



# **GREATER MEKONG SYSTEM REGIONAL GRID CODE**

**&**

# **TRANSMISSION REGULATION**

## ***GLOSSARY OF TERMS***

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## 1. INTRODUCTION

This glossary is a list of terms, acronyms and units commonly used in the GMS Transmission Regulations – Policy 1 to 4, and the GMS Grid Code.

## 2. GLOSSARY OF TERMS

### **Accounting {Energy ~, ~ of Unintentional Deviations}**

After the Exchange Programs have been validated during the scheduling phase, and taking into account the real-time observation of Unintentional Deviations across a set of Observation Lines, Accounting is the organizational process implemented in order to:

- collect the provisional and the final values of the exchanged energy for each time interval;
- determine the Unintentional Deviations of energy and set-up the corresponding Compensation Programs for their offsetting during the following week.

### **Accounting Co-ordination**

Accounting Co-ordination means a co-ordination service provided to the Control Blocks, by the sites in charge of performing the Accounting Co-ordination for the purpose of carrying out the Accounting. It consists of the following phases:

- acquisition and validation of the Exchange Programs between the Control Blocks during the scheduling phase;
- acquisition of the EMRs' values of Tie-lines (Including virtual Tie-lines that may exist for the operation of jointly owned power plants) among Control Blocks to compute the provisional energy exchanges;
- real-time observation across the previously defined Observation Lines;
- computation of the provisional and final Unintentional Deviations;
- computation of the Compensation Programs for each Control Blocks.

If these tasks are performed at different locations, a very close co-operation must be ensured among the centres responsible for these activities.

Responsibility for correct Accounting remains with the co-ordinators of the individual Control Blocks and Control Areas. Responsibility for this matter cannot be delegated to the Accounting Coordination.

The Control Blocks and Control Areas are responsible for the resources required to provide the results of the Accounting. In order to be able to monitor and supervise the operation of their Control Block or Control Area, they all need to be equipped with a real-time data acquisition system.

The Accounting Co-ordination is provided with the necessary data to enable some checking at a global level and to give extra confirmation to the co-ordinators of the Control Blocks and Control Areas that no major mistake has gone undetected or that, if such an error should occur, it would not stay undetected for a long time.

## **Active Power**

Active Power is a real component of the apparent power, usually expressed in kilowatts (kW) or megawatts (MW), in contrast to Reactive Power.

## **Active Power Reserve**

Active Power Reserve is the Active Power which is available for maintaining the frequency.

## **Active Power Frequency Response**

Active Power Frequency Response is an automatic response of Active Power output from a Power Generating Module, in response to a change in system Frequency from the nominal system Frequency.

## **Actual Metering Point (AMP)**

Actual Metering Point (AMP) means the physical point at which the flow of electricity is measured and where the Interchange Metering is installed. The AMP may be different from the Defined Metering Point subject to the approval of the RPCC. In these cases, the accuracy requirements of the Metering (ME) Code shall apply at the Defined Metering Point.

## **Adequacy**

Adequacy is the ability of in-feeds into an area to meet the demand in this area.

## **Adjacent Control Area {Adjacent System}**

An Adjacent Control Area (or Adjacent System) is any Control Area (or system) either directly interconnected with or electrically close to (so as to be significantly affected by the existence of) another Control Area (or system).

## **Adjacent LFC Areas**

Adjacent LFC Areas means LFC Areas having a common electrical border.

## **Adjacent LFC Blocks**

Adjacent LFC Blocks means LFC Blocks having a common electrical border.

## **Affected TSO**

Affected TSO means a TSO for which information on the Exchange of Reserves and/or Sharing of Reserves and/or Imbalance Netting Process and/or Cross-Border Activation Process is needed for the analysis and maintenance of Operational Security.

## **Aggregated Netted External Schedule**

Aggregated Netted External Schedule is a Schedule representing the netted aggregation of all External TSO Schedules and External Commercial Trade Schedules between two Scheduling Areas or between a Scheduling Area and a group of other Scheduling Areas.

## **Aggregator**

Aggregator is a legal entity which is responsible for the operation of a number of Demand Facilities by means of Demand Aggregation.

## **Alert State**

Alert State is the System State where the system is within Operational Security Limits, but a Contingency from the Contingency List has been detected, for which in case of occurrence, the available Remedial Actions are not sufficient to keep the Normal State.

## **Alert State Trigger Time**

Alert State Trigger Time means the time until Alert State becomes active.

## **Ancillary Services**

Ancillary Services are Interconnected Operations Services identified as necessary to effect a transfer of electricity between purchasing and selling entities (Transmission) and which a provider of Transmission services must include in an open access transmission tariff.

## **Apparent Power**

Apparent Power is the product of voltage (in volts) and current (in amperes). It consists of a real component (Active Power) and an imaginary component (Reactive Power), usually expressed in kilovolt-amperes (kVA) or megavolt-amperes (MVA).

## **Already Allocated Capacity (AAC)**

The Already Allocated Capacity is the total amount of allocated transmission rights, whether they are capacity or Exchange Programs depending on the allocation method.

## **Area Control Error (ACE)**

Area Control Error (ACE) is the sum of the instantaneous difference between the actual and the set-point value of the measured total power value and Control Program including Virtual Tie-Lines for the power interchange of a LFC Area or a LFC Block and the frequency bias given by the product of the K-Factor of the LFC Area or the LFC Block and the Frequency Deviation.

## **Automatic FRR**

Automatic FRR means FRR that can be activated by an automatic control device.

### **Automatic FRR Activation Delay**

Automatic FRR Activation Delay means the period of time between the setting of a new Set Point value by the frequency restoration controller and the start of physical Automatic FRR delivery.

### **Automatic FRR Full Activation Time**

Automatic FRR Full Activation Time – means the time period between the setting of a new Set Point value by the frequency restoration controller and the corresponding activation or deactivation of Automatic FRR.

### **Automatic Generation Control (AGC)**

Automatic Generation Control is equipment that automatically adjusts the generation to maintain its generation dispatch, interchange schedule plus its share of frequency regulation. AGC is a combination of Secondary Control for a Control Area / Block and real-time operation of the generation dispatch function (based on generation scheduling). Secondary Control is operated by the TSO, generation scheduling is operated by the respective generation companies (GENCOs).

### **Automatic Voltage Control (AVC)**

Automatic Voltage Control is the automatic control actions at the generation node, at the end nodes of the AC lines or High-Voltage DC lines, on transformers or other means, designed to maintain the set voltage level or the set value of Reactive Power.

### **Availability**

Availability is a measure of time during which a generating unit, transmission line, Ancillary Service or another facility is capable of providing service, whether or not it is actually in service.

Typically, this measure is expressed as a percentage available for the period under consideration.

### **Availability Plan**

Availability Plan is the combination of all planned Availability Statuses for a Relevant Asset for a given time period.

### **Availability Status**

Availability Status is the capability for a given time period of a Power Generating Module, grid element, Demand Facility, or another facility to provide service, whether or not it is in operation.

### **Available Transfer Capacity (ATC)**

Available Transfer Capacity is a measure of the transfer capability remaining in the physical Transmission network for further commercial activity over and above already committed uses.

Available Transmission Capacity is the part of NTC that remains available after each phase of the allocation procedure for further commercial activity. ATC is defined by the following equation:

$$ATC = NTC - AAC$$

### **Average FRCE Data**

Average FRCE Data means the Set of data consisting of the average value of the recorded instantaneous FRCE of a LFC Area or a LFC Block within a given measurement period time.

### **Blackout State**

Blackout State means the System State where the operation of part or all of the Transmission System is terminated.

### **Black-start Capability**

Black-start Capability is the ability of a generating unit to go from a shutdown condition to an operating condition and start delivering power without assistance from the electric system.

### **Block Loading**

Block Loading is the maximum step Active Power loading of reconnected demand during system restoration after black-out (is the state where the operation of part or all Transmission System is terminated).

### **Bottom-up Re-energization Strategy**

Bottom-up Re-energization Strategy means a strategy where (part of) the system of a TSO can be re-energised without the assistance from other TSOs.

### **Capacity**

Capacity is the rated continuous load-carrying ability of generation, transmission, or other electrical equipment, expressed in megawatts (MW) for Active Power or megavolt-amperes (MVA) for Apparent Power.

### **Check Meter**

Check Meter means a meter nominated to provide electrical energy measurements at a Defined Metering Point for verification or substitution of the Main Meter.

### **Close to Real-Time**

Close to Real-Time is the time delay between last intraday gate closure and real time, no later than 30 min before real time.

### **Closed Distribution Network**

Closed Distribution Network means, in the context of the Network Code, a Network which distributes electricity within a geographically confined industrial, commercial or shared services site and does not (without prejudice to a small number of households located within the area served by the system and with employment or similar associations with the owner of the system) supply household customers. This Closed Distribution Network will either have its operations or the production process of the users of the system integrated for specific or technical reasons or distribute electricity primarily to the owner or operator of the Closed Distribution Network or their related undertakings.

### **Compensation program**

Compensation of Unintentional Deviations is performed by exporting to / importing from the interconnected system during the compensation period by means of schedules of constant power within the same tariff periods as when they occurred (COMP).

### **Compliance Monitoring**

Compliance Monitoring is the process of verification that the technical capabilities for example of Demand Facilities, Distribution Networks or Distribution Network Connections are maintained compliant with the specifications and requirements of the Network Code after starting operation.

### **Compliance Simulation**

Compliance Simulation is the process of verification that Demand Facilities, Distribution Networks or Distribution Network Connections are compliant with the specifications and requirements of the Network Code, for example before starting operation of new installations. The verification should include, inter alia, the revision of documentation, the verification of the requested capabilities of the facility, Distribution Network or Distribution Network Connections by simulation studies and the revision against actual measurements.

