UTILITY REGULATORY AUTHORITY

Mauritius National Grid Code

Governance Code

Version December 2022

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CONTENTS

GOVERNANCE CODE

GC 1 INTRODUCTION TO THE NATIONAL GRID CODE

The Governance Code and each of the Codes comprise the substance of the National Grid Code. The Codes are organized into a single Book of Codes for the convenience of the System Users and it allows a more convenient reference to related provisions in the other Codes. The Governance Code provides background information which places the Codes in context; an overview of the legal authority for the Codes; sets out the purpose and organization of the Book of Codes; the procedure for revision of and compliance with the Codes; guidance on interpretation of the Codes; and defines the Terms and Definitions applicable to the Codes.

GC 1.1 Purpose of the Codes

These Codes cover the guiding principles, operating procedures, and Technical Standards governing operation of the System and all interconnected Generating Facilities.

The Codes have been developed in parallel, designed to provide a comprehensive framework for the development, maintenance and operation of an efficient, safe, and reliable System. Each of the four (4) Codes, that is, the Generation, Transmission, Distribution, and System Operations Codes, is designed to be used in conjunction with the other three (3) Codes. The Codes cover all material, technical aspects relating to Interconnection to, Operation, and use of the System (and insofar as they affect the System, the Operation of User electric lines and electrical Plants connected to that System). The Codes prohibit any undue discrimination among Users and categories of Users of the Grid. The Codes also provide technical guidance to all Users in relation to the optimal approach to planning, operation and use of the power Grid. The Codes have been designed to be consistent with internationally required technical standards and with Prudent Utility Practice, and to address the specific needs of the Grid and its Users.

The Codes are authorized by and enforceable under the provisions of the Electricity Act 2005 and its amendment (December 2020), the Utility Regulatory Authority Act 2004 as well as the Electricity Licence.

The Codes have been developed in extensive consultation with the Utility Regulatory Authority, the Mauritius Renewable Energy Agency, the CEB, IPPs and Users of the Grid.

In the event of any inconsistency with any provision of the Codes with the Electricity Act 2005 and its amendments or any regulations made thereunder, the Electricity Act 2005 and its amendments and the regulations will be applicable to the extent of the inconsistency.

GC 2 LEGAL AUTHORITY FOR PROMULGATION OF CODES

GC 2.1 The Electricity Act 2005

Section 21(1) of the Electricity Act 2005 requires that URA, after consultation with the licensees and other interested parties, shall draw up standards and codes in respect to the quality, reliability, efficiency and economy of electricity service supplied by a licensee.

Section 21(2)(b) of the Electricity Act 2005 further provides that all standards or codes drawn up by the Authority under section 21(1) shall be binding on a licensee.

In discharging its licensing powers, the Authority shall consider the objects listed in Section 4(6) of the Electricity Act 2005, and specifically the following: (1) the safety, reliability and quality of the electricity service; (2) the efficiency of the electricity service; (3) the conservation of resources; (4) the enhanced use of renewable sources of energy for the generation of electricity; (5) the suitability of the applicant, including technical, economic, financial and organizational capacity to perform the activity; (6) the impact on the environment after consultation with the Department of Environment established under the Environment Protection Act; (7) the promotion of competition; and (8) the provision of electricity service at a competitive price.

GC 2.2 The Utility Regulatory Authority Act 2004

Section 4(1) of the URA Act 2004 charges URA with the function of regulating the provision of utility services by licensees. The URA Act 2004 prescribes the manner in which the URA must operate in carrying out its functions and the exercise of its powers. Section 5 of the URA Act 2004 provides that subject to the relevant Utility legislation, the objects of the Authority shall be to:

(a) ensure the sustainability and viability of utility services;

(b) protect the interests of both existing and future customers;

(c) promote efficiency in both operations and capital investments in respect of utility services; and

(d) promote competition to prevent unfair and anticompetitive practices in the utility services industry.

GC 3 OVERVIEW OF THE CODES

The Governance Code contains the Terms and Definitions applicable to all four (4) Codes, which are set out in Appendix A. The table of Technical Standards is included in Appendix B. This Technical Standards list includes all technical and engineering standards or guidelines specifically referenced in the Codes. Any reference to these standards or guidelines shall be interpreted to reference the then- current version of the standard, bulletin, or guideline as published by the promulgating organization.

