

**SECONDARY FREQUENCY CONTROL
SERVICE AGREEMENT**

BETWEEN

**TEIAS
TURKISH ELECTRICITY TRANSMISSION CO. INC.**

AND

DATED/....../.....

**ANKARA
..... 2009**

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Herein the Secondary Frequency Control Service Agreement (“Agreement”) was concluded between Turkish Electricity Transmission Company (hereafter will be called as “TEIAS”) and (.....) Generation Company (hereafter will be called as “Generator”) in accordance with the Law no. 4628, Electricity Market Grid Code and Electricity Market Ancillary Services Regulation.

1. SCOPE

The scope of the Agreement consists of provision of secondary frequency control service by the Generator to TEIAS within the scope of Electricity Market Ancillary Services Regulation, within the frame of below mentioned principals until the end of the Agreement. According to this;

System Operator will provide secondary frequency control reserve in accordance with the provisions of Electricity Market Grid Code, via;

- (a) capacities remaining from FDGS and primary frequency control reserve amount and/or
- (b) capacities formed by up-regulation, down-regulation instructions to provide secondary frequency control response

of generation facilities that take place within the scope of secondary frequency control service agreement.

Generation facilities that are selected by the System Operator to provide secondary frequency control service will provide secondary frequency control reserve amount notified to them and they will give secondary frequency control response within the frame of signals sent by automatic generation control program in the NLDC.

According to provisions of this Agreement, payment regarding secondary frequency control service provided by Generator will be made by TEIAS on the price reflecting average opportunity cost in accordance with Electricity Market Ancillary Services Regulation.

2. DEFINITIONS

For the purposes of this Agreement, the following terms shall bear the following meanings:

- 1- **Law:** Electricity Market Law no. 4628
- 2- **Outage:** Automatic or manual outage of a part of the plant and/or equipment due to maintenance, repair or fault,
- 3- **FDGS:** Final day ahead generation/consumption schedule that is submitted as part of Balancing Power Market as per Electricity Market Balancing and Settlement Regulation,

- 4- **Relevant Legislation:** Laws, regulations, communiqués, circulars and Board decisions regarding electricity market and licenses of the related legal entities,
- 5- **Legislation:** Whole Turkish Republic Legislation including but not limited to Law, Bylaw, Regulation, Government Ministry or Supreme Board Decisions, administrative processes or operations, the licenses acquired by the Parties,
- 6- **National Load Dispatch Center (NLDC):** The unit under the body of TEIAS in charge of real-time balancing of electricity demand and supply and system operation,
- 7- **Party:** TEIAS or Generator,
- 8- **Parties:** TEIAS and Generator,
- 9- **Technical Commission:** Commission that is established with the participation of four engineers two of which from TEIAS and the other two are from Generator for the survey and assessment of the loss of TEIAS in case Generator does not fulfill and/or violate its obligation,
- 10- **TURKAK:** Turkish Accreditation Agency,
- 11- **UCTE:** Union for the Co-ordination of Transmission of Electricity,
- 12- **Generator:** Legal entities engaged in generation activity and TETAS.

All terms that are not defined in this article of the Agreement have meanings that are defined within the scope of the relevant Legislation.

3. OBLIGATIONS OF THE PARTIES

3.1. Competency to Provide Secondary Frequency Control Service

Within the frame of provisions and conditions indicated in Electricity Market Ancillary Services Regulation, Electricity Market Grid Regulation and this Agreement, all units/blocks/plants of Generator that take place in the scope of Appendix 2 will be competent to provide secondary frequency control service as indicated in Electricity Market Grid Code via the system/interface that takes and processes the signals sent by automatic generation control program in the NLDC, except the times when they were out of service.

TEIAS is authorized to test and make someone do test to question whether generation facilities are providing service pursuant to Electricity Market Grid Code and whether they have the competence of providing services subject to Agreement;

- (a) prior to completion of the procedures regarding provisional acceptance,
- (b) prior to signature of secondary frequency control service agreement and/or inclusion of a new generation facility in the scope of Agreement,
- (c) within the procedures and periods indicated in the Article 5 of this Agreement,

- (d) when it is determined, as a result of monitoring or controls carried out by TEIAS, that a facility providing secondary frequency control service does not provide the service as required.