### **Compliance Testing**

Compliance Testing is the process of verification that Demand Facilities, Distribution Networks or Distribution Network Connections are compliant with the specifications and requirements of the Network Code, for example before starting operation of new installations. The verification includes the revision of documentation, the verification of the requested capabilities of the facility by practical tests and simulation studies and the revision of actual measurements during trial operation.

### **Connection Agreement**

Connection Agreement is a contract between the Relevant Network Operator and either the Demand Facility Owner or Distribution Network Operator which includes



technical specifications and site specific requirements for the facility or Distribution Network Connection;

### **Connection Point**

Connection Point is the interface as identified in the Connection Agreement at which:

- a) the Power Generating Module is connected to a Transmission System or Distribution Network;
- b) the Demand Facility is connected to a Transmission Network, or Distribution Network, or;
- c) the Distribution Network is connected to a Transmission Network, or;
- d) the Closed Distribution Network providing Demand Side Response (DSR) is connected to the Distribution Network;

### **Connecting DSO**

Connecting DSO is the DSO to whose Distribution Network a Power Generating Module, Demand Facility, or grid element is connected.

### **Connecting CDSO**

Connecting CDSO is the CDSO to whose Closed Distribution Network a Power Generating Module, Demand Facility, or grid element is connected.

### **Constraint**

Constraint is a situation in which there is a need to implement Remedial Action in order to respect Operational Security Limits.

### **Consumption**

See: Demand

### **Consumption Schedule**

Consumption Schedule is a Schedule representing the consumption of a Demand Facility or a group of Demand Facilities.

### **Contingency**

Contingency is the identified and possible or already occurred Fault of an element within or outside a TSO's Responsibility Area, including not only the Transmission System elements, but also Significant Grid Users and Distribution Network elements if relevant for the Transmission System Operational Security. Internal Contingency is a Contingency within the TSO's Responsibility Area. External Contingency is a Contingency outside the TSO's Responsibility Area, with an Influence Factor higher than the Contingency Influence Threshold.

## **Contingency Analysis**

Contingency Analysis is computer based simulation of Contingencies from the Contingency List.

## **Contingency Influence Threshold**

Contingency Influence Threshold is a numerical limit value against which the Influence Factors must be checked. The outage of an external Transmission System element with an Influence Factor higher than the Contingency Influence Threshold is considered having a significant impact on the TSO's Responsibility Area. The value of the Contingency Influence Threshold is based on the risk assessment of each TSO.

## **Contingency List**

Contingency List is the list of Contingencies to be simulated in the Contingency Analysis in order to test the compliance with the Operational Security Limits before or after a Contingency took place.

## **Control Area (CA)**

A Control Area is a coherent part of the GMS Interconnected System (usually coincident with the territory of a company, a country or a geographical area, physically demarcated by the position of points for measurement of the interchanged power and energy to the remaining interconnected network), operated by a single TSO, with physical loads and controllable generation units connected within the Control Area. A Control Area may be a coherent part of a Control Block that has its own subordinate control in the hierarchy of Secondary Control.

## **Control Block (CB)**

A Control Block comprises one or more Control Areas, working together in the Secondary Control function, with respect to the other Control Blocks of the Synchronous Area it belongs to.

## **Control Area Operator**

A Control Area Operator is the operator of a Control Area usually a TSO.

## **Control Block Operator**

The Block Operator is a single TSO that is responsible for Secondary Control of the whole Control Block towards its interconnected neighbours / blocks, for Accounting of all Control Areas of that block, for organisation of the internal Secondary Control within the block, and that operates the overall control of that block.

## **Control Capability Providing TSO**

Control Capability Providing TSO means the TSO which shall trigger the activation of its Reserve Capacity for a Control Capability Receiving TSO under conditions of an agreement for the Sharing of Reserves.

### **Control Capability Receiving TSO**

Control Capability Receiving TSO means the TSO calculating Reserve Capacity by taking into account Reserve Capacity which is accessible through a Control Capability Providing TSO under conditions of an agreement for the Sharing of Reserves.

### **Control Program (CP)**

A Control Program constitutes the Schedule of the total programmed exchange of a Control Area / Block, the sum of all Exchange Programs and the Compensation Program that is used for Secondary Control.

### **Control Room**

Control Room is a Relevant Network Operator's centralised operation centre.

### **Co-ordination centre (CC)**

The Co-ordination Centre is responsible for acquiring and validating the Exchange Programs among the Control Blocks during the scheduling phase, acquiring the energy meter readings values of Tie-Lines among the Control Blocks to compute the Unintentional Deviations and the Compensation Program to be carried out the following week in order to offset said Unintentional Deviations.

### **Criteria Application Process**

Criteria Application Process means the process of calculation of the target parameters for the Synchronous Area, the LFC Block and the LFC Area based on the data obtained in the Data Collection and Delivery Process.

### **Critical Fault Clearing Time**

Critical Fault Clearing Time is the maximum Fault duration for which the Transmission System remains stable.

### **Cross-Border FRR Activation Process**

Cross-Border FRR Activation Process means a process agreed between the TSOs participating in the process that allows for activation of FRR connected in a different LFC Area by correcting the input of the involved FRPs accordingly.

### **Cross-Border RR Activation Process**

Cross-Border RR Activation Process means a process agreed between the TSOs participating in the process that allows for activation of RR connected in a different LFC Area by correcting the input of the involved RRP accordingly.

### **Curtailment**

Curtailment means a reduction in the scheduled capacity or energy delivery.

### **Data Collection and Delivery Process**

Data Collection and Delivery Process means the Process of collection of the set of data necessary in order to perform the Frequency Quality Evaluation Criteria.

### **Data Collection System (DCS)**

Data Collection System (DCS) means a computer based system that collects or receives data on a routine basis from Metering Equipment.

### **Declared Availability**

Declared Availability is declaration and notice prepared in respect of a Significant Grid User, submitted to the TSO setting out the values and times applicable to those values of availability and Ancillary Services capability.

### **Defence Plan**

The Defence Plan summarises all technical and organisational measures taken to prevent the propagation or deterioration of a power system incident in order to avoid a collapse.

### **Defence Service Provider**

Defence Service Provider means a legal entity with a legal or contractual obligation to provide a service contributing to one or several measures of the System Defence Plan.

### **Defined Metering Point (DMP)**

Defined Metering Point (DMP) is at the Interchange Point within a Control Area and means the physical location at which overall accuracy requirements as defined in the ME Code are to be met. The DMP shall be defined in the relevant Connection Agreement. Each single circuit interconnection between Control Areas will have two DMPs, one in each Control Area.

### **Demand {Consumption}**

Demand is the rate at which electric power is delivered to or by a system or part of a system, generally expressed in kilowatts (kW) or megawatts (MW), at a given instant or averaged over any designated interval of time. Demand should not be confused with Load (a Load is usually a device).

## **Demand Aggregation**

Demand Aggregation is a set of Demand Facilities which can be operated as a single facility for the purposes of offering one or more Demand Side Response (DSR) services.

## **Demand Facility**

Demand Facility is a facility which consumes electrical energy and is connected at one or more Connection Points to the Network. For the avoidance of doubt a Distribution Network and/or auxiliary supplies of a Power Generating Module are not to be considered a Demand Facility.

## **Demand Facility Operator**

Demand Facility Operator is the natural or legal person who is the operator of a Demand Facility.

## **Demand Facility Owner**

Demand Facility Owner is the owner of the Demand Facility.

## **Demand Side Response (DSR)**

Demand Side Response (DSR) is demand offered for the purposes of, but not restricted to, providing Active or Reactive Power management, Voltage and Frequency regulation and System Reserve.

## **Demand Side Response Active Power Control (DSR APC)**

Demand Side Response Active Power Control (DSR APC) is demand within a Demand Facility or Closed Distribution Network that is accessible for modulation by the Relevant Network Operator, which results in an Active Power modification.

## **Demand Side Response Low Frequency Demand Disconnection (DSR LFDD)**

Demand Side Response Low Frequency Demand Disconnection (DSR LFDD) is demand within a Demand Facility or Closed Distribution Network that can be disconnected in case of low Frequency.

## **Demand Side Response Low Voltage Demand Disconnection (DSR LVDD)**

Demand Side Response Low Voltage Demand Disconnection (DSR LVDD) is demand within a Demand Facility or Closed Distribution Network that can be disconnected in case of low Voltage.

## **Demand Side Response Reactive Power Control (DSR RPC)**

Demand Side Response Reactive Power Control (DSR RPC) is Reactive Power or Reactive Power devices (MVAR's) in a Demand Facility or Closed Distribution Network that are accessible for modulation by the Relevant Network Operator.

### **Demand Side Response System Frequency Control (DSR SFC)**

Demand Side Response System Frequency Control (DSR SFC) is reduction or increase of the demand of electrical devices in response to Frequency fluctuations, made by an autonomous response to temperature targets of these electrical devices to diminish these fluctuations.

### **Demand Side Response Transmission Constraint Management (DSR TCM)**

Demand Side Response Transmission Constraint Management (DSR TCM) is demand that is accessible for modulation by the Relevant Network Operator to manage transmission constraints within the Network.

### **Demand Side Response Very Fast Active Power Control (DSR VFAPC)**

Demand Side Response Very Fast Active Power Control (DSR VFAPC) is demand within a Demand Facility or Closed Distribution Network that can be modulated very fast, i.e. within 2 seconds, in response to a Frequency deviation, which results in a very fast Active Power modification.

### **Demand Side Response Unit Document (DSRUD)**

Demand Side Response Unit Document (DSRUD) is a document issued either by the Demand Facility Owner or Distribution Network Operator to the Relevant Network Operator or Relevant TSO pursuant to Article 9(3) for demand connections with DSR above 1000V. The DSRUD is intended to contain information confirming that the Demand Unit with DSR has demonstrated compliance with the technical criteria as referred to in this Network Code and provided the necessary data and statements including a Statement of Compliance.