The Generation Code specifies the minimum technical, design and operational criteria which must be complied with by Generators connected or seeking Interconnection to the Transmission System.

The Transmission Code provides the guidelines controlling the development, maintenance and Operation of an efficient, coordinated and economic Transmission System. The Transmission Code also sets out the procedures and principles governing the System Operator's relationship with all Users of the Transmission System. The Transmission System is that part of the System consisting of the Electrical Facilities used for conveyance of electricity over HV Electric Lines, and includes the power transformers from the HV to the MV Grids, along with the MV Circuit Breakers of the HV/MV Substations.

The Distribution Code establishes the rules, procedures, requirements and standards that govern the operation, maintenance and development of the Distribution System. The Distribution System is that part of the electric System that operates below 66kV from the cable termination of the isolators of the outgoing MV feeders' panels of the Transmission System Substations to the Point of Interconnection with the User's system.

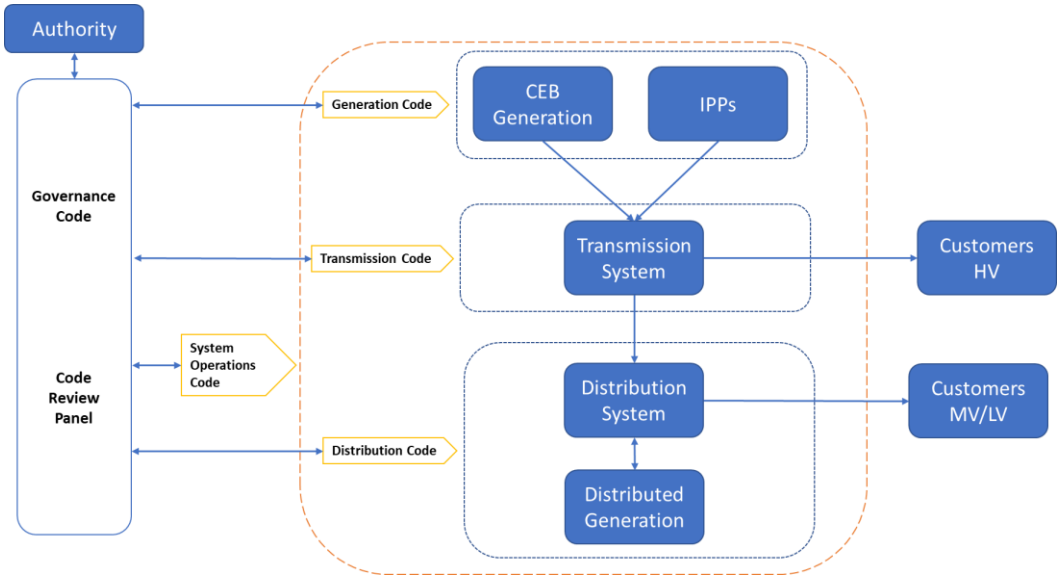
The System Operators Code controls the System Operator Licensee in their activities involved in the planning and operation of Generating Plants and other sources of supply to the Grid, the Transmission and Distribution Systems.

In the Codes, the Licensee has responsibilities in two distinct capacities, they are as follows:

a. Licensee is responsible for prudent and efficient management of the System by virtue of its holding of the Licence. The Codes apply the term "System Operator" whenever referring to the Licensee in this capacity; and

b. As the owner of power stations, the Licensee is also subject to the rights and obligations in this regulation as it applies to Generators, and any reference to "Generators" in this regulation should be interpreted to include Licensee in this capacity.

The following diagram shows the relations of the Codes.



GC 3.1 The Codes and the Integration of Renewable Energy

Given Mauritius high dependence on imported fossil fuels for electrical energy generation which impacts energy security and makes the country susceptible to fuel price volatility and the government's-set target to reach 35% of renewable energy share in the electricity generation matrix by 2025, it is important that the country achieves its energy diversifications objectives in the medium to long term, taking into account, economic cost, efficiency, environmental considerations and appropriate technologies.

The Codes therefore introduce detailed provisions to assure the smooth integration of the renewable energy and energy efficiency initiatives envisioned by the Renewable Energy Roadmap 2030 for the Electricity Sector. The provisions are designed to enable achievement of the policy goal of 35% of net energy to the System being provided by renewable energy by 2025, and any revisions of the target as prescribed by the Minister, while maintaining a safe, secure, stable and reliable Grid.