3.2. Provision of Secondary Frequency Control Service

In order to reach nominal value of the system frequency and programmed value of total electricity power exchange with neighboring electricity grids, Generator will provide secondary frequency control service as per provisions of this Agreement in accordance with the provisions of Electricity Market Ancillary Services Regulation and Electricity Market Grid Code. Generation facilities that are instructed to provide secondary frequency control service will augment or diminish its active power outputs via;

- (a) capacities remaining from FDGS and primary frequency control reserve amount and/or
- (b) capacities composed of up-regulation, down-regulation instructions to provide secondary frequency control response,

by the system/interface that takes and processes signals sent by automatic generation control program in the NLDC. Generation facility's participation in the secondary frequency control shall not have a performance-reducing impact on the primary frequency control.

Generation facilities instructed by the System Operator to provide secondary frequency control service will continuously provide notified secondary frequency control reserve amount without any interruption.

Generator is responsible for making necessary adjustment in the control system to provide notified secondary frequency control reserve amount, and receiving approval of the NLDC. Covenant regarding provision of secondary frequency control reserve amount by the Generator takes place in the Appendix 6.

4. DEFINITION OF THE SERVICE, ITS SPECIFICATIONS AND PROVISION PROCESS

4.1. Definition of the Primary Frequency Control Service and Its Specifications

The definition and characteristics of the Secondary Frequency Control Service are as indicated in the Electricity Market Grid Code.

All the parameters regarding this Agreement are determined and implemented in accordance with Electricity Market Grid Code and relevant legislation. TEIAS reserves the right to amend parameters within the scope of this Agreement in parallel with the amendments that will be made in the Electricity

Market Grid Code and the relevant legislation to meet UCTE criterion and to guarantee the safety and high quality of the operation of Turkish Electricity Grid

Generator will provide Secondary Frequency Control service within the operation interval of the unit/block/plant as part of Electricity Market Grid Code. Operation interval of the unit/block/plant is indicated in the Appendix 2 of this Agreement.

All the settings regarding the unit/block/plant providing secondary frequency control will be recorded by the Parties within the scope of the Appendix 2 of this Agreement. Unless otherwise is stated by TEIAS, Generator will not change the values that are recorded within the scope of secondary frequency control service obligation throughout the period when the service is provided.

Generator will provide information indicated in the Appendix 2 on the basis of unit/block/plant providing secondary frequency control service for each generation facility that is within the scope of this Agreement and listed in the Appendix 1. Minimum and maximum secondary frequency control reserve capacity mentioned in MW terms in the Appendix 2 has one per cent sensitivity.

4.2. Operating Principles Regarding Secondary Frequency Control

Secondary Frequency Operating Principals are as indicated in the Electricity Market Grid Code.

4.3. Process Regarding the Provision of Secondary Frequency Control Service

System Operator determines generation facilities; which will provide secondary frequency control service for each hour of the following day, among generation facilities that are within the scope of the secondary frequency control service agreement, via secondary frequency control module of MMS. System Operator gives instructions to generation facilities that will provide secondary frequency control service regarding secondary frequency control reserve amount they are obliged to provide. Instructions given by the System Operator regarding secondary frequency control shall be within the limits of secondary frequency reserve capacity of related generation facility as indicated in the Appendix 2 of this Agreement.

System Operator determines secondary frequency control reserve amount by excluding FDGS and primary frequency control reserve amount of the generation facilities that are valid for the related hour of the related day. Summation of the notifications regarding FDGS value, primary frequency control reserve amount and instructions regarding secondary frequency control reserve amount for a generation facility, cannot exceed total available capacity of the generation facility regarding the related hour. Instructions regarding secondary frequency control reserve amount given by the System Operator shall be realizable within the frame of predictable conditions.

Within the frame of the provisions of this Agreement, Generator provides secondary frequency control service within the limits of secondary frequency control reserve capacity of the related facility in line with the instruction given by the System Operator. In case of need, System Operator can notify up-regulation, down-regulation instructions to the relevant balancing entities to form capacity for provision of secondary frequency control response from generation facilities within the scope of the secondary frequency control service agreement. Generator receives payment regarding the service provided, within the frame of Electricity Market Ancillary Services Regulation.