### **Demand Unit**

Demand Unit is an indivisible set of installations which can be actively controlled by a Demand Facility Owner or Distribution Network Operator to moderate its electrical energy demand. A storage device within a Demand Facility or Closed Distribution Network operating in electricity consumption mode is considered to be a Demand Unit. A hydro pump-storage unit with both generating and pumping operation mode is excluded. If there is more than one unit consuming power within a Demand Facility, which cannot be operated independently from each other or can reasonably be considered in a combined way, then each of the combinations of these units shall be considered as one Demand Unit.

### **Derogation**

Derogation means a time limited or indefinite acceptance in writing by the Relevant National Regulatory Authority of a non-compliance of a Demand Facility or Distribution Network with regard to identified requirements of the Network Code.

### **Dimensioning Incident**

Dimensioning Incident means the highest expected instantaneously occurring Active Power Imbalance within a LFC Block in both positive and negative direction.

### **Distribution Network**

Distribution Network is an electrical Network, including Closed Distribution Networks, for the distribution of electrical power from and to third party[s] connected to it, a Transmission or another Distribution Network.

### **Distribution Network Connection**

Distribution Network Connection is the electrical plant and equipment present at the Connection Point, typically a substation, of either a new or existing Distribution Network to the Transmission Network.

### **Distribution Network Operator (DNO)**

Distribution Network Operator (DNO) is either a Distribution System Operator or an operator of a Closed Distribution Network.

### **Disturbance**

Disturbance is an unplanned event that produces an abnormal system condition, e.g. which may cause the Transmission System to divert from Normal State.

### **Droop of a Generator**

The Droop of a Generator is one of the parameters set on the primary speed controller of a Generating Set (generator and turbine). It is equal to the quotient of the relative quasi-steady-state Frequency Offset on the network and the relative variation in power output from the generator associated with the action of the Primary Controller. This ratio without dimension is generally expressed as a percentage.

### **Dynamic Stability**

Dynamic Stability is a common term including the Rotor Angle Stability, Frequency Stability and Voltage Stability.

### **Dynamic Stability Assessment (DSA)**

Dynamic Stability Assessment (DSA) is the Operational Security Assessment in terms of Dynamic Stability.

## **Electrical Energy**

Electrical Energy is a measure of the generation or use of electric power by a device integrated over a period of time; it is expressed in kilowatt-hours (kWh), megawatt-hours (MWh), or gigawatt-hours (GWh).

## **Electric System Losses**

Electric System Losses are total electric energy losses in the electric system. The losses consist of Transmission, transformation, and distribution losses between supply sources and delivery points.

Electric energy is lost primarily due to heating of transmission and distribution elements.

## **Electronic Highway (EH)**

The Electronic Highway represents a secure, fast, reliable and highly available communication infrastructure for real-time and non-real-time data exchanges between TSOs.

## **Electrical Time Deviation**

Electrical Time Deviation means the time discrepancy between synchronous time and Universal Time Coordinated (UTC).

## **Emergency State**

Emergency State is the System State where Operational Security Limits are violated and at least one of the operational parameters is outside of the respective limits.

## **Energization Operational Notification (EON)**

Energization Operational Notification (EON) is a notification issued by the Relevant Network Operator to either a Demand Facility Owner or a Distribution Network Operator prior to energization of its internal Network.

## **Energy Meter Readings (EMRs)**

Energy Meter Readings are performed (in addition to those for internal lines, transformers, generators and Loads) for actual energy exchanges on Tie-Lines (Including virtual tie-lines that may exist for the operation of jointly owned power plants) between Control Blocks (or Control Areas) to carry out the Accounting function (e.g.: to compute, together with scheduled exchanges, the Unintentional Deviations for each time interval).

## **Energy Storage**

Energy Storage means a device being used for storage of energy and that can be used to balance the system.

## **Equipment Certificate**



Equipment Certificate is a document issued by an Authorised Certifier for equipment used in a Demand Unit providing DSR connected to the Distribution Network, Transmission Connected Distribution Network or Transmission Connected Demand Facility, confirming compliance with relevant requirements of the Network Code as far as the influence on overall performance by this specific equipment. The Equipment Certificate shall define the extent of its validity in relation to parameters for which there is only a range of values defined in this document. This will identify its validity at a national or other level at which a specific value is selected from the allowed range. The Equipment Certificate will have a unique number allowing simple reference to it in an Installation Document.

### **Exceptional Contingency**

Exceptional Contingency is the loss of a busbar or more than one element such as, but not limited to, a common mode Fault with the loss of more than one Power Generating Module; a common mode Fault with the loss of more than one AC or DC line; a common mode Fault with the loss of more than one transformer.

### **Exchange of Reserves**

Exchange of Reserves means a concept for a TSO to have the possibility to access Reserve Capacity connected to another LFC Area, LFC Block, or Synchronous Area to comply with the amount of required reserves resulting from its own reserve dimensioning process of either FCR, FRR or RR. These reserves are exclusively for this TSO, meaning that they are not taken into account by any other TSO to comply with the amount of required reserves resulting from their respective reserve dimensioning processes.

### **Existing Demand Facility**

Existing Demand Facility is a Demand Facility which is not a New Demand Facility.

### **Existing Distribution Network Connection**

Existing Distribution Network Connection is a Distribution Network Connection which is not a New Distribution Network Connection.

### **External Commercial Trade Schedule**

External Commercial Trade Schedule is a Schedule representing the commercial exchange of electricity between Market Participants in different Scheduling Areas.

### **External TSO Schedule**

External TSO Schedule is a Schedule representing the exchange of electricity of TSOs between different Scheduling Areas.

### **Exchange Program (CAX, CBX)**

An Exchange Program represents the total scheduled energy interchange between two Control Areas (CAX) or between Control Blocks (CBX).

## **Exchange Schedule (CAS, CBS)**

An Exchange Schedule defines an agreed transaction with regard to its size (megawatts), start and end time, Ramp Period and type (e.g. firmness); it is required for delivery and receipt of power and energy between the contracting parties and the Control Areas (S) (CAS) or between control areas and control blocks (CBS) involved in the transaction.

## **Fault**

Fault means all types of short-circuits: single, double and triple-phase, with and without earth contact. It means further a broken conductor, interrupted circuit or an intermittent connection, resulting in a permanent non-availability of the affected Transmission System element.

## **Final Operational Notification (FON)**

Final Operational Notification (FON) is a notification issued by the Relevant Network Operator to a Demand Facility Owner or, Distribution Network Operator confirming that the Demand Facility Owner or, Distribution Network Operator, respectively is entitled to operate its Demand Facility or Distribution Network by using the Network connection because compliance with the technical design and operational criteria has been demonstrated as referred to in the Network Code.

## **Forced Outage**

Forced Outage is the unplanned removal from service of a Relevant Asset for any urgency reason that is not under the operational control of the respective operator.

## **Frequency**

see: System Frequency.

## **Frequency Bias**

see: Network Power Frequency Characteristic.

## **Frequency Containment Process (FCP)**

Frequency Containment Process (FCP) means a process that aims at stabilizing the System Frequency by compensating imbalances by means of appropriate reserves.

## **Frequency Containment Reserves (FCR)**

Frequency Containment Reserves (FCR) is the Operational Reserves activated to contain System Frequency after the occurrence of an imbalance.

## **FCR Full Activation Frequency Deviation**

FCR Full Activation Frequency Deviation means the rated value of Frequency Deviation at which the FCR in a Synchronous Area is fully activated.

### **FCR Full Activation Time**

FCR Full Activation Time means the time period between the occurrence of the Reference Incident and the corresponding full activation of the FCR.

### **FCR Obligation**

FCR Obligation means the part of all of the FCR that falls under the responsibility of a TSO.

### **Frequency Control**

See: Primary Control.

### **Frequency Deviation**

Frequency Deviation is the difference between the actual System Frequency and the Nominal Frequency of the Synchronous Area, which can be negative or positive.

### **Frequency Leader**

Frequency Leader means the TSO managing Frequency within a Synchronised Region or a Synchronous Area in order to restore System Frequency back to Nominal Frequency.

### **Frequency Offset**

Frequency Offset is the difference between the actual and the nominal value of the System Frequency in order to correct the Synchronous Time (Time Control); it is not identical with Frequency Deviation.

### **Frequency Quality Defining Parameters**

Frequency Quality Defining Parameters means the main System Frequency variables that define the principles of Frequency Quality.

### **Frequency Quality Evaluation Criteria**

Frequency Quality Evaluation Criteria means a set of calculations using System Frequency measurements that allow the evaluation of the quality of the System Frequency against the Frequency Quality Target Parameters.

### **Frequency Quality Evaluation Data**

Frequency Quality Evaluation Data – means the set of data that allows the calculation of the Frequency Quality Evaluation Criteria.

## **Frequency Quality Target Parameter**

Frequency Quality Target Parameter means the main System Frequency target variables on which the behaviour of FCR, FRR and RR activation processes are evaluated in Normal State.

## **Frequency Restoration Control Error (FRCE)**

Frequency Restoration Control Error (FRCE) is the control error for the FRP which is equal to the ACE of a LFC Area or is equal to the Frequency Deviation where the LFC Area geographically corresponds to the Synchronous Area.

## **FRCE Target Parameters**

FRCE Target Parameters means the target main LFC Block variables on basis of which the dimensioning criteria for FRR and RR of the LFC Block are determined and evaluated. These parameters reflect the LFC Block behaviour in normal operation.

## **Frequency Restoration Power Interchange**

Frequency Restoration Power Interchange means the Power which is interchanged between LFC Areas within the Cross-Border FRR Activation Process.

## **Frequency Restoration Process (FRP)**

Frequency Restoration Process (FRP) is a process that aims at restoring frequency to the Nominal Frequency and for Synchronous Area consisting of more than one LFC Area power balance to the scheduled value.

## **Frequency Set Point**

Frequency Set Point means the Frequency target value used in the FRP defined as the sum of the Nominal System Frequency and an offset value needed to reduce an Electrical Time Deviation.