These renewable energy integration provisions address minimum technical conditions for the integration to the System of renewable energy generation sources as well as electrical storage units in line with international best practices and standards, planning and operational responsibilities and requirements related to feasibility studies and system studies.

These requirements will evolve with time, to respond to technological advances and to support increasingly higher levels of renewable energy penetration and innovative use of energy efficiency initiatives.

Specific requirements for the integration of renewable energy sources and electrical storage stations are included in the following Codes:

- **Distribution Code**: Addresses minimum technical requirements for the connection to the Distribution System of specific types of renewable energy sources (according to size and voltage level) as well as requirements for generation based on conventional fuel sources.
- **Generation Code**: Includes general requirements for Renewable Energy generation sources, electrical storage stations and other types, connected to the Transmission System

GC 3.2 Existing CEB Grid Codes for Renewable Energy-Based Distributed Generation

CEB has developed in recent years minimum interconnection requirement specifications (Grid Codes) for the integration of renewable energy projects sponsored by individual customers into the distribution network:

- The Small-Scale Distributed Generation Grid Code (SSDG Grid Code 2015, net metering scheme) sets out the minimum technical requirements to permit the connection and integration of photovoltaic, wind turbine, and mini-hydro technologies within the CEB grid at low voltage (230/400 V), with capacities of less than 50 kW.
- For renewable energy projects with capacities of greater than 50 kW, to be connected to the medium voltage network (22 kV), CEB developed the Medium Scale Distributed Generation (MSDG) grid codes projects, which comprise larger capacity photovoltaic, wind turbine, mini-hydro, and biomass electricity generation systems. The MSDG 1 caters for the connection of a distributed generator greater than 50 kW and not exceeding 500 kW, and the MSDG 2 covers the requirements for the connection of a distributed generator greater than 500 kW and not exceeding 2 MW.

The aforementioned interconnection requirement documents for renewable energy-based distributed generation also contain details about the application process and other requirements for safety, labelling, design, construction, testing and commissioning.

The National Grid Code has been developed taking into account the above documents prepared by CEB, so that the minimum technical requirements in this National Grid Code reflect those in the current versions of the SSDG, MSDG-1 and MSDG-2 documents.

After the National Grid Code Effective Date, it is intended that the above interconnection requirements for renewable energy-based distributed generation and procedures shall form part of the DG Grid Code, used and updated periodically by the Distribution Licensee, subject to the approval of the Authority regarding general provisions in the License and the minimum technical requirements set out in the National Grid Code for renewable energy-based distributed generation.

GC 4 GENERATION CODE

The Generation Code governs Generation activities in the electricity sector and interconnected to the Grid. The Generation Code covers the guiding principles, operating procedures and Technical Standards governing all Generating Plants interconnected to the Grid. The Generation Code seeks to facilitate the economic, safe and reliable operation of the Grid. The Generation Code facilitates the System being made available to persons authorized to generate electricity and to interconnect with the System, and is conceived as a statement of what is optimal (particularly from a technical point of view) for all Users and the System Operator itself in relation to the planning, operation and use of the System. It seeks to avoid any undue discrimination between Users and categories of Users.

The Generation Code is divided into the following sections:

GENERATION CODE	
SECTION	SCOPE
1.	SCOPE
2.	CONNECTION CONDITIONS Specifies the method of interconnection and the minimum technical, design and operational criteria which must be complied with by any existing and prospective Generating Station: a) Synchronous Generating Stations, and b) Power Park Modules, including Variable Renewable Generating Stations and Electricity Storage Stations.
3.	METERING Specifies the Technical Standards and procedures for metering applicable to Metering Systems installed by the Transmission Licensee and Generators
4.	MERIT ORDER SYSTEM Specifies the requirement of the System Operator to establish a Merit Order system based on the real or contracted Variable Operating Cost component of each Generating Unit or Station
5.	SCADA INTERFACING Sets out the technical requirements for connections to the System Operator's Supervisory Control and Data Acquisition (SCADA) system outstation in terms of electrical characteristics
6.	COMMUNICATION AND REPORTING Sets out the requirement of a Generator to provide information as requested, pertaining to the operation of their Generating Unit(s).
7.	FUEL SUPPLY AGREEMENT Specifies the minimum requirements of the Generator Fuel Supply Agreement
8.	GENERATOR SCHEDULING AND DISPATCH Sets out information that must be provided by Generators to the System Operator for scheduling and dispatch