5. SECONDARY FREQUENCY CONTROL SERVICE CERTIFICATES

As per provisions of Electricity Market Ancillary Services Regulation regarding ancillary services certificates, Generator shall certify via secondary frequency control service certificate that each unit/block/plant, through which Generator will provide secondary frequency control service, have capability to provide primary frequency control service.

Submitted secondary frequency control certificates will enable to determine the consistency between the relevant legislative provisions and the secondary frequency control service provided by the unit/block/plant, parameter values that are supposed to be provided and Secondary Frequency Control Reserve Capacity that unit/block/plant can provide.

Secondary frequency control service certificates that are submitted to TEIAS before signing this Agreement and that are indicated in the Appendix of this Agreement will be renewed once in three years along with the performance tests carried out by the Generator. TEIAS can ask for the renewal of the secondary frequency control service certificates in advance, as a result of the monitoring and controlling processes indicated in the Article 8 of this Agreement. Existing certificate of the legal entity shall be deemed void in case legal entity does not renew its secondary frequency control service certificate within 2 months when required by TEIAS.

All secondary frequency control service certificates that are valid for generation facilities registered to Generator take place in the Appendix 4 of this Agreement. TEIAS is authorized to accept test reports that are prepared in accordance with the standard report sample determined by TEIAS and shows the results of the tests that have been made and that will be made in accordance with Electricity Market Grid Code in place of secondary frequency control service certificate until the time when firms which will make secondary frequency control performance tests will be accredited by TURKAK. Minimum terms that are required to be included in test report prepared in consequence of secondary frequency control tests that are made with the participation of employees of TEIAS and related firm by sending set-point signals from AGC Program located in the NLDC, are indicated in the Appendix 5.

6. PRICING OF SECONDARY FREQUENCY CONTROL SERVICE

Generators are paid by TEIAS upon the price reflecting average opportunity cost for their generation facilities selected to provide secondary frequency control service. Average opportunity cost is calculated for the hours when the system is in the direction of up-regulation according to difference between the weighted average of hourly offer prices given for generation facility and the hourly System Marginal Price for the related hour that is calculated within the scope of the Balancing Power Market..A separate opportunity cost payment is not made for the capacity formed by up-regulation, down-regulation instructions to provide secondary frequency control response. Even though it takes part in this agreement, generation facilities that are not given instructions to provide secondary frequency control service are not paid regarding secondary frequency control.

Payment amount for an invoicing period that will be paid to the Generators, who have provided secondary frequency control service in accordance with the secondary frequency control service agreement, will be calculated pursuant to provisions of the Electricity Market Ancillary Services Regulation regarding pricing of secondary frequency control service.

In case, any settlement aggregation entity qualified as generation facility registered to Generator does not provide its obligation regarding secondary frequency control reserve amount for an invoicing period, provisions regarding penal sanctions concerning secondary frequency control service indicated in the Electricity Market Ancillary Services Regulation are imposed to the Generator for the related invoicing period.

Energy shortage or energy surplus emerging as a result of the provision of secondary frequency control service will be evaluated within the scope of energy imbalance pursuant to provisions of Electricity Market Balancing and Settlement Regulation.

7. INVOICING AND PAYMENT

Invoicing and payment processes regarding payments that is needed to be made to Generators providing secondary frequency control service are carried out pursuant to provisions regarding notifications, invoicing and payments indicated in the Electricity Market Ancillary Services Regulation, by starting from the invoicing period that follows invoicing period when the service is provided. According to provisions of the Electricity Market Ancillary Services Regulation, payment notifications made via MMS will be accepted as official communication.

Invoices regarding secondary frequency control service that will be made out to TEIAS by the Generators will be arranged at Turkish Lira (TL) and will be prepared in the invoicing format determined by TEIAS.

Default interest rate that is determined according to Article 51 of the Law on Collection Procedures of the Assets no. 6138 is applied on daily basis for invoices that are not paid on time.

8. RECORDING, MONITORING AND CONTROLLING

Generation facilities that will provide secondary frequency control service shall be observable by the NLDC so as to meet qualifications indicated in the Electricity Market Grid Code and Electricity Market Ancillary Services Regulation. Generator is obliged to provide software and equipment required for the connection made for data exchange with TEIAS's monitoring system.