## **FRR Availability Requirements**

FRR Availability Requirements means a set of requirements defined by the TSOs of a LFC Block regarding the availability of FRR.

## **FRR Dimensioning Rules**

FRR Dimensioning Rules means the specifications of the FRR dimensioning process of a LFC Block.

## **Frequency Stability**

Frequency Stability is the ability of the Transmission System to maintain stable frequency in N – Situation and after being subjected to a disturbance.

### **Generation**

Generation is the rate at which a Generation Set delivers electric power to a system or part of a system, generally expressed in kilowatts (kW) or megawatts (MW), at a given instant or averaged over any designated interval of time, see also: Demand.

### **Generation Schedule**

Generation Schedule is a Schedule representing the Generation of electricity of a Power Generating Module or a group of Power Generating Modules.

### **Generation Set**

A Generation Set is a set of machines consisting of a generator (and its driving apparatus) and a turbine of a generation unit.

### **GMS Synchronous Area**

A GMS synchronous area is a part of a Synchronous Area covered by Interconnected Systems / TSOs which are members of the association. Different GMS Synchronous Areas may exist in parallel on a temporal or permanent basis.

### **Imbalance Netting Power Interchange**

Imbalance Netting Power Interchange means the power which is interchanged between LFC Areas within the Imbalance Netting Process.

### **Imbalance Netting Process**

Imbalance Netting Process means a process agreed between TSOs of two or more LFC Areas within one or more than one Synchronous Areas that allows for avoidance of simultaneous FRR activation in opposite directions by taking into account the respective FRCEs as well as activated FRR and correcting the input of the involved FRPs accordingly.

### **Inadvertent Deviation**

See: Unintentional Deviation.

### **Independent System Operator (ISO)**

An Independent System Operator (ISO) is a neutral operator responsible for maintaining instantaneous balance of the grid system. The ISO performs its function by controlling the dispatch of flexible plants to ensure that loads match resources available to the system.

**Influence Factor**

Influence Factor is a numerical value used to quantify the highest effect of the outage of an external Transmission System element on any Transmission System branch. The worse the effect, the higher the influence factor value is.

**Initial FCR Obligation**

Initial FCR Obligation means the amount of FCR allocated to a TSO on the basis of a general sharing key.

**Installation Document**

Installation Document is a simple structured document, data of tick sheet, containing information about a Demand Unit with Demand Side Response (DSR) below 1000V and confirming compliance with the relevant requirements of the Network Code.

**Instantaneous Frequency Data**

Instantaneous Frequency Data means a set of data measurements of the overall System Frequency for the Synchronous Area with a measurement period equal to or shorter than 1 second used for System Frequency quality evaluation purposes.

**Instantaneous Frequency Deviation**

Instantaneous Frequency Deviation means a set of data measurements of the Frequency Deviation with a measurement period equal to or shorter than 1 second.

**Instantaneous FRCE Data**

Instantaneous FRCE Data – means a set of data of the FRCE for a LFC Block with a measurement period equal to or shorter than 10 seconds used for System Frequency quality evaluation purposes.

**Interchange Metering**

Interchange Metering means the Metering Equipment at Interchange Points normally consisting of continuous MW metering for AGC purposes and MWh metering for the accounting of Inadvertent Deviations from Interchange Schedules.

**Interchange Point (IP)**

Interchange Point (IP) means a location where power flows from one Control Area to another Control Area.

**Interim Compliance Statement**

Interim Compliance Statement is an itemized statement of compliance provided by the Demand Facility Owner or, Distribution Network Operator, to the Relevant Network

Operator as established in this Network Code and as additionally required by national legislation including the national codes.

### **Interim Operational Notification (ION)**

Interim Operational Notification (ION) is a notification issued by the Relevant Network Operator to a Demand Facility Owner or Distribution Network Operator, confirming that they are entitled to operate their equipment by using the Network connection for a limited period of time and to undertake compliance tests to meet the technical design and operational criteria of the Network Code.

### **Internal Commercial Trade Schedule**

Internal Commercial Trade Schedule is a Schedule representing the commercial exchange of electricity within a Scheduling Area between different Market Participants or between Nominated Electricity Market Operators and Market Coupling Operators.

### **Interconnected System**

An Interconnected System is a system consisting of two or more individual electric systems that normally operate in synchronism and are physically connected via Tie-Lines, see also: Synchronous Area.

### **Interconnection**

An Interconnection is a transmission link (e.g. Tie-Line or transformer) which connects two Control Areas.

### **Intra-Control-Area Transaction**

An Intra-Control-Area Transaction is a transaction carried out from one or more generating sources to one or more delivery points where all the sources and delivery points are entirely located within the metered boundaries of the same Control Area.

### **Instruction**

Instruction is a command given orally, manually or by automatic remote control facilities, e.g. reconnection of a Demand Facility or Distribution Network Connection, from a Network Operator to a Demand Facility Owner or Distribution Network Operator, respectively, in order to perform an action.

### **Island**

An Island represents a portion of a power system or of several power systems that is electrically separated from the main Interconnected System (separation resulting e.g. from the disconnection / failure of transmission system elements).

### **K-Factor**

The K-Factor is a value, usually given in megawatts per Hertz (MW/Hz), which is normally determined for a (single) Control Area / Block; it defines the Frequency Bias of that Control Area for Secondary Control (especially to assure the functionality of the Network Characteristic Method); it is not to be confused with the Network Power Frequency Characteristic.

### **Level 1 FRCE Range**

Level 1 FRCE Range means the first range used for System Frequency quality evaluation purposes on LFC Block level within which the FRCE should be kept for a specified percentage of the time.

### **Level 2 FRCE Range**

Level 2 FRCE Range means the second range used for System Frequency quality evaluation purposes on LFC Block level within which the FRCE should be kept for a specified percentage of the time.

### **LFC Block Operational Agreement**

LFC Block Operational Agreement means a multi-party agreement between all TSOs of a LFC Block if the LFC Block consists of more than one TSO; if a LFC Block consists only of one TSO, it means a formal declaration of obligations.

### **LFC Block Imbalances**

LFC Block Imbalances means the sum of the FRCE, FRR Activation and RR Activation within the LFC Block and the Imbalance Netting Power Exchange, the Frequency Restoration Power Interchange and the Replacement Power Interchange of this LFC Block with other LFC Blocks.

### **LFC Block Monitor**

LFC Block Monitor means a TSO responsible for collecting the Frequency Quality Evaluation Criteria Data and applying the Frequency Quality Evaluation Criteria for the LFC Block.

### **Limited Operational Notification (LON)**

Limited operational Notification (LON) is a notification issued by the Relevant Network Operator to a Demand Facility Owner or, Distribution Network Operator, which has previously reached FON status, but is temporarily subject to either a significant modification or loss of capability which has resulted in non-compliance to the Network Code.

### **Load**



Load means an end-use device or customer that receives power from the electric system. Load should not be confused with Demand, which is the measure of power that a load receives or requires. Load is often wrongly used as a synonym for Demand.

### **Load-Frequency Control (LFC)**

See: Secondary Control

### **Load-Frequency Control Area (LFC Area)**

Load-Frequency Control Area (LFC Area) is a part of a Synchronous Area or an entire Synchronous Area, physically demarcated by points of measurement of Interconnectors to other LFC Areas, operated by one or more TSOs fulfilling the obligations of a LFC Area.

### **Load-Frequency Control Block (LFC Block)**

Load-Frequency Control Block (LFC Block) is a part of a Synchronous Area or an entire Synchronous Area, physically demarcated by points of measurement of Interconnectors to other LFC Blocks, consisting of one or more LFC Areas, operated by one or more TSOs fulfilling the obligations of a LFC Block.

### **Load-Frequency Control Structure**

Load-Frequency Control Structure means the basic structure considering all relevant aspects of Load Frequency Control in particular concerning respective responsibilities and obligations (Process Responsibility Structure) as well as types and purposes of Active Power Reserves (Process Activation Structure).

### **Low Frequency Demand Disconnection (LFDD)**

Low Frequency Demand Disconnection (LFDD) is an action where demand is disconnected during a low Frequency event in order to recover the balance between demand and generation to restore system Frequency to acceptable limits.

### **Low Voltage Demand Disconnection (LVDD)**

Low Voltage Demand Disconnection (LVDD) is a restoration action where demand is disconnected during a low voltage event in order to recover Voltage to a sustainable level within acceptable limits.

### **Load-Shedding**

Load-shedding is the disconnection of Load from the synchronous electric system, usually performed automatically, to control the System Frequency in emergency situations.

### **Local**

Local means the qualification of an Alert, Emergency or Blackout State when there is no risk of extension of the consequences outside of the Responsibility Area of a single TSO.

## **Loop Flows**

See: Parallel Path Flows.

## **Main Meter**

Main Meter means Meter nominated to provide electrical energy measurements at a Defined Metering Point.

## **Main Plant**

Main Plant is at least one of the following equipment: motors, transformers, high voltage equipment at the Connection Point and process production plant.

## **Manual FRR Full Activation Time**

Manual FRR Full Activation Time means the time period between the Set Point change and the corresponding activation or deactivation of manual FRR.

## **Market Operator**

The unique power exchange of trades for the actual delivery of energy that receives the bids from the Balance Responsible Parties that have a contract to bid. The Market Operator determines the market energy price for the Market Balance Area after applying technical constraints from the System Operator. It may also establish the price for the reconciliation within a Metering Grid Area.

## **Maximum Export Capability (MEC)**

Maximum Export Capability (MEC) is the maximum continuous Active Power which a Demand Facility, or Distribution Network, can feed into the Network at the Connection Point as defined in the Connection Agreement or as agreed between the Relevant Network Operator and the Demand Facility Owner or Distribution Network Operator respectively.