GENERATION CODE	
SECTION	SCOPE
9.	NEW TECHNOLOGIES Makes provision for new technologies that have parameters not covered by the Code which may be given consideration for inclusion to the System.
10.	GENERATOR MAINTENANCE PLANNING Specifies the criteria and procedures governing the planning and scheduling of maintenance requirements of Generators' Generating Facilities.
11.	SCHEDULES OF RESPONSIBILITIES Specifies the ownership and the responsibilities for Operation and Maintenance which shall be jointly agreed by the System Operator and the appropriate Generator for each location.
12.	TESTING AND COMPLIANCE MONITORING Specifies the list, timetable and procedures for all tests to be performed by the Generator and System Operator. Includes provisions for both synchronous and power-park generation stations.
13.	MONITORING AND CONTROL Specifies the method of monitoring and controlling of the system by the System Operator, and the method by which the System Operator and Users can communicate with each other as well as exchanging data signals for the monitoring and control of the system.
14.	UNFORESEEN CIRCUMSTANCES AND SYSTEM EMERGENCIES Makes provisions for circumstances which may arise and which are not addressed by the Code.
15.	GENERATION INTERCONNECTION STUDIES Specifies the type of studies required to be carried out by Users and potential Users of the system who require to interconnect a Generator to the System
16.	GENERATOR DATA REQUIRMENTS Contains the information to be provided by the Generator to the System Operator
17.	INTERCONNECTION BOUNDARY DIAGRAMS

GC 5 TRANSMISSION CODE

The Transmission Code applies to the conveyance of electricity by means of the Transmission System, which includes electric power lines operating at 66kV and higher, including the secondary circuit breakers and up to the outgoing Isolators at Transmission Substations transforming to 22kV. The Transmission Code provides the guidelines controlling the development, maintenance and operation of an

efficient, coordinated and economic Transmission System in Mauritius. The Transmission System is being made available to persons authorized to supply or generate electricity and is conceived as a statement of what is optimal (particularly from a technical point of view) for all Users and the System Operator itself in relation to the planning, operation and use of the Transmission System. It seeks to avoid any undue discrimination between Users and categories of Users.

The procedures and principles governing the System Operator's relationship with all Users of the Transmission System are set out in the Transmission Code. The Transmission Code specifies day-to-day procedures for both planning and operational purposes and covers both normal and exceptional circumstances.

The Transmission Code covers the Generator Interconnections to the Transmission System. The responsibility boundary between the Generator and the System Operator will normally be the Low Voltage side of the Generating Unit step-up transformer or on the **Generator** side of the **Circuit Breaker** of the **Electric Line** connecting the **Generator** to the **Transmission System Substation**. The Transmission Code is divided into the following sections:

TRANSMISSION CODE	
SECTION	SCOPE
1.	OBJECTIVE AND SCOPE
2.	GENERAL REQUIREMENTS This is intended to ensure, so far as possible, that the various sections of the Transmission Code work together and work in practice
3.	TRANSMISSION SYSTEM PLANNING Sets out responsibility for planning the development of the System, the planning process for transmission and distribution and the necessary consideration of the location of renewable and other generation sources, taking into account the government-set targets in terms of renewable energy for electricity generation.
4.	MAINTENANCE STANDARDS Specifies the maintenance standards that all Plant and Apparatus on the System shall be operated and maintained in accordance with Prudent Utility Practice and in a manner that shall not pose a threat to the safety of employees or the public.
5.	TRANSMISSION INTERCONNECTION CONDITIONS Specifies the normal method of Interconnection to the Transmission System and the minimum technical, design and operational criteria which must be complied with by any User or prospective User.
6.	POWER QUALITY STANDARDS Specifies the quality standards of the voltage, including its frequency and the resulting current, that are measured in the Transmission System during normal conditions and contingency conditions.
7.	ELECTRICAL FACILITIES RELATED TO INTERCONNECTION SITES