In order to enable controlling and monitoring the mentioned service via TEIAS's SCADA/EMS System, the Generator will make the connection between the TEIAS's SCADA System and Remote Terminal Unit (RTU) or Distributed Control System (DCS) in the generation facilities for the purpose of data exchange needed between TEIAS Load Dispatch Center and generation facility.

Generator is obliged to certify retroactive service provision status for at least 3 months regarding the unit/block/plant which will provide secondary frequency control service. Data that will be submitted in addition to data in the primary frequency control service agreement shall at least ensure conditions described in Appendix 3.

TEIAS is entitled to test or to get someone test at any time to question whether generation facilities provide services pursuant to provisions of the Electricity Market Grid Code and Electricity Market Ancillary Services Regulation, and whether they have the competence of providing secondary frequency control service.

Active power output values of the unit shall be within the \pm % 1 tolerance level of set-point sent by the automatic generation control program. TEIAS can ask for the renewal of the secondary frequency control service certificate of the related facility in case it is determined within the frame of the provisions of ancillary services agreement, as a result of monitoring or controlling processes undertaken by TEIAS, that generation facilities providing secondary frequency control service do not provide the service as required.

Until the establishment of the required monitoring and controlling system by TEIAS, monitoring and controlling of the generation facilities that provide secondary frequency control service will be carried

out maximum on a monthly basis, by the NLDC with the help of the related facilities' records, notifications made to the System Operator by the Generator regarding availability of the generation facilities, TEIAS's current SCADA/EMS system and other means. Generator will send the records regarding participation to secondary frequency control to the NLDC in electronic format and within the period determined by TEIAS. All information and related curves such as frequency and unit output power anticipated to be recorded in the plant for stated purpose will be sent in the same page in electronic format determined by NLDC for requested time interval by transferring them to the graphic context, if required by the NLDC.

9. DISCHARGE OF AGREEMENT

This Agreement will automatically discharge when any conditions given below are realized:

- (a) In case Generator is no longer dependent on Electricity Market Balancing and Settlement Regulation,
- (b) In case of termination of the rights of the Generator to connect or use transmission system; as per the Communiqué Regarding Connection to Transmission and Distribution Systems in Electricity Market and System Usage,
- (c) In case of termination or cancellation of all generation licenses given to the Generator within the frame of Law and indicated in the Appendix 1.
- (d) When no generation facility that is obliged to participate in secondary frequency control within the frame of Electricity Market Ancillary Services Regulation remains, as part of this Agreement.

Termination of this Agreement does not affect rights and obligations of the Parties that they had acquired as of termination date.

10. RESOLUTION OF DISPUTES

This Agreement will be interpreted and enforced according to legislations of the Turkish Republic. Ankara Court and Bailiff Departments are entitled for disagreements regarding this Agreement.

11. TRANSFER

Under no circumstances Generator can transfer or acts with the intention of transferring its rights and obligations resulting from this Agreement without a written permission of TEIAS.

12. CONFIDENTIALITY

Parties are obliged to take necessary precautions to keep private information with commercial importance acquired through implementation of the relevant legislation or market activities or through

any other possible way, and not to declare it to the third persons including legal entities who are their own association and/or shareholder.

Following conditions are the exceptions for this provision:

- (a) The situation when mentioned information is learned by community without any specific fault of the parties,
- (b) Emergence of the necessity to declare the information as part of a legal obligation.

13. INTELLECTUAL RIGHTS

If a counter agreement is not made, all intellectual rights related to the Agreement that are presented and developed by one of the employees, authorized representatives or consultants who are working for one of the parties, will be held by the concerned Party.

14. FORCE MAJEURE

In case obligations within the context of this Agreement cannot be fulfilled related to force majeure indicated in the Electricity Market License Regulation, affected obligations can be suspended with the procedure indicated in the Electricity Market License Regulation during the period when the force majeure or its effects continue and when it prevent the fulfillment of the obligations.

