inner need/service transformer off-load transformer tap changers may be changed through ensuring necessary conditions. In line with the specified principles, use of on-load tap changers when required shall be under the responsibility of The Power Generation Company.

4.2. Supply Process of the Reactive Power Support

For below stated plants amount power generation plants apparent under the scope of Ancillary Service Agreement on Supply of Reactive Power Support, bus bar voltage set value for bus bars of such power generation plants required to be regulated on hourly basis via PYS;

- (a) For those connected to 380 kV bus bar, day-ahead until 15.00 o'clock, by System Operator,
- (b) For those connected to bus bars at remaining voltage levels, day-ahead until 16.00 o'clock by relevant BYTM.

Notifications made by System Operator day-ahead until 15.00 o'clock with regard to voltage set value of 380 kV bus bars are approved by BYTM and communicated to relevant generation unit 16.00 o'clock. Power generation plant delivers its objections relating to notifications day-ahead until 17.00 o'clock to relevant BYTM; such objections are considered by BYTM, if deemed necessary.

Notifications made relating to bus bar voltage set value, if deemed necessary, may be updated by BYTM and/or System Operator within day in scheduled manner at least 15 minutes before relevant hour, and immediately in urgent restriction situations. It is essential that instructions and notifications sent via PYS must also be notified via phone within day in case of necessity.

The Power Generation Company shall, in order to regulate relevant generation plant's bus bar voltage at specified set value within the operating principles specified at Reactive Power Support Service Applications ling apparent under "Ancillary Services 1 section of www.tejas.gov.tr, on generator terminal,

- (a) Mandatorily, according to nominal power of that unit, ensure the ability of reaching reactive power factors corresponding to 0.85 power as over excited , and 0.95 power factor as under excited at each point between nominal output power and minimum stable generation levels, when required,

- (b) in cases where bus bar voltage cannot be regulated at required bus bar set value although these specified imperative values have been reached, give reactive power support service within limits of generator capability curve without affecting active power generation under conditions at that time in accordance with instructions to be given by BYTM and/or System Operator, if required.

As long as The Power Generation Company keeps bus bar voltage at relevant time zone [Set value of relevant time +/- 1.5% of Bus Bar Nominal Voltage] within control band, it shall be deemed to have provided reactive power support service.

In cases where bus bar voltage cannot be regulated at required control band, it shall be controlled if relevant units have reached to specified imperative MVAR values within the specified operating principles. If bus bar voltage has not been regulated because units have not reached to specified imperative MVAR values within %10 tolerance of these values, The Power Generation Company shall be deemed to have not provided reactive power support service.

In cases where bus bar voltage could not be regulated at requested control band although specified imperative MVAR values have been reached, by considering system situation and restrictions, BYTM and/or System Operator;

- (a) continues to operate system at current voltage level, if it deems that current level of bus bar voltage does not threat system security.
- (b) Requests from The Power Generation Company to provide reactive power support service within generator capability curves without affecting active power generation under operating conditions existing at that time in order to bring bus bar voltage to required range of value, if it deems that current level of bus bar voltage is a threat for system security.

If a reactive power requisite above imperative MVAR value occurs in order to regulate bus bar voltage even though aforementioned applications, BYTM and/or System Operator, based on generator capability curve, decides the need for load rejection instruction;

- (a) If BYTM and/or System Operator decides that there is no need for load rejection, requests from The Power Generation Company to act in the direction to regulate bus bar voltage by means of providing reactive power support beyond imperative MVAR value under current operating conditions.

- (b) If BYTM and/or System Operator decided that there is need for load rejection instruction, necessary output power variances are provided through load rejection offers submitted by relevant power generation plants under the scope of balancing power market of relevant power generation plants. Label value of instructions given within this scope is designated as 2 (two).

In cases where reactive power support beyond imperative MVAE value shall be provided, if there is a difference above %10 of MVAR value observed on capability curve between reactive power value observed at generator capability curve limits and reactive power value reachable by The Power Generation Company under operating conditions at that time or if difference occurred prevents fulfilment of expectations, TEIAS may request from The Power Generation Company to explain causes for this difference and if necessary to exercise test and adjustment studies for reviewing protection factors like Over Excited Limiter, Under Excited Limiter, Stator Current Limiter, V/f Limiter in order for elimination of this difference. Performance of these test and studies are under the responsibility of The Power Generation Company.