TRANSMISSION CODE	
SECTION	SCOPE
	Specifies the conditions that all Plant and Apparatus relating to the User/System Operator at the Interconnection Boundary, shall be compliant with.
8.	SITE RELATED CONDITIONS Specifies the responsibility for site safety, responsibility schedules, and operations related matters at a User's site.
9.	OPERATIONAL COMMUNICATIONS Sets out the requirements for the exchange of information in relation to Operations on the Transmission System which have, or may have, an Operational Effect.
10.	DEMAND CONTROL Specifies the provisions made by the System Operator and procedures to be followed by the System Operator and Users to permit a reduction in Demand in the event that there is insufficient Generation available to meet Demand in all or any part of the Transmission System.
11.	SYSTEM CONTROL Sets out the System Control responsibilities, control documentation, system diagram and communications.
12.	CONTINGENCY PLANNING Specifies the requirement of the System Operator to develop a strategy to be implemented in Emergency Conditions of a Major System Failure.
13.	INCIDENT INFORMATION SUPPLY Specifies the requirement of the System Operator and Generators to issue notices of all Incidents on their respective Systems that have or may have implications for the Transmission System or a User's System.
14.	COMMUNICATIONS AND CONTROL Specifies the telecommunications requirements between Users and the System Operator which must be established if required by the System Operator.
15.	NUMBERING AND NOMENCLATURE Sets out the requirement for numbering and nomenclature that must be used for Transmission Apparatus on Users' Sites and User Apparatus on Transmission Sites.
16.	TESTING, MONITORING AND INVESTIGATION Sets out the authorization required and the procedures to be followed by the System Operator, and Users wishing to conduct Operational Tests or Site Investigations involving Plant and Apparatus connected to, or part of, the Transmission System.

TRANSMISSION CODE	
SECTION	SCOPE
17.	TRANSMISSION METERING Sets out the way in which power and energy flows shall be measured at an Operational Interface.
18.	TRANSMISSION SYSTEM DATA REGISTRATION Provides details of the Schedules covering the data to be exchanged between the System Operator and the Users of the Transmission System

GC 6 DISTRIBUTION CODE

The Distribution Code governs the distribution system and activities related thereto. It is designed to (a) permit the development, maintenance and operation of an efficient, coordinated and economic Distribution System in Mauritius; and (b) facilitate the Distribution System being made available to persons authorized to supply or generate electricity. The Distribution Code is conceived as a statement of what is optimal (particularly from a technical point of view) for all Users and the System Operator itself in relation to the planning, operation and use of the Distribution System. It seeks to avoid any undue discrimination between Users and categories of Users.

The procedures and principles governing the System Operator's relationship with all Users of the Distribution System are set out in the Distribution Code. The Distribution Code specifies day-to-day procedures for both planning and operational purposes and covers both normal and exceptional circumstances.

The Distribution Code will cover the Distribution System from the point of the outgoing isolators on the Transmission Substations as described above, to the point of Interconnection with the Customers system.

The Distribution Code also contains the special conditions to be applied to electricity system of the outer island of Rodrigues.

The Distribution Code is divided into the following sections:

DISTRIBUTION CODE	
SECTION	SCOPE
1.	OBJECTIVE AND SCOPE
2.	GENERAL REQUIREMENTS General Requirements which are intended to ensure, so far as possible, that the various sections of the Distribution Code work together with the other three Codes.
3.	DISTRIBUTION SYSTEM PLANNING Sets out the responsibility for planning the development of the System which planning includes further requirements that the planning process for Distribution System considers the location of renewable and other generation sources.