## **Maximum Import Capability (MIC)**

Maximum Import Capability (MIC) is the maximum continuous Active Power which a Demand Facility or a Distribution Network, can consume from the Network at the Connection Point as defined in the Connection Agreement or as agreed between the Relevant Network Operator and the Demand Facility Owner or Distribution Network Operator respectively.

## **Maximum Instantaneous Frequency Deviation**

Maximum Instantaneous Frequency Deviation means the maximum expected absolute value of an Instantaneous Frequency Deviation after the occurrence of an imbalance equal or less than the Reference Incident, beyond which emergency measures are activated.

## **Maximum Steady-State Frequency Deviation**

Maximum Steady-State Frequency Deviation is the maximum expected Frequency Deviation after the occurrence of an imbalance equal or less than the Reference Incident at which the System Frequency is designed to be stabilized.

## **Metering**

Metering describes the methods of applying devices that measure and register the amount and direction of electrical quantities with respect to time.

## **Metering Equipment**

Metering Equipment means meters, time-switches, measurement transformers, metering protection and isolation equipment, circuitry and their associated data storage and data communications equipment and wiring, which are part of the Active Energy and Reactive Energy measuring equipment at or relating to the Defined Metering Point.

## **Meter Information Register (MIR)**

Meter Information Register (MIR) means a system which uniquely identifies the meter and Users associated with the meter and contains pertinent data relating to the meter.

## **Minute Reserve {15 Minute Reserve}**

See: Tertiary Control Reserve.

## **Monitoring Area**

Monitoring Area means a part of the Synchronous Area or the entire Synchronous Area, physically demarcated by points of measurement of Tie-Lines to other Monitoring Areas, operated by one or more TSOs fulfilling the obligations of a Monitoring Area.

## **Netted Area AC Position**

Netted Area AC Position is the netted aggregation of all AC-external Schedules of an area.

## **(N-1) Criterion**

The (N-1) Criterion means the rule according to which elements remaining in operation (after failure of a single network element such as transmission line / transformer or generating unit, or in certain instances a busbar) within TSO's Responsibility Area after a Contingency from the Contingency List must be capable of accommodating the new operational situation without violating Operational Security Limits.

## **N Situation**

N Situation means the situation where no element of the Transmission System is unavailable due to a Fault.

### **(N-1) Situation**

(N-1) Situation means the situation in the Transmission System in which a contingency from the Contingency List has happened;

### **Net Transfer Capacity (NTC)**

The Net Transfer Capacity is defined as:

$$NTC = TTC - TRM$$

The Net Transfer Capacity is the maximum total Exchange Program between two Adjacent Control Areas compatible with security standards applicable in all Control Areas of the Synchronous Area, and taking into account the technical uncertainties on future network conditions.

### **Network Characteristic Method**

The properties required for Secondary Control are produced by the Network Characteristic Method. The purpose of Secondary Control is to move the overall Frequency Deviation and Power Deviation of the Control Area / Block considered towards zero.

The Network Characteristic Method (to be applied to all Control Areas in the same way and at the same time) assures the control of two variables at the same time with one set-point value, as long as the Network Power Frequency Characteristic is used.

### **Network Operator**

Network Operator is an entity that operates a Network. This can be either a TSO, a DSO or the Operator of a Closed Distribution Network.

### **Network Power Frequency Characteristic**

The Network Power Frequency Characteristic defines the sensitivity, given in megawatts per Hertz (MW/Hz), usually associated with a (single) Control Area / Block or the entire Synchronous Area, that relates the difference between scheduled and actual System Frequency to the amount of generation required to correct the power imbalance for that Control Area / Block (or, vice versa, the stationary change of the System Frequency in case of a disturbance of the generation-load equilibrium in the Control Area without being connected to other Control Areas); it is not to be confused with the K-Factor. The Network Power Frequency Characteristic includes all active Primary Control and Self-Regulation of Load and changes due to modifications in the generation pattern and the Demand.

### **New Demand Facility**

New Demand Facility is a Demand Facility for which:

- a) with regard to the provisions of the initial version of the Network Code, a final and binding contract of purchase of the Main Plant has been signed after the date, which is two years after the date of the entry into force of the Network Code; or

- b) with regard to the provisions of the initial version of this Network Code, no confirmation is provided by the Demand Facility Owner, with a delay not exceeding thirty months as from the date of entry into force of the Network Code, that a final and binding contract of purchase of the Main Plant exists prior to the date, which is two years after the date of the entry into force of the Network Code;

### **New Distribution Network Connection**

New Distribution Network Connection is a Distribution Network Connection of either a new or existing Distribution Network, which is or will be connected to the Transmission Network for which:

- a) with regard to the provisions of the initial version of the Network Code, a final and binding contract of purchase of the Main Plant has been signed after the date, which is two years after the date of the entry into force of the Network Code; or
- b) with regard to the provisions of the initial version of the Network Code, no confirmation is provided by the Distribution Network Operator, with a delay not exceeding thirty months as from the date of entry into force of the Network Code, that a final and binding contract of purchase of the Main Plant exists prior to the date, which is two years after the date of the entry into force of the Network Code;

### **Nominal Frequency**

Nominal Frequency – means the rated value of the System Frequency.

### **Normal State**

Normal State – means the System State where the system is within Operational Security limits in the N-Situation and after the occurrence of any Contingency from the Contingency List, taking into account the effect of the available Remedial Actions.

### **Observability Area**

Observability Area means a TSO's own Transmission System and the relevant parts Distribution Networks and neighbouring TSOs' Transmission Systems, on which TSO implements real-time monitoring and modelling to ensure Operational Security in its Responsibility Area.

### **Observation Line**

An Observation Line is a conventional border line separating a part of the Synchronous Zone from the rest of the system for the purpose of real-time error detection and preliminary calculation of Unintentional Deviations. It must run along the borders of Control Blocks and must not split any Control Block.

### **Offsetting of Unintentional Deviations**

Offsetting of Unintentional Deviations describes a procedure applied to carry out the compensation in energy of Unintentional Deviations through a corresponding energy Exchange Schedule; the energy is to be delivered to (or imported from) the rest of the system during the following week according to the standards.

## **Observation of Unintentional Deviations**

The on-line Observation of Unintentional Deviations is performed in an autonomous and independent way by each Control Block according to the standards established.

A second level exists through real-time observation of Unintentional Deviations across previously defined Observation Lines. This function allows to improve the detection, as early as possible, of any error concerning on-line telemeasurements (TMs), any misunderstanding which may occur in setting the Exchange Programs, etc., in order to implement without delay the appropriate corrective actions. This function may be performed in one or more locations which must then closely co-operate.

## **On Load Tap Changer**

On Load Tap Changer is a device for changing the tap of a winding, suitable for operation while the transformer is energized or on load.

## **On Load Tap Changer Blocking**

On Load Tap Changer Blocking is an action that blocks the On Load Tap Changer[s] during a low Voltage event in order to stop transformers from further tapping and suppressing Voltages in an area; this should be employed in association with LVDD.

## **Operating Policies**

Operating Policies constitute the doctrine developed for Interconnected Systems operation; they form the main part of the Operation Handbook. Each doctrine consists of criteria, standards, requirements, guides, and instructions, and applies to all Control Areas / Blocks / TSOs.

## **Operating Procedures**

Operating Procedures are a set of policies, practices, or system adjustments that may be automatically or manually implemented by the system operator within a specified time frame to maintain the operational integrity of the Interconnected Systems.

## **Operational Reserves**

Operational Reserves is the spinning and non-spinning reserves that are accessible to at least one TSO.

## **Operational Security**

Operational Security is the Transmission System capability to retain a Normal State or to return to a Normal State as soon and as close as possible, and is characterized by thermal limits, voltage constraints, short-circuit current, frequency limits and stability limits.

## **Operational Security Analysis**

Operational Security Analysis is the entire scope of the computer based, manual and combined activities performed in order to assess Operational Security of the Transmission System, including but not limited to: processing of telemetered real-time data through State Estimation, real-time load flows calculation, load flows calculation during operational planning, Contingency Analysis in real-time and during operational planning, Dynamic Stability Assessment, real-time and offline short circuit calculations, System Frequency monitoring, Reactive Power and voltage assessment.

### **Operational Security Limits**

Operational Security Limits is the acceptable operating boundaries: thermal limits, voltage limits, short-circuit current limits, frequency and Dynamic Stability limits.

### **Operational Security Performance Indicators**

Operational Security Performance Indicators are used for monitoring of the Operational Security in terms of Faults, incidents, disturbances and other events which influence Operational Security.

### **Operational Security Ranking**

Operational Security Ranking is used for monitoring of the Operational Security on the basis of the Operational Security Performance Indicators.

### **Ordinary Contingency**

Ordinary Contingency is the loss of a Transmission System element such as, but not limited to: a single line, a single transformer, a single phase-shifting transformer, a voltage compensation installation connected directly to the Transmission System; it also means the loss of a single Power Generating Module connected directly to the Transmission System, the loss of a single Demand Facility connected directly to the Transmission System, or the loss of a single DC line.

### **Out-of-Range Contingency**

Out-of-Range Contingency is the simultaneous loss, without a common mode Fault, of several Transmission System elements such as, but not limited to: two independent lines, a substation with more than one busbar, a tower with more than two circuits, one or more Power Generating Facilities with a total lost capacity exceeding the Reference Incident.

### **Outage Coordination Process**

Outage Coordination Process is the process of coordinating the Availability Plans of all Relevant Assets.

### **Outage Coordination Region**

Outage Coordination Region is a combination of Responsibility Areas in which procedures are defined to monitor and where necessary coordinate the Availability Status of Relevant Assets on all planning timescales.

## **Outage Coordinating TSO**

Outage Coordinating TSO is the TSO to which a Relevant Asset is directly connected to its Transmission System or connected via a Transmission Connected Distribution Network or a Transmission Connected Closed Distribution Network.