5. CERTIFICATES FOR THE REACTIVE POWER SUPPORT SERVICE

As per the provisions of ancillary services certification principles of Electricity Market Ancillary Services Regulation, it is essential for The Power Generation Company to evidence that each unit to supply reactive power support service has capability to offer such service through certificate for supply of reactive power support service and/or test report on reactive power support supply service. The basic information required to be provided contains nominal power value stated in relevant unit's acceptance records or generation license, nominal power factor and MVA value of generator connected to that unit, cooling type, generator capability curve including such information and if one of the control structures described within operating principles specified at Reactive Power Support Service Applications Link apparent under "Ancillary Services" at www.teias.gov.tr address or a different structure is used to regulate bus bar voltage, then control structure block chart showing that structure, used on unit/powerhouse basis.

Certificate for reactive power support service and/or test report on reactive power support supply service submitted shall ensure the compatibility of service to be given by unit/units with provisions of relevant legislation and the determination of reactive power capacity to be supplied.

Certificate for supply of reactive power support service and/or test report on supply of reactive power support service which is submitted to TEIAS before signing of this Agreement and attached herein shall, if it is discovered as a result of monitoring and controls specified in Article 8 of this Agreement that service could not be supplied in the proper manner by relevant generation plant, be renewed through performance

tests to be exercised by The Power Generation Company. All costs relating to performance tests shall be borne by The Power Generation Company. At request of TEIAS, if certificates for supply of reactive power support service are not renewed within 2 months by corporate entity, then existing certificates of such corporate entity are deemed invalid.

Certificates for reactive power support service and/or test report on reactive power support service being in force for power generation plants registered on the name of The Power Generation Company are given in ANNEX-4 under this Agreement. TEIAS is entitled to accept test reports, showing test results have been or to be conducted and prepared in accordance with report form designated by TEIAS in substitution for reactive power support service certificate until companies to conduct performance tests with regard to reactive power support are accredited by TURKAK. Reactive power support service test procedure and test report form are given at Reactive Power Support Service Applications Link apparent under “Ancillary Services” section at www.teias.gov.tr” address.

6. PRICING OF THE REACTIVE POWER SUPPORT SERVICE

The fee to be paid to The Power Generation Companies for one invoice period against reactive power support service provided in accordance with Ancillary Service Agreement for Supply of Reactive Power Support shall be calculated pursuant to provisions relating to pricing of reactive power support service of Electricity Market Ancillary Services Regulation.

As per the Electricity Market Network Regulation and Electricity Market Ancillary Services Regulation, non-payment of any fee to The Power Generation Company against contribution to reactive power support service through providing specified MVAR values within operating principles at power generation plants under the scope of Ancillary Service Agreement for Supply of Reactive Power Support constitute basis.

In circumstances specified in Article 4.2 Supply Process of Reactive Power Support Service under the Agreement, when there is a need to reduce active power output, necessary output power variances are provided through load rejection offers submitted by relevant power generation plants under balancing power market. Within this scope, fee to be paid to The Power Generation Company for each invoicing period against active output power variances in accordance with Ancillary Service Agreement for Supply of Reactive Power Support is evaluated under balancing power market and treated under Articles 46 and 47 of Electricity Market Ancillary Services Regulation.

Provisions of Electricity Market Ancillary Services Regulation on penal sanctions for reactive power control service are applied to those power generation plants not fulfilling instructions notified to it in the manner specified, without any valid reason acceptable by System Operator.

7. INVOICING AND PAYMENT

Invoicing and payment processes relating to penalties applied to payments required to be made to The Power Generation Companies supplying reactive power support against service provided and to obligations that they have not fulfilled, are conducted within the frame of provisions relating to notifications, invoicing and payments stipulated by Electricity Market Ancillary Services Regulation, starting from invoicing period that follows the invoicing period in which such service has been provided. As per the provisions of Electricity Market Ancillary Services Regulation, payment notices announced via PYS shall be considered as notification.

Invoices to be billed to TEIAS by The Power Generation Companies for the reactive power support service shall be prepared in Turkish Lira (TL), and shall be in invoice form to be provided by TEIAS.

For invoices which are not paid in due time, a default interest shall be applied. This rate is default interest designated according to Article 51 of Law on Procedures of Collection of Public Receivables no. 6183.