DISTRIBUTION CODE	
SECTION	SCOPE
4.	DISTRIBUTED GENERATION Specifies the data requirements for Distributed Generators to interconnect with the Distribution System
5.	DISTRIBUTION SYSTEM INTERCONNECTION Specifies the normal method of interconnection to the Distribution System and the minimum technical, design and operational criteria which must be complied with by any User or prospective User.
6.	POWER QUALITY STANDARDS Specifies the quality of the voltage, including its frequency and the resulting current that is measured in the Distribution System during normal conditions and contingency conditions.
7.	ELECTRICAL FACILITIES RELATED TO INTERCONNECTION SITES Specifies the requirements for all Plant and Apparatus relating to the Users/System Operator at the Interconnection Boundary to be compliant with the provisions of the Code.
8.	SITE RELATED CONDITIONS Specifies the responsibilities of the Parties and requirements for safety, responsibility schedules, and operational requirements.
9.	COMMUNICATIONS AND CONTROL Sets out the telecommunication requirements between User(s) and the System Operator which must be established if required by the System Operator to ensure control of the Distribution System.
10.	TESTING AND MONITORING Specifies the requirement to test and/or monitor the Distribution System to ensure that Users are not operating outside the technical parameters required by this Code.
11.	DEMAND CONTROL Specifies the provisions to be made by the System Operator or a User with Systems connected to the Distribution System, in certain circumstances, to permit reductions in total Demand in the event of insufficient Generating Plants being available to meet total Demand.
12.	OPERATIONAL COMMUNICATION Sets out the requirements for the exchange of information in relation to Operations and/or Incidents on the Distribution System or any User System connected to the Distribution System which have had, or may have, an Operational Effect on the Distribution System or any other User System.
13.	MAINTENANCE STANDARDS Sets out the requirements for maintenance of all Plant and Apparatus on the System including maintenance standards,

DISTRIBUTION CODE	
SECTION	SCOPE
	maintenance policy and maintenance records.
14.	SWITCHING INSTRUCTIONS Specifies the requirement for switching on the Distribution System.
15.	NUMBERING AND NOMENCLATURE Sets out the responsibilities and procedures for notifying the relevant owners of the numbering and nomenclature of Apparatus at Interconnection Boundaries.
16.	SPECIAL SYSTEM TESTS Sets out the responsibilities and procedures for arranging and carrying out Special System Tests which have or may have an effect on the System Operator's Distribution System or Users Systems.
17.	DISTRIBUTION METERING Specifies the requirements for metering the Active and Reactive Energy and Demand input to and/or output from/to the Distribution System, including metering for distributed generation and other Users
18.	REQUIREMENTS FOR THE DISTRIBUTION SYSTEM OF RODRIGUES Contains special requirements for the system of Rodrigues
19.	DISTRIBUTION DATA REGISTRATION Sets out a unified listing of all data required by the System Operator from Users and by Users from the System Operator
20.	DATA SCHEDULE Information to be provided by Users connected to the Distribution System
21.	APPENDICES

GC 7 SYSTEM OPERATIONS CODE

The System Operations Code governs the system planning and dispatch activities of the System Operator. The System Operations Code is designed to (a) permit the development, maintenance and operation of an efficient, coordinated and economic Grid; and (b) facilitate the Transmission and Distribution Systems being made available to persons authorized to supply or generate electricity. The System Operations Code is conceived as a statement of what is optimal (particularly from a technical point of view) for all Users and the System Operator itself in relation to the planning, operation and use of the System. It seeks to avoid any undue discrimination between Users and categories of Users.

The purpose of the System Operations Code is to:

a) set out the roles, responsibilities and process for the elaboration of the Integrated Resource Plan;

b) set out the roles, responsibilities and process for the Operational Planning of the System;
c) set out the roles, responsibilities and process for the scheduling and Dispatch of Generation and demand-side resources in meeting the electricity demand;
d) enable the System Operator to coordinate maintenance outages as far as possible in advance to allow the System Operator to maintain system integrity and reliability;
e) set out the process of investigation followed by the URA in response to significant power outages;
f) Other responsibilities of the System Operator such as system control, switching instructions, demand control, operational communications, maintenance standards, contingency planning, incident information supply and safety coordination; and
g) ensure fair and equitable treatment of all Generators connected to the Grid.

The System Operations Code is divided into four main parts:

A. Part A – Integrated Resource Planning
B. Part B – Operational Planning and Dispatch
C. Part C – System Operations
D. Part D – Information Exchange

SYSTEM OPERATION CODE	
SECTION	SCOPE
PART A – INTEGRATED RESOURCE PLANNING	
1.	INTEGRATED RESOURCE PLANNING Roles and responsibilities as well of the timing of the development of the IRP
PART B – OPERATIONAL PLANNING AND DISPATCH	
2.	OPERATIONAL PLANNING Definition of each of the phase of the operational planning carried out by the System Operator
3.	CONFIDENTIALITY
4.	OPERATIONAL PLANNING FOR DISPTACH Sets out the requirements for system data, procedure and timing for the System Operator to carry out operational planning. This section includes subsections specific to the following: - Demand Forecast: Sets out information to be exchanged and the time scales for the elaboration of the demand forecast - Outage Planning: Sets out information to be exchanged and the time scales for the elaboration of the outage plan for generating units as well as transmission and distribution facilities - Operating Margin: Sets out the types of reserves the System Operator may use in the Control Phase - Merit Order System: Specifies the requirements for the System Operator to establish a Merit Order based on the real or contracted Variable Operating Cost component of each