## **Outage Incompatibility**

Outage Incompatibility is the state in which a combination of the Availability Status of one or more Relevant Grid Elements, Relevant Power Generating Modules, and/or Relevant Demand Facilities and the best estimate of the forecasted electricity grid situation leads to violation of Operational Security Limits taking into account Non Costly Remedial Actions at the TSO's disposal.

## **Outage Planning Agent**

Outage Planning Agent is the role of planning the Availability Status of a Relevant Power Generating Module, a Relevant Demand Facility or a Relevant Grid Element.

## **Parallel Path Flows {loop flows, circulating power flows, unscheduled power flows}**

Parallel Path Flows describe the difference between the scheduled and actual power flow, assuming zero inadvertent interchange, on a given transmission path in a meshed grid.

## **Power Generating Facility**

Power Generating Facility is a facility to convert primary energy to electrical energy which consists of one or more Power Generating Modules connected to a Network at one or more Connection Points.

## **Power Generating Facility Operator**

Power Generating Facility Operator is the natural or legal person who is the operator of a Power Generating Facility.

## **Power Generating Facility Owner**

Power Generating Facility Owner is a natural or legal entity owning a Power Generating Facility.

## **Power Generating Module**

Power Generating Module is either a:

- Synchronous Power Generating Module, or
- a Power Park Module.



## **Power Generating Module Document (PGMD)**

Power Generating Module Document (PGMD) is a document issued by the Power Generating Facility Owner to the Relevant Network Operator for a Type B or C Power Generating Module. The PGMD is intended to contain information confirming that the Power Generating Module has demonstrated compliance with the technical criteria as referred to in this Network Code and provided the necessary data and statements including a Statement of Compliance.

## **Power Park Module (PPM)**

Power Park Module (PPM) is a unit or group of units generating electricity, which:

- is connected to the Network non-synchronously or through power electronics, and
- has a single Connection Point to a transmission, distribution or closed distribution network.

## **Power System**

The Power System comprises all generation, consumption and network installations interconnected through the network.

## **Power System Stabilizer (PSS)**

Power System Stabilizer (PSS) is an additional functionality of the AVR of a Synchronous Power Generating Module with the purpose of damping power oscillations.

## **Power Deviation**

A Power Deviation is a power deficit (negative value) or a surplus (positive value) in a Control Area / Block of the Synchronous Area (Power exchanges over DC-connections are not included in the calculation of the power deviation, they are considered to be either an injection or a load in the Control Area connected), usually measured at the borders of the area, with respect to the Control Program.

## **Prequalification**

Prequalification means the process to verify the compliance of a Reserve Providing Unit or a Reserve Providing Group of kind FCR, FRR or RR with the requirements set by the TSO according to principles stipulated in this code.

## **Primary Control {Frequency Control, Primary Frequency Control}**

Primary Control maintains the balance between Generation and Demand in the network using turbine speed governors. Primary Control is an automatic decentralised function of the turbine governor to adjust the generator output of a unit as a consequence of a Frequency Deviation / Offset in the Synchronous Area:

- Primary Control should be distributed as evenly as possible over units in operation in the Synchronous Area;

- the global Primary Control of an interconnection partner (Control Area / Block), may be assessed by the calculation of the equivalent droop of the area (basically resulting from the Droop of all Generators and the Self-Regulation of the Total Demand).

By the joint action of all interconnected undertakings, Primary Control ensures the operational reliability for the power system of the Synchronous Area.

### **Primary Control Power**

Primary Control Power is the power output of a Generation Set due to Primary Control.

### **Primary Control Range**

The Primary Control Range is the range of adjustment of Primary Control Power, within which Primary Controllers can provide automatic control, in both directions, in response to a Frequency Deviation. The concept of the Primary Control Range applies to each generator, each Control Area / Block, and the entire Synchronous Area.

### **Primary Control Reserve**

The Primary Control Reserve is the (positive / negative) part of the Primary Control Range measured from the working point prior to the disturbance up to the maximum Primary Control Power (taking account of a limiter). The concept of the Primary Control Reserve applies to each generator, each Control Area / Block, and the entire Synchronous Area.

### **Primary Controller**

The Primary Controller is a decentralised / locally installed control equipment for a Generation Set to control the valves of the turbine based on the speed of the generator (for synchronous generators directly coupled to the electric System Frequency); see Primary Control.

The insensitivity of the Primary Controller is defined by the limit frequencies between which the controller does not respond. This concept applies to the complete primary controller-generator unit. A distinction is drawn between unintentional insensitivity associated with structural inaccuracies in the unit and a dead band set intentionally on the controller of a generator.

### **Primary Frequency Control**

See: Primary Control.

### **Process Activation Structure**

Process Activation Structure means the structure to categorize the processes concerning the different types of Active Power Reserves in terms of purpose and activation.

### **Process Responsibility Structure**

Process Responsibility Structure means the structure to determine responsibilities and obligations with respect to Active Power Reserves based the control structure of the Synchronous Area.

### **Pseudo-Tie-Line**

See: Virtual Tie-Line.

### **Ramping Period**

The Ramping Period is a period of time defined by a fixed starting point and a length of time during which the input and/or output of Active Power will be increased or decreased.

### **Ramping Rate**

Ramping Rate is the rate of change of Active Power by a Power Generating Module, Demand Facility or DC Interconnector.

### **Re-energization**

Re-energization means reconnecting generation and load to energise (parts of) the system that have been disconnected.

### **Resynchronisation**

Resynchronisation means synchronising and connecting again two Synchronised Regions at the Resynchronisation Point.

### **Reactive Power**

Reactive Power is an imaginary component of the apparent power. It is usually expressed in kilo-vars (kVAr) or mega-vars (MVar). Reactive Power is the portion of electricity that establishes and sustains the electric and magnetic fields of alternating-current equipment. Reactive Power must be supplied to most types of magnetic equipment, such as motors and transformers and causes reactive losses on transmission facilities. Reactive Power is provided by generators, synchronous condensers, or electrostatic equipment such as capacitors, and directly influences the electric system voltage. The Reactive Power is the imaginary part of the complex product of voltage and current.

### **Reactive Power Reserve**

Reactive Power Reserve is the Reactive Power which is available for maintaining voltage.

### **Redispatching Aggregator**

Redispatching Aggregator is a legal entity which is responsible for the operation of a number of Power Generating Modules by means of generation aggregation for the purpose of offering Redispatching.

### **Reference Incident**

Reference Incident is the maximum instantaneously occurring power deviation between generation and demand in a Synchronous Area in both positive and negative direction, considered in the FCR dimensioning.

### **Regional Security Coordination Initiative (RSCI)**

Regional Security Coordination Initiative (RSCI) is regional unified scheme set up by TSOs in order to coordinate Operational Security Analysis in a determined geographic area.

### **Relevant Asset**

Relevant Asset – means any Relevant Demand Facility, Relevant Power Generating Module, or Relevant Grid Element partaking in the Outage Coordination Process.

### **Relevant Demand Facility**

Relevant Demand Facility – means a Demand Facility which participates in the Outage Coordination Process as its Availability Status influences cross-border Operational Security.

### **Relevant Grid Element**

Relevant Grid Element is a grid element located in a Transmission System, in a Distribution Network, or in a Closed Distribution Network which participates in the Outage Coordination Process as its Availability Status influences cross-border Operational Security.

### **Relevant Network Operator**

Relevant Network Operator is the operator of the Network to which a Demand Facility, Demand Unit or Distribution Network is or will be connected.

### **Relevant Power Generating Module**

Relevant Power Generating Module is a Power Generating Module which participates in the Outage Coordination Process as its Availability Status influences cross-border Operational Security.

### **Relevant TSO**

Relevant TSO is the TSO in whose Control Area a Demand Facility, Demand Unit or Distribution Network Connection is or will be connected to the Network at any Voltage level.

### **Reliability**

To a great extent, the overall Reliability of the electric power supply (for customers being connected to the distribution grid), that is usually measured, is defined by the Reliability of the power distribution instead of the transmission or generation)

Reliability describes the degree of performance of the elements of the bulk electric system that results in electricity being delivered to customers within accepted standards and in the amount desired.

Reliability on the transmission level may be measured by the frequency, duration, and magnitude (or the probability) of adverse effects on the electric supply / transport / generation.

Reliability can be addressed by considering two basic and functional aspects of the electric system:

- Adequacy - The ability of the electric system to supply the aggregate electrical demand and energy requirements of the customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements.
- Security - The ability of the electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system elements.

### **Remedial Action**

Remedial Action means any measure applied by a TSO in order to maintain Operational Security. In particular, Remedial Actions serve to fulfil the (N-1) Criterion and to maintain Operational Security Limits.

### **Replacement Power Interchange**

Replacement Power Interchange means the power which is interchanged between LFC Areas within the Cross-Border RR Activation Process.

### **Replacement Reserves (RR)**

Replacement Reserves (RR) means the reserves used to restore/support the required level of FRR to be prepared for additional system imbalances. This category includes operating reserves with activation time from Time to Restore Frequency up to hours.

### **Reserve Capacity**

Reserve Capacity means the amount of FCR, FRR or RR that needs to be available to the TSO.

### **Reserve Connecting DSO**

Reserve Connecting DSO means the DSO responsible for the Distribution Network to which a Reserve Providing Unit or Reserve Providing Group, providing reserves to a TSO, is connected.

### **Reserve Connecting TSO**

Reserve Connecting TSO means the TSO responsible for the Monitoring Area to which a Reserve Providing Unit or Reserve Providing Group is connected to.

### **Reserve Instructing TSO**

Reserve Instructing TSO means the TSO responsible for the instruction of the Reserve Providing Unit or the Reserve Providing Group to activate FRR and/or RR.

### **Reserve Provider**

Provider means a legal entity with a legal or contractual obligation to supply FCR, FRR or RR from at least one Reserve Providing Unit or Reserve Providing Group.