8. RECORD, MONITORING AND CONTROL

It is essential that power generation plants to supply reactive power support must be traceable by relevant BYTM to which plant is affiliated in a manner to provide characteristics defined in Electricity Market Network Regulation and Electricity Market Ancillary Services Regulation. The Power Generation Company is obliged to provide necessary software and hardware for establishment of connection to realize data exchange via monitoring system of TEIAS. The Power Generation Company shall make connection of Remote Terminal Unit (RTU) to be installed within power generation plants in order to provide necessary data exchange between TEIAS Load Despatching Centre and relevant power generation plant for controllability and traceability of such service via SCADA System of TEIAS.

The Power Generation Company is obliged to provide evidence on at least three months service supply situation of unit/units to provide reactive power support service retrospectively. Data to be submitted should at least meet those requirements given in ANNEX-3.

TEIAS is entitled to test at any time if power generation plants provide service in accordance with provisions of Electricity Market Network Regulation and Electricity Market Ancillary Services Regulation and if they are capable to provide reactive power support service itself or through others.

As a result of monitoring or controls made by TEIAS, if it is determined that a power generation plant has not provided service in the proper manner, within the frame of principles specified in relevant ancillary

services Agreement, TEIAS may request from relevant plant to renew its certificates on supply of reactive power support service.

Until the establishment of necessary monitoring and control system to be installed by TEIAS, monitoring and control of relevant power generation plants are conducted by BYTM on minimum monthly basis by way of using records submitted by relevant plants in the manner to meet requirements under ANNEX-3, notices given by The Power Generation Company, System Operator and/or BYTM via PYS, existing SCADA System of TEIAS and other means.

BYTMs control reactive power output provided by power generation plants, supplying reactive power support, before step-up transformer for situations selected with sampling method from situations in which voltage value of bus bar to which power generation plant is connected at real-time stays out of control band. If it is determined that reactive power support service has not been provided in the proper manner within relevant hours for controlled situations, penal sanctions of Electricity Market Ancillary Services Regulation relating to reactive power support service are applied.

The Power Generation Company shall send records relating to participation statute in reactive power support service to BYTM in electronic form and at intervals as specified by TEIAS.

If requested by BYTM, unit output power, reactive power before step-up transformer, generator terminal voltage of unit and bus bar voltage information for each unit in requested time zone shall be transferred into graphic medium and then sent to BYTM in form designated by the same, as being on the same page.

9. EXPIRATION OF THE AGREEMENT

This Agreement shall automatically expire in case of the occurrence of any one of the below stated situations:

- (a) If The Power Generation Company is not any longer subject to the Electricity Market Balancing and Settlement Regulation,
- (b) Expiry of The Power Generation Company's right to connect transmission system or to use transmission system as per the Communiqué on Connection to Transmission and Distribution Systems and System Usage in Electricity Market,
- (c) Expiry or cancellation of all generation licenses granted to The Power Generation Company pursuant to Law and listed in ANNEX-1,
- (d) Non-existence of any power generation plant that is obliged to participate in reactive power support service within the scope of Electricity Market Ancillary Services Regulation under this Agreement.

Expiry of this Agreement does not affect any right and obligations of parties that are owned by them at the time of expiry.

10. SETTLEMENT OF DISPUTES

This Agreement shall be constructed and governed according to Laws of Republic of Turkey. For all disputes to arise from this Agreement, Ankara Courts and Execution Offices shall have jurisdiction.

11. TRANSFER

The Power Generation Company may, by no means of manner, transfer its right and obligations arising from this Agreement or act with the intention of transfer, without written permission of TEIAS.

12. CONFIDENTIALITY

The Parties are obliged to take necessary measures for keeping documents with importance in commercial terms owned by them and not to disclose such information to their own affiliates and/or third persons, including corporate entities that are their stakeholders as a result of application of relevant regulation or via market activities or other ways.

Below listed situations form exemption of this provision:

- (a) Acquisition of such information by public without fault of parties,
- (b) Occurrence of a necessity to disclose as per any legal obligation.

13. INTELLECTUAL PROPERTY RIGHTS

Unless otherwise any agreement is made, until the expiration of this Agreement, ownership of all intellectual property rights developed or presented with regard to subject matter of the Agreement by employees, authorized representatives or consultants of either parties shall belong to such party.

14. FORCE MAJEURE EVENTS

In case of the non-fulfilment of obligations under this Agreement due to force majeure events stated in Electricity Market License Regulation, all obligations affected during the course of continuation of force majeure event and its effects and prevention of fulfilment of such obligations may be suspended based on procedure apparent in Electricity Market License Regulation.