SYSTEM OPERATION CODE	
SECTION	SCOPE
	Generating Unit or Complex. - Unit Scheduling and Commitment: Specifies the System Operator's obligation to prepare a Unit Commitment and Dispatch Schedule which reasonably reflects the likely System conditions.
5.	DISPATCH FOR OPERATIONS Sets out the requirements for system data, procedure and timing for the System Operator and Generators to carry out real-time dispatch operations. This section includes subsections specific to the following: - Scada System Update: Specifies the requirement for the System Operator to update the daily projected Demand Forecast in real time. - Unit Commitment and Dispatch Real Time Update: Specifies the processes and data required for the real-time update of the availability and commitment of generating units and the real-time dispatch settings based on equal incremental costs principles - Instruction to Synchronize / Desynchronize: Specifies the times at which a Generator shall be synchronized and desynchronized as directed by the System Control Engineer. - Frequency and Voltage Control: Specifies the adherence to the frequency and voltage standards to be the responsibility of the System Control Engineer. - Operating Reserve Monitoring and Management: Specifies the responsibilities of the System Operator in monitoring and complying with system minimum spinning reserve margin and operating reserves. - Dispatch Deviation Tracking and Reporting: Specifies the recording of all dispatch instructions and the compliance of each Generator with the instructions received.
PART C – SYSTEM OPERATIONS	
6.	SYSTEM CONTROL Sets out the requirements that the System Operator and each User shall fulfil regarding: the responsibilities for control of Equipment, the implementation of a system of documentation including system diagrams and recording of operational events, and the establishment of a suitable communication system.
7.	SWITHCING INSTRUCTIONS Sets out the requirements and procedure the System Operator and each User regarding the switching operations in Medium Voltage and High Voltage Equipment.
8.	DEMAND CONTROL (TRANSMISSION SYSTEM) Provisions made by the System Operator and procedures to be followed by the System Operator and Users to allow a reduction of Demand in the event that there is insufficient Generation available to meet the Demand in all or any part of the Transmission System

SYSTEM OPERATION CODE	
SECTION	SCOPE
	or in the event of problems on the Transmission System.
9.	DEMAND CONTROL (DISTRIBUTION SYSTEM) Requirements for the System Operator, Users and Customers of the Distribution System, to permit reductions in total Demand in the event of insufficient Generation being available to meet total Demand or to avoid disconnection of Customers and Users or in the event of breakdown and/or overloading on any part of the System.
10.	OPERATIONAL COMMUNICATIONS (TRANSMISSION SYSTEM) Requirements for the exchange of information between the System Operator and Users connected to the Transmission System in relation to Operations which may have an Operational Effect
11.	OPERATIONAL COMMUNICATIONS (DISTRIBUTION SYSTEM) Requirements for the exchange of information between the System Operator and Users connected to the Distribution System in relation to Operations which may have an Operational Effect
12.	MAINTENANCE STANDARDS Requirements for operation and maintenance of equipment, competency of staff and inspections.
13.	CONTINGENCY PLANNING This sets out the details of the System recovery procedures following a Major System Failure.
14.	INCIDENT INFORMATION SUPPLY Sets out the requirements of the System Operator and Generators to issue notices of all Incidents on their respective Systems that have or may have implications for the Transmission System or a User's System.
15.	SAFETY CO-ORDINATION Sets out the requirement to ensure that the safety procedures adopted on either side of an Interconnection Boundary work together to ensure the safety of personnel, and/or Plant.
16.	METERING AND DATA ACQUISITION Refers to the contents of the System Operator's SCADA policy.
PART D – INFORMATION EXCHANGE	
17.	INFORMATION EXCHANGE A summary of all the information and data, as specified in the Generation, Transmission, Distribution and System Operations Code, that is required to be exchanged by the concerned parties.

GC 8 CODE TERMINOLOGY

GC 8.1 Glossary, Definition and Acronyms

The Codes terminology and capitalized terms are set forth in Appendix A, Table of Definitions and Acronyms.