### **Reserve Providing Group**

Reserve Providing Group means an aggregation of Power Generating Modules, Demand Unit and/or Reserve Providing Units connected to more than one Connection Point fulfilling the requirements for FCR, FRR or RR.

### **Reserve Providing Unit**

Reserve Providing Unit means a single or an aggregation of Power Generating Modules and/or Demand Units connected to a common Connection Point fulfilling the requirements for FCR, FRR or RR.

### **Reserve Receiving TSO**

Reserve Receiving TSO means the TSO involved in an exchange with a Reserve Connecting TSO and/or a Reserve Providing Unit or a Reserve Providing Group connected to another Monitoring or LFC Area.

### **Reserve Replacement Process (RRP)**

Reserve Replacement Process (RRP) means a process to restore activated FRR.

### **Responsibility Area**

Responsibility Area is a coherent part of the interconnected Transmission System including Interconnectors, operated by a single TSO with connected Demand Facilities or Power Generating Modules, if any.

### **Restoration**

Restoration means the System State in which the objective of all activities in Transmission System is to re-establish the system operation and maintain Operational Security after a Blackout.

### **Restoration Plan**

Restoration Plan means the sum of all technical and organisational measures to be undertaken to restore the system back to Normal State.

### **Restoration Service Provider**

Restoration Service Provider means a legal entity with a legal or contractual obligation to provide a service contributing to one or several measures of the Restoration Plan.

### **Resynchronisation Leader**

Resynchronisation Leader means the TSO in charge of Resynchronisation of two Synchronised Regions.

### **Resynchronisation Point**

Resynchronisation Point means the device used to connect two Synchronised Regions, usually a circuit breaker.

### **Rotor Angle Stability**

Rotor Angle Stability is the ability of synchronous machines to remain in synchronism under N – Situation and after being subjected to a disturbance.

### **RPCC Operational Planning Data Environment**

RPCC Operational Planning Data Environment means the set of application programs and equipment developed in order to allow the storage, the exchange and the management of the data used within operational planning processes between TSOs, orchestrated by the RPCC of GMS.

### **RR Availability Requirements**

RR Availability Requirements means a set of requirements defined by the TSOs of a LFC Block regarding the availability of RR.

### **RR Dimensioning Rules**

RR Dimensioning Rules means the specifications of the RR dimensioning process of a LFC Block.

### **Sharing of Reserves**

Sharing of Reserves means a mechanism in which more than one TSO take the same Reserve Capacity, being FCR, FRR or RR, into account to fulfil their respective reserve requirements resulting for their reserve dimensioning processes.

### **Schedule**

Schedule is a reference set of values representing the Generation, consumption or exchange of electricity between actors for a given time period.

### **Scheduling Agent**

Scheduling Agent is the role of providing Schedules.

### **Scheduling Area**

Scheduling Area is the Bidding Zone except if there is more than one Responsibility Area within this Bidding Zone. In the latter case, the Scheduling Area equals Responsibility Area or a group of Responsibility Areas.

### **Secondary Control {Load-Frequency-Control}**

Secondary Control is a centralised automatic function to regulate the generation in a Control Area based on Secondary Control Reserves in order

- to maintain its interchange power flow at the Control Program with all other Control Areas (and to correct the loss of capacity in a Control Area affected by a loss of production) and, at the same time,
- (in case of a major Frequency Deviation originating from the Control Area, particularly after the loss of a large generation unit) to restore the frequency in case of a Frequency Deviation originating from the Control Area to its set value in order to free the capacity engaged by the Primary Control (and to restore the Primary Control Reserves).

In order to fulfil these functions, Secondary Control operates by the Network Characteristic Method. Secondary Control is applied to selected generator sets in the power plants comprising this control loop. Secondary Control operates for periods of several minutes, and is therefore dissociated from Primary Control. This behaviour over time is associated with the PI (proportional-integral) characteristic of the Secondary Controller.

### **Secondary Control Range**

The Secondary Control Range is the range of adjustment of the secondary control power, within which the Secondary Controller can operate automatically, in both directions at the time concerned, from the working point of the secondary control power.

### **Secondary Control Reserve**

The positive / negative Secondary Control Reserve is the part of the Secondary Control Range between the working point and the maximum / minimum value. The portion of the Secondary Control Range already activated at the working point is the Secondary Control Power.

### **Secondary Controller**

A Secondary Controller is the single centralised TSO-equipment per Control Area / Block for operation of Secondary Control.



## **Security Limits {Operating Security Limits}**

Security Limits define the acceptable operating boundaries (thermal, voltage and stability limits). The TSO must have defined Security Limits for its own network. The TSO shall ensure adherence to these Security Limits. Violation of Security Limits for prolonged time could cause damage and/or an outage of another element that can cause further deterioration of system operating conditions.

## **Security Plan**

Security Plan is the plan containing a risk assessment of critical TSO's assets to major physical and cyber-threat scenarios with an assessment of the potential impacts.

## **Self-Regulation of Load**

The Self-regulation of Load is defined as the sensitivity of consumers' demand to variations in the System Frequency (a decrease of the System Frequency results in a decrease of the Load), generally expressed in % / Hz.

## **Significant Grid User (SGU)**

Significant Grid User (SGU) is the existing and new Power Generating Facility and Demand Facility deemed by the TSO as significant because of their impact on the Transmission System in terms of the security of supply including provision of Ancillary Services.

## **Significant Power Generating Module**

Significant Power Generating Module is a Power Generating Module which is deemed significant on the basis of its impact on the cross-border system performance via influence on the control area's security of supply.

## **Stability**

Stability is the ability of an electric system to maintain a state of equilibrium during normal and abnormal system conditions or disturbances.

- Small-Signal Stability — The ability of the electric system to withstand small changes or disturbances without the loss of synchronism among the synchronous machines in the system while having a sufficient damping of system oscillations (sufficient margin to the border of stability).
- Transient Stability — The ability of an electric system to maintain synchronism between its parts when subjected to a disturbance of specified severity and to regain a state of equilibrium following that disturbance.

## **Stability Limits**

Stability Limits are the permitted operating boundaries of the Transmission System in terms of respecting the constraints of Voltage Stability, Rotor Angle Stability and Frequency Stability.

## **Standard Frequency Deviation**

Standard Frequency Deviation means the absolute value of the Frequency Deviation that limits the Standard Frequency Range.

## **Standard Frequency Range**

Standard Frequency Range means a defined interval symmetrically around the Nominal Frequency within which the System Frequency of a Synchronous Area is supposed to be operated.

## **State Estimation**

State Estimation is the methodology and algorithms used to calculate a reliable set of measurements defining the state of the Transmission System out of the redundant set of measurements.

## **Statement of Compliance**

Statement of Compliance is a document provided by either a Demand Facility Owner or Distribution Network Operator to the Relevant Network Operator stating the current status with respect to compliance itemized for each element of the Network Code.

## **Steady State Frequency Deviation**

Steady State Frequency Deviation means the absolute value of Frequency Deviation after occurrence of an imbalance, once the System Frequency has been stabilized.

## **Supervisory Control and Data Acquisition (SCADA)**

Supervisory Control and Data Acquisition is a system of remote control and telemetry used to monitor and control the electric system.

## **Synchronised Region**

Synchronised Region means a subpart of a Synchronous Area covered by interconnected TSOs with a common System Frequency not synchronised with the rest of the Synchronous Area.

## **Synchronous Area**

A Synchronous Area is an area covered by Interconnected Systems whose Control Areas are synchronously interconnected with Control Areas of members of the association (an area covered by interconnected TSOs). Within a Synchronous Area the System Frequency is common on a steady state. A certain number of Synchronous Areas may exist in parallel on a temporal or permanent basis. A Synchronous Area is a set of synchronously Interconnected Systems that has no synchronous interconnections to any other Interconnected Systems, see also: GMS Synchronous Area.

## **Synchronous Area Agreement**

Synchronous Area Agreement is a multi-party agreement between all TSOs of a Synchronous Area if the Synchronous Area consists of more than one TSO. If a Synchronous Area consists of only one TSO, the Synchronous Area Agreement means a formal declaration of the obligations defined in the Network Code.

## **Synchronous Area Monitor**

Synchronous Area Monitor means a TSO responsible for collecting the Frequency Quality Evaluation Criteria Data and applying the Frequency Quality Evaluation Criteria for the LFC Block.

## **Synchronous Power Generating Module**

Synchronous Power Generating Module is an indivisible set of installations which can generate electrical energy. It is either:

- a single synchronous unit generating power within a Power Generating Facility directly connected to a transmission, distribution or closed distribution Network, or
- a set of synchronous units generating power within a Power Generating Facility directly connected to a transmission, distribution or closed distribution Network with a
- common Connection Point, or a set of synchronous units generating power within a Power Generating Facility directly connected to a transmission, distribution or closed distribution Network that cannot be operated independently from each other (e. g. units generating in a combined-cycle gas turbine facility), or
- a single synchronous storage device operating in electricity generation mode directly connected to a transmission, distribution or closed distribution Network, or a set of synchronous storage devices operating in electricity generation mode directly connected to a transmission, distribution or closed distribution Network with a common Connection Point.

## **Synchronous Time**

Synchronous Time is the fictive time based on the System Frequency in the Synchronous Area, once initialised on UTC time and with the clock frequency being 60/50 of the System Frequency. If the Synchronous Time is ahead / behind of the UTC time (Time Deviation), the System Frequency has on average been higher / lower than the nominal frequency of 50 Hz. Time Control action will return a Time Deviation to zero again.

## **System Defence Plan**

System Defence Plan is the summary of all technical and organisational measures to be undertaken to prevent the propagation or deterioration of an incident in the Transmission System, in order to avoid a widespread disturbance and Blackout State.

## **System Frequency {Frequency}**

System Frequency is the electric frequency of the system that can be measured in all parts of the Synchronous Area under the assumption of a coherent value for the system in the time frame of seconds, with only minor differences between different measurement locations.