The party that cannot fulfill its obligations as a result of a force majeure will notify other Party in written within 5 days as of the starting date of the force majeure about the date when force majeure commenced, its nature, its effects on its obligations as part of license, approximate overcoming duration of the effects if such a thing is possible, precautions taken to overcome this situation and regular reports that includes up-to-date information. Document/documents confirming the force majeure will be submitted to the other Party within 15 days as of the written notification regarding official document/documents proving the force majeure is received.

15. AMENDMENT OF AGREEMENT

Amendment of the provisions of the Agreement can only be made through the supplementary protocols made among the Parties. Supplementary protocols become effective according as the entry into force of this Agreement when it is signed by the Parties and they are accepted as the inseparable parts of the Agreement.

16. WAIVER

Unless parties do not waiver their rights in written, a reasonable delay in the implementation of the rights within the frame of the relevant legislation and in this Agreement does not result in losing the

rights in part or in whole and that is not mean to waiver these rights. Exercising a right in part does not constitute an impediment for exercising this right or another right in the future.

17. NOTIFICATIONS

Correspondence addresses and other contact information of the parties are as follows:

Turkish Electricity Transmission Co.Inc.

Address:

Fax: Phone: Web Site: www.teias.gov.tr

.....Co. Inc.

Address:

Fax: Phone: E-mail:

Notifications are made upon the procedures in accordance with the provisions of Electricity Market Ancillary Services Regulation and this Agreement. In case there is a change in the notification address, parties will notify other party in written regarding change of address within three working days before it happens. If this notification is not made, correspondence sent to last existing address will be valid.

The change in TEIAS’s address will be notified via publishing on the Official Gazette and/or a local gazette, and on TEIAS’s official web site.

18. VALIDITY OF THE AGREEMENT IN CASE OF PARTIAL NULLITY

If any provisions of this Agreement will be determined to be null, ineffective, invalid, unenforceable or contrary to legislation, this situation does not thoroughly or partially make rest of the provisions of this Agreement invalid. Agreement will be declared null and void within the frame of Code of Obligations; in case it appears that there is an obstacle to put the Agreement into force as a result of the detection.

19. ALIGNMENT WITH LEGISLATION

Legislation on the enforcement date of this Agreement and possible legislative changes are binding on parties.

20. PENAL SANCTIONS

In case situations requiring penal sanctions as per the provisions regarding penal sanctions concerning secondary frequency control service in the Electricity Market Ancillary Services Regulation exist, aforementioned article provisions are imposed.

21. COMPENSATION

In case obligations in this Agreement is not fulfilled by the Generator and/or violation of Agreement, Generator will be responsible for loses of the TEIAS which are determined by technical commission and Generator will be obliged to retrieve all related losses of TEIAS.

22. CONTENT OF AGREEMENT

This Agreement is integrated with its Appendices, and binding on TEIAS and Generator. However, provisions of the Agreement will be grounded on, in case there is a contradiction or difference between provisions of Agreement and provisions of document in the Appendix composing agreement document.

23. AGREEMENT COSTS

All taxes and funds resulting from the signing of the Agreement will be paid by the Generator.

24. EFFECTIVE LAW

Agreement is subject to legislation of the Republic of Turkey.

25. TERMS OF ENTY INTO FORCE

This agreement becomes valid on the date when it is signed by the parties. This agreement consists of 25 Article and 6 Appendices, 1 copy of this agreement has been signed on .../.../2009 after it was fully read and comprehended by TEIAS and Authorities from Generator Company, and it was detained at TEIAS. A copy can be given to the Generator if required.

GENERAL DIRECTORATE OF TEIAS

**TURKISH ELECTRICITY
TRANSMISSION CO. INC.**

GENERATOR

APPENDICES

APPENDIX-1 Generation Facilities

APPENDIX-2 Data Regarding Generation Facility, Block and Unit

APPENDIX-3 Descriptions of the Data

APPENDIX-4 Secondary Frequency Control Performance Test Certificate or Secondary Frequency Control Performance Test Report

APPENDIX-5 Format of the Secondary Frequency Control Performance Test Report

APPENDIX -6 Covenant

APPENDIX-1 GENERATION FACILITIES

Generator’s generation facilities that are obliged to participate in Secondary Frequency Control according to Article 17 of the Electricity Market Ancillary Services Regulation are given below.