The party who is not capable to fulfil its obligation due to a force majeure event shall inform other party in written about start date of force majeure event, its extent, impact on his obligations under the scope of license and if possible, estimated time for elimination of its effects, measures taken to correct such

situation, and regular reports containing up-to-date information within 5 days from the start date of force majeure event. Document/documents evidencing force majeure event shall be submitted to other party within 15 days from receiving of written demand to submit official document/documents evidencing force majeure event.

15. AMENDMENT TO THE AGREEMENT

Amendment to the Agreement provisions may only be made via the additional protocols to be executed between parties. Additional protocols enter into force at signing date in the manner in which this Agreement came into force, and are considered as an integral part of Agreement.

16. WAIVER

Unless parties waive from their rights in written, delay in exercising rights under relevant legislation and this Agreement within a reasonable period of time does not remove such rights partially or wholly and does not mean a waiver from these rights. Partial exercise of a right does not impede the use of this right or any other right in the future.

17. NOTIFICATIONS

Notification addresses and other contact information of parties are given below.

Turkiye Elektrik Iletim A.S.

Address:

Fax: Phone: Internet Address: www.teias.gov.tr

.....A.S.

Address:

Fax: Phone: Electronic Mail:

Notifications are served according to procedures stipulated in the provisions of Electricity Market Ancillary Services Regulation and this Agreement. In case of any change in notification addresses, Parties shall inform other party in written about address change within three business days prior to realization of such change. If this notification is not served within given period, notifications served to existing last address shall be deemed valid.

Address change of TEIAS shall be notified by way of announcing in official gazette and/or a national newspaper and on internet page of TEIAS.

18. VALIDITY OF THE AGREEMENT AT PARTIAL NULLITY

If it is determined that any provision of this Agreement is void, null, invalid, and unenforceable or contrary to legislation; this situation does not abolish the validity of other provisions of this Agreement partially or wholly. However, if enforceability of Agreement shall become impossible or existence of Agreement shall not endure due to that provision became void, the Agreement shall be deemed invalid.

19. COMPATIBILITY TO THE LEGISLATION

Legislative amendments which would be made to legislation applicable by the enforcement date of this Agreement shall be binding for parties.

20. PENAL SANCTIONS

As per the provisions of Electricity Market Ancillary Services Regulation on penal sanctions for reactive power support service, in case of the occurrence of any situation requiring penal sanction, the provisions of said article are applied.

21. INDEMNITY

In case of the non-fulfilment and/or breach of obligations arising from this Agreement by The Power Generation Company, damages to be incurred by TEIAS determined by technical committee shall be under the responsibility of The Power Generation Company, and it is obliged to indemnify all damages incurred by TEIAS.

22. ENTIRE AGREEMENT

This Agreement constitutes a whole together with its ANNEXES, and binds TEIAS and The Power Generation Company. However, in case of any conflict or difference between the provisions of Agreement and the provisions of attached document, then the provisions of Agreement are taken as basis.

23. AGREEMENT EXPENSES

All tax, charge and fees arising from signing of the Agreement shall be paid by The Power Generation Company.

24. GOVERNING LAW

This Agreement is subject to legislation of the Republic of Turkey.

25. REQUIREMENTS FOR ENFORCEMENT

This Agreement enters into force when signed by parties. This Agreement consists of 25 Articles and 5 ANNEXES, and signed on .../.../2011 as 1 copy by the Company Representatives of TEIAS and The Power Generation Company after it has been read and understood and maintained by TEIAS. A copy is given to The Power Generation Company upon request.

TEIAS - TURKIYE ELEKTRIK ILETIM A.S'
GENERAL DIRECTORATE

POWER GENERATION COMPANY

ANNEXES

ANNEX-1 Power generation plants

ANNEX-2 Power generation plant and Unit Data

ANNEX-3 Characteristics of Data to be submitted

ANNEX-4 Certificate for the Reactive Power Support Service or Test Report for Reactive Power Support Service

ANNEX-5 Letter of Commitment

ANNEX-1 POWER GENERATION PLANTS

Power generation plants of The Power Generation Company which will render reactive power support supply service as per the Electricity Market Ancillary Services Regulation are listed below.

Name of Generation Plant	Installed Capacity (MW)

ANNEX-2 POWER GENERATION PLANT AND UNIT DATA*

Name of generation plant :.....