### **System Operator**

A System Operator is a party that is responsible for a stable power system operation (including the organisation of physical balance) through a transmission grid in a geographical area. The System Operator will also determine and be responsible for cross border capacity and exchanges. If necessary, he may reduce allocated capacity to ensure operational stability.

Transmission as mentioned above means “the transport of electricity on the extra high or high voltage network with a view to its delivery to final customers or to distributors. Operation of transmission includes as well the tasks of system operation concerning its management of energy flows, reliability of the system and availability of all necessary system services”.

Additional obligations may be imposed through local market rules.

### **System Operator Employee**

System Operator Employee is the person who is a TSO employee in charge of system operation and control of the Transmission System in real-time, or the person who is a TSO employee in charge of operational planning.

### **System Protection Scheme (SyPS)**

System Protection Scheme (SyPS) is the set of coordinated and automatic measures designed to ensure fast reaction to Disturbances and to avoid the propagation of Disturbances in the Transmission System.

### **System Reserve**

System Reserve means Active or Reactive Power reserves to actively manage the Network predominantly to respond to Frequency and Voltage fluctuations.

### **System State**

System State means the operational state of the Transmission System in relation to the Operational Security Limits: Normal, Alert, Emergency, Blackout and Restoration System States are defined.

### **Temperature Controlled Device**

Temperature Controlled Device is a device which heats and cools, and therefore whose electrical usage is proportional to the temperature regulated. Examples include but are not restricted to fridges, freezers, heat pumps, water heating.

### **Tertiary Control**

Tertiary Control is any (automatic or) manual change in the working points of generators (mainly by re-scheduling), in order to restore an adequate Secondary Control Reserve at the right time.

### **Tertiary Control Reserve {Minute Reserve}**

The power which can be connected (automatically or) manually under Tertiary Control, in order to provide an adequate Secondary Control Reserve, is known as the Tertiary Control Reserve or Minute Reserve. This reserve must be used in such a way that it will contribute to the restoration of the Secondary Control Range when required.

The restoration of an adequate Secondary Control Range may take, for example, up to 15 minutes, whereas Tertiary Control for the optimisation of the network and generating system will not necessarily be complete after this time.

### **Tie-Line**

A Tie-Line is a circuit (e.g. a transmission line excluding HVDC Interconnectors) connecting two or more Control Areas or systems.

### **Time Deviation**

The Time Deviation normally is the time integral of the Frequency Deviation. In practice, an electrical clock that follows the System Frequency is compared with the astronomical time (UTC).

### **Time Control**

Time Control is a control action carried out to return an existing Time Deviation between Synchronous Time and UTC time to zero.

### **Time Control Process**

Time Control Process means a process for time control, where time control is a control action carried out to return the Electrical Time Deviation between synchronous time and UTC time to zero.

### **Time to Restore Frequency**

For Synchronous Areas with more than one LFC Area, the Time to Restore Frequency is the maximum expected time after the occurrence of an imbalance of a LFC Area within which the imbalance is compensated.

### **Top-down Re-energization Strategy**

Top-down Re-energization Strategy means a strategy that requires the assistance of other TSOs to re-energise (part of) the system of a TSO.

### **Topology**

Topology means necessary data about the connectivity of the different Transmission System or Distribution Network elements in a substation. It includes the electrical configuration and the position of circuit breakers and isolators.

### **Total Transfer Capacity (TTC)**

Total Transfer Capacity is the maximum Exchange Program between two Adjacent Control Areas that is compatible with operational security standards applied in each system (e.g. Grid Codes) if future network conditions, generation and load patterns are perfectly known in advance.

### **Transitory Admissible Overloads**

Transitory Admissible Overloads means the temporary overloads of Transmission System elements which are allowed for a limited period and which do not cause physical damage to the Transmission System elements and equipment as long as the defined duration and thresholds are respected.

### **Transmission**

Transmission is the transport of electricity on the extra-high or high-voltage network (transmission system) for delivery to final customers or distributors. Operation of Transmission includes as well the tasks of system operation concerning the management of energy flows, reliability of the system and availability of all necessary system services / Ancillary Services.

### **Transmission Connected Closed Distribution Network**

Transmission Connected Closed Distribution Network is a Closed Distribution Network which has a Connection Point to a Transmission Network.

### **Transmission Connected Demand Facility**

Transmission Connected Demand Facility is a Demand Facility which has a Connection Point to a Transmission Network.

### **Transmission Connected Demand Facility Owner**

Transmission Connected Demand Facility Owner is the owner of a Transmission Connected Demand Facility.

### **Transmission Connected Distribution Network Operator**

Transmission Connected Distribution Network Operator is the operator of a Transmission Connected Distribution Network.

### **Transmission Connected Distribution Network**

Transmission Connected Distribution Network is a Distribution Network which has a Connection Point to a Transmission Network.

### **Transmission Network**

Transmission Network is an electrical Network for the transmission of electrical power from and to third party[s] connected to it, including Demand Facilities, Distribution Networks or other Transmission Networks. The extent of this Network is defined at a national level.

### **Transmission Reliability Margin (TRM)**

The Transmission Reliability Margin is a security margin that copes with uncertainties on the computed TTC values arising from:

- Unintentional Deviations of physical flows during operation due to the physical functioning of Secondary Control
- Emergency exchanges between TSOs to cope with unexpected unbalanced situations in real-time
- Inaccuracies, e. g. in data collection and measurements

### **Transmission System Operator (TSO)**

Transmission System Operator (TSO) is a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity.

### **Unintentional Deviation {Inadvertent Deviation}**

In the Secondary Control function, the Unintentional Deviation is the difference between the actual energy exchange that has taken place in a given time interval (unintended physical power exchange of a Control Area) and the scheduled Control Program of a Control Area (or a Control Block), without taking into account the effect of the frequency bias (see: Area Control Error), following the sign convention.

### **Virtual Tie-Line {Pseudo-Tie-Line}**

A Virtual Tie-Line represents a telemetered reading or value that is updated in real-time and used as a Tie-Line flow in the AGC/ACE equation but for which no physical tie or energy metering actually exists. The integrated value is used as a metered MWh value for interchange Accounting purposes. It means an additional input of the controllers of the involved areas that has the same effect as a measuring value of a physical Tie-Line and allows exchange of electric energy between the respective areas.

### **Voltage**

Voltage, unless stated otherwise, refers to the root-mean-square value of the positive sequence of the phase-to-phase Voltages at fundamental Frequency.

## Voltage Stability

Voltage Stability means the ability of a Transmission System to maintain acceptable voltages at all buses in the Transmission System under N – Situation and after being subjected to a Disturbance.

## Wide Area

Wide Area means the qualification of an Alert, Emergency or Blackout State when there is a risk of propagation to the interconnected Transmission Systems.

### 3. LIST OF ACRONYMS

<b>AAC</b>	Already Allocated Capacity
<b>ACE</b>	Area Control Error
<b>AGC</b>	Automatic Generation Control
<b>ATC</b>	Available Transmission Capacity
<b>BRP</b>	Balance Responsible Party
<b>CA</b>	Control Area
<b>CAS</b>	Control Area Schedule
<b>CAX</b>	Control Area Exchange
<b>CB</b>	Control Block
<b>CBS</b>	Control Block Schedule
<b>CBX</b>	Control Block Exchange
<b>CC</b>	Control Centre
<b>CCS</b>	Co-ordination Centre Schedule
<b>CoC</b>	Co-ordination Centre
<b>CP</b>	Control Program
<b>DACF</b>	Day Ahead Congestion Forecast
<b>EH</b>	Electronic Highway
<b>GIC</b>	GMS Identification Code
<b>EMR</b>	Energy Meter Reading
<b>GSS</b>	GMS Scheduling System
<b>ET</b>	Tie-line Flows
<b>EVT</b>	Virtual Tie-line Flows
<b>GENCO</b>	Generation Company
<b>GMT</b>	Greenwich Mean Time



<b>GPS</b>	Global Positioning System
<b>HV</b>	High Voltage
<b>ISO</b>	Independent System Operator (not owner of the facilities)
<b>LFC</b>	Load-Frequency Control
<b>NTC</b>	Net Transfer Capacity
<b>OpHB</b>	Operation Handbook
<b>PI</b>	Proportional-Integral
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>SVC</b>	Static Var Compensator
<b>TM</b>	Tele-measurement
<b>TSO</b>	Transmission System Operator (owner of the facilities)
<b>TRM</b>	Transmission Reliability Margin
<b>TTC</b>	Total Transfer Capacity
<b>GMS</b>	Either Coordination entity for the Transmission of Electricity within the GMS or Greater Mekong Sub-Region itself (according to the context)
<b>UD</b>	Unintentional Deviation
<b>UHV</b>	Ultra High Voltage
<b>UTC</b>	Universal Time Co-ordinated
<b>WAMS</b>	Wide Inter-Area Measurement System

#### 4. LIST OF UNITS

<b>A</b>	ampere
<b>d</b>	day
<b>GW</b>	gigawatt (1.000.000.000W)
<b>GWh</b>	gigawatt-hour
<b>h,</b>	hrs hour
<b>Hz</b>	hertz (1/s)
<b>kV</b>	kilovolt (1000V)
<b>kVA</b>	kilovoltampere
<b>kVAr</b>	kilovars
<b>kW</b>	kilowatt (1000W)
<b>kWh</b>	kilowatt-hour
<b>mHz</b>	milli-hertz (1/1000 Hz)
<b>min</b>	minute

<b>ms</b>	milli-second (1/1000 s)
<b>MVA</b>	megavolt-ampere
<b>MVA<sub>r</sub></b>	mega-vars
<b>MW</b>	megawatt (1.000.000W)
<b>MWh</b>	megawatt-hour
<b>s,</b>	sec second
<b>TW</b>	terawatt (1.000.000.000.000W)
<b>V</b>	volt
<b>W</b>	watt