Name of the Generation Facility	Installed Capacity (MW)

APPENDIX-2 DATA REGARDING GENERATION FACILITY, BLOCK AND UNIT

Name of the Generation Facility:

Name of the Legal Entity:

Plant/Block/Unit Code:

Plant/Block/Unit Type:

Installed Capacity of the Plant/Block/Unit: MW

Installed Capacity of Each Unit (Unit-1....Unit-n) MW

Upper Limit of the Plant/Block/Unit’s Operation Interval (Available Capacity) : MW

Lower Limit of the Plant/Block/Unit’s Operation Interval (Minimum Steady Generation Level):
..... MW

Minimum Secondary Frequency Control Reserve Capacity (RS_{min}): MW

$RS_{min} = \%5,0 \times \text{Installed Capacity (} P_{nom.}\text{)}$

Maximum Secondary Frequency Control Reserve Capacity (RS_{max}): MW

$RS_{max} = [(\text{Available Capacity}) - (\text{Minimum Steady Generation Level})]/2$

Operation Adjusting Values of the Unit:

	Adjusted Value
Up-regulation Rate (MW/min.)	
Down-regulation Rate (MW/min.)	
Integration Time (second)	
Delay Time (second)	
Turbine Time Constant	
Other	

Documents which will be added to Agreement by the Generator;

- Force majeure in its license,
- Loading Curve (MW-MVAR),
- For Hydroelectric Plants (HEP); Hydraulic Turbine Head, Specific Water Consumption, Output Power Characteristic Curve,
- For Steam Turbine Generator; Output Power Curve of the Steam Turbine According to Coal Quality (kcal/kwh),
- For Gas Turbine-Generator; Output Power Curves of the Gas Turbines According to Environmental Conditions (temperature, pressure, humidity), Maximum Output Power Change Curve According to Frequency Deviation, documents indicating that the conditions taking place in the Appendix-2 as part of Article 20 of the Electricity Market Grid Code are fulfilled.

APPENDIX-3 DESCRIPTION OF THE DATA

TEIAS is authorized to request the data in this Appendix from generation facilities participating in secondary frequency control to determine the change in the active power output of the unit in case of frequency deviation.

Generator will provide services aiming to show the value curve graph in the screen by measuring data determined by TEIAS on-site to monitor secondary frequency control service, and recording required data with the timestamp regarding the time when these are measured, and reporting the data as determined by TEIAS. In line with this purpose, data determined by TEIAS will be measured continuously during the provision of ancillary services (other than during outage, planned or specific interventions) and will be recorded. All kinds of devices, equipments and software that will be required to provide these data and reports will be selected and installed by the Generator. All kinds of equipments, assembly and cabling activities required for the installation will also provided by the Generator.

Generator will provide required software and equipment that will allow connection and remote access for the purpose of data exchange with the monitoring and control system which will be established by TEIAS.

Generator will measure the data recorded regarding secondary frequency control service as 1 datum per second for generator data such as frequency, active output power, and as 1 datum per minute for data regarding control system or operating conditions such as speed curve, and will record these data with the timestamp regarding the time when these are measured, unless otherwise stated by TEIAS. Generator will record, at least, the data given below regarding primary frequency control service, as required:

S/N	Signal Name	Sampling Duration
1	Set-point value sending from TEIAS NLDC	0 ... 4 seconds
2	Secondary frequency control maximum capacity value of plant/block/unit (MAXC)	0 ... 4 seconds
3	Secondary frequency control minimum capacity value of plant/block/unit (MINC)	0 ... 4 seconds
4	Secondary frequency control maximum capacity values of units	0 ... 4 seconds
5	Secondary frequency control minimum capacity values of units	0 ... 4 seconds
6	Active Output Power Realized Value of plant/block/unit (MW)	0 ... 1 second
7	Mod Info of AGC Interface (REMOTE/LOCAL/MANUAL)	0 ... 60 seconds
8	Alarms related to AGC (LMIC, LMIN, LMAX, LPWR, LRPD, and so on)	0 ... 60 seconds

In order to compose the data that are ground for the payment notifications prepared by TEIAS and to realize control activities, the Generator will send the data regarding secondary frequency control participation to the NLDC in electronic formats and within period determined by TEIAS within the frame of the principles determined by TEIAS.