Name of Corporate Entity to whom generation plant is affiliated :.....

Unite Code :.....

Nominal power of unit (Value stated in acceptance records or Generation license) (P_{nom}) :..... MW

Minimum stable generation level of unit :..... MW

Nominal MVA value of generator :..... MVA

Nominal terminal voltage of generator :..... kV

Nominal voltage of bus bar to which generator is connected :..... kV

Nominal power factor value of generator :.....

Cooling type of generator :.....

Reactive power capacity at over excited zone ($Q_{max +}$) :..... MVar

Reactive power capacity at under excited zone ($Q_{max -}$) :..... MVar

Reactive Power Capacity Variances of Unit (MVar) (Based on Generator Capability Curve)

	Maximum Reactive Power Amount (MVar)	
	Under Excited Zone	Over Excited Zone
$P_{nom} \times \%100$		
$P_{nom} \times \%75^{**}$		
$P_{nom} \times \%50^{**}$		
MKUD		

*To be prepared for each unit.

**Two different points between MKUD and nominal power.

Step-up transformer nominal primary voltage :.....kV

Step-up transformer nominal secondary voltage :.....kV

Step-up transformer nominal MVA :.....MVA

Step-up transformer impedance (%) :.....

Step-up transformer X/R rate :.....

Step-Up Transformer Level Data

Level	Secondary Voltage (kV)
1	
2	
3	
4	
5	

Documents to be attached to the Agreement by The Power Generation Company:

- Generator capability curve of unit,
- Force majeure events in its license/Agreement,
- Test reports evidencing reactive power support capability obtained in acceptance tests,
- Control structure block chart, used on unit/powerhouse basis to regulate bus bar voltage

ANNEX-3 CHARACTERISTICS OF DATA TO BE SUBMITTED

TEIAS is entitled to require below given data from power generation plants in order for determining if reactive power support service is supplied.

The Power Generation Company shall, in order for monitoring of reactive power support service, provide data determined by TEIAS together with information at measurement time in the manner to be specified by TEIAS for services devoted to recording and reporting purposes. For this purpose, data designated by TEIAS shall be measured and recorded during period in which contractual ancillary services are provided uninterruptedly. Any kind of device, equipment, hardware and software to be required to provide such data and reporting shall be selected and installed by The Power Generation Company. Any tool-appliance necessary for installation, cabling and assembly works shall again be provided by The Power Generation Company.

The Power Generation Company shall provide necessary software and hardware in a manner to allow connection and remote access for realizing data exchange via monitoring and control system to be installed by TEIAS.

The Power Generation Company shall, unless otherwise specified by TEIAS, in addition to primary frequency control and secondary frequency control, measure data to be recorded for reactive power support service (active output power, reactive output power (generator terminal), bus bar voltage, bus bar voltage set value, generator terminal voltage) in a manner to be at least 1 data per minute and shall put under record together with information at measurement time. The Power Generation Company shall put at least below given data with regard to reactive power support service in the specified manner.

S/N	Signal Name	Sampling Time
1	Bus bar voltage (kV)	0 ... 60 sec.
2	Active output power of unit (MW)	0 ... 60 sec.
3	Reactive output power of unit (generator terminal) (MVar)	0 ... 60 sec.
4	Generator terminal voltage of unit (kV)	0 ... 60 sec.
5	Reactive power of unit at connection point after step-up transformer	0 ... 60 sec.
6	Bus bar voltage set value	0 ... 60 sec.

For establishment of data basis to payment notifications prepared by TEIAS and realization of control activities, The Power Generation Company shall send records relating to participation situation in reactive

power support service in electronic formats and at intervals specified by TEIAS to BYTM within the principles determined by TEIAS.

**ANNEX-4 CERTIFICATE FOR THE REACTIVE POWER SUPPORT SERVICE OR TEST
REPORT FOR REACTIVE POWER SUPPORT SERVICE**

ANNEX-5 THE LETTER OF COMMITMENT

I/we hereby commit that I/we shall supply reactive power capacity, providing supplying of nominal output via automatic voltage regulator among imperative power factors in accordance with Electricity Market Network Regulation, Electricity Market Ancillary Services Regulation and provisions of this Agreement and that in case of instruction given by BYTM and/or System Operator, shall render ancillary service relating to reactive power support supply according to instructions during the course of this Agreement.

THE POWER GENERATION COMPANY