**APPENDIX-4 SECONDARY FREQUENCY CONTROL PERFORMANCE TEST
CERTIFICATE OR SECONDARY FREQUENCY CONTROL PERFORMANCE TEST
REPORT**

APPENDIX-5 FORMAT OF THE SECONDARY FREQUENCY CONTROL PERFORMANCE TEST REPORT

Secondary frequency control performance tests prepared in pursuant of subjects given below will be adopted, until the companies that will provide secondary frequency control performance tests as per Provisional Article 6 of the Electricity Market Ancillary Services Regulation are accredited.

Secondary frequency control test report will at least include subjects indicated in the Secondary Frequency Control Performance Test Procedures taking place in Appendix 4.B of the Electricity Market Regulation.

- i. Functional test results of AGC System/Interface set up in the power plant to participate in secondary frequency control.
Aforementioned test results include information indicating that;
 - a) Set-point value was recorded correctly and the feedback of that value was send correctly.
 - b) Set-point values sent by National Load Dispatch Center via SCADA System and AGC Program, were dispatched to units accurately.
 - c) “PD Validity” signal that is periodically sent by AGC Program via SCADA System was received in the plant and used accurately.
 - d) Secondary frequency control maximum capacity (MAXC) and secondary frequency control minimum capacity (MINC) values of the plant/block/unit are calculated correctly and sent to TEIAS National Load Dispatch Center.
 - e) The design of Automatic Generation Control System/Interface Human Machine Interface (HMI) set-up in the plant.
- ii. Information of mod and alarm regarding secondary frequency control were generated in the plant accurately and these information was sent to TEIAS Load dispatch Center.
- iii. Whether or not secondary frequency control response was given in the whole secondary frequency control interval of the plant/block/unit as required and in accordance with set-point values sent from National Load Dispatch Center.
 - 4) Setting parameters properly in the power plant like delay with unit ramp rates and speed regulator governor droop settings and plant/block/unit time constant.
 - 5) Whether or not secondary frequency control response was given with an anticipated speed and in the whole secondary frequency control interval of the plant/block/unit to the set-point value sent as up-regulation, down-regulation within secondary frequency control interval in TEST MOD of AGC Program in the National Load Dispatch Center.
 - 6) Secondary frequency control tests of plant/block/unit with set-point signals that will be sent in TEST MOD of AGC Program in the National Load Dispatch Center will be conducted under two different operational conditions; while units participate in primary frequency control, and before units participate in primary frequency control.
 - a) In case units do not participate in primary frequency control
 - b) In case units participate in primary frequency control
 - 7) Whether or not, during secondary frequency tests, total generation values of units are followed by the AGC Program located in the TEIAS Load Dispatch Center with specific control accuracy and an anticipated speed.

8) In addition to records that can be taken in the plant during secondary frequency control tests of the plant/block/unit, values that can be recorded in the TEIAS Load Dispatch Center via SCADA System, and deliverables including final parameters entered in the AGS program’s database during tests with the graphs in which those mentioned data takes place.

9) Observations and records regarding secondary frequency control participation of the plant/block/unit in the operational condition when AGC Program in National Load Dispatch Center was turned to AUTOMATIC Mod from Test Mod as a result of secondary frequency control test results of the plant/block/unit.

Unit	Up-regulation Speed (MW/minute)	Down-regulation Speed (MW/minute)	Speed Regulator Droop-Adjustment (%)
Unit-1			
Unit-2			
Unit- ...			
Unit-n			

Unit/Block/Plant	Minimum Limit (MW)	Maximum Limit (MW)
Unit-1		
Unit-2		
Unit- ...		
Unit-n		
Total Plant/Block (MAXC and MINC)		

Plant/Block/Unit Delay	
Plant/Block/Unit Time Constant	

APPENDIX-6 COVENANT

I guarantee that I will provide secondary frequency control service in accordance with instructions given by TEIAS in compliance with the provisions of Electricity Market Grid Code, Electricity Market Ancillary Services Regulation and this Agreement to the limit specified in the Agreement.

GENERATOR