GC 9 MODIFICATIONS TO THE CODES

GC 9.1 Code Review Panel

The Authority shall review the Codes every three years, and in conducting that review shall consult the stakeholders in the electricity sector.

Modification of the Codes shall be executed by the URA through a Code Review Panel established by the URA in accordance with sub-section GC 9.2

The Authority shall establish and maintain a Code Review Panel, which will be a standing body charged with reviewing the Codes. The Review Panel shall report to the Authority on its dealings and, as appropriate, recommend amendments to the Codes for the Authority's consideration. The accepted recommendation shall be submitted to the Minister with responsibility for energy approval before promulgation.

The Code Review Panel shall also review documents that are to be developed by the licensees as per requirements of the **Grid Codes** (this includes, for example, the **Distribution System Construction Manual** to be elaborated by the Distribution Licensee)

GC 9.2 Duties of the Code Review Panel.

The functions of the Review Panel shall be as follows:

a) to ensure that all operational procedures and requirements governed by the Codes remain up to date;
b) to ensure that the Codes are consistent in their approach and are developed in a consistent manner;
c) consider recommendations made by subcommittees established to focus on specialized issues;
d) review all proposals for amendments to the Codes which the System Operator, the Generators, the Transmission and Distribution licensees, other Users, or the Authority, from time to time may wish to submit to the Review Panel for consideration;
e) consider unforeseen circumstances referred to it by the System Operator and determine whether the actions taken by the System Operator were justified and what changes, if any, are necessary to the Codes;
f) consider whether decisions of the Authority require revision of the Codes; and
g) present recommendations to the Authority as to amendments to the Codes that it considers necessary and the reason for such changes.

GC 9.3 Composition of the Code Review Panel

The Review Panel shall consist of the following persons drawn from the following categories and appointed by the Authority:

a) A representative of the Authority who shall act as a Secretary of the Code Review Panel;
b) A representative of the System Operator's System Control Centre;
c) A representative of the Transmission Licensee in charge of liaising with the System Operator;

d) A representative of the Distribution Licensee in charge of liaising with the System Operator;
e) A representative of the Generation Licensee in charge of liaising with the System Operator;
f) A representative of the Single Buyer;
g) One representative of the IPPs
h) A representative of the MARENA

The Authority shall appoint the chairperson of the Review Panel.

GC 9.4 Operations of the Code Review Panel

The Code Review Panel shall establish rules for the conduct of its business, including terms of appointments and retirement of members, and submit same for the approval of the Authority.

The Code Review Panel shall meet at least twice per calendar year.

The Code Review Panel shall take its decisions by means of consensus. If the Code Review Panel is unable to reach agreement by consensus, the matter shall be referred to the Authority for determination. Any such referral to the Authority shall set out the cause of disagreement and the views held by the respective members.

The Code Review Panel may establish subcommittees from its members and co-opt other persons and experts as the Code Review Panel considers appropriate to assist in the review of requests or submissions from Users or developments in the Technical Standards, as it may require from time to time. The subcommittees shall present its dealing and recommendations to the Code Review Panel for further consideration and recommendation to the Authority, as applicable.

The Technical Standards are the sections of the Codes that imposes obligations such as those relating to Engineering Standards, System Operation Policy and procedures of the Licensee.

GC 9.5 Revisions of the Codes

The Authority shall publish on its website or in any other manner that it considers appropriate the revised versions of the Codes as recommended by the Code Review Panel and approved by the Minister.

All changes made to each of the Codes shall be logged in the Code Change Register which shall indicate the section which was amended and the reason for the change. The Code Change Register will be restarted if the Authority determines that the Codes are to be revised entirely.

The Review Panel and the System Operator shall retain a list of all Users that have made a written request to be informed of changes to the Codes and shall inform such Users electronically or in writing of any changes.

The System Operator shall also publish the revised Codes on its website along with the Code Change Register.

GC 10 DISPUTE RESOLUTION

GC 10.1 Mutual Discussion

If a Dispute between the System Operator and a User or a Generator in connection with, or arising out of, any clause in the Codes, either party may issue to the other party a Dispute Notice outlining the matter in Dispute. Following issuance of a Dispute Notice both Parties shall discuss in good faith and attempt to settle the Dispute between them.

GC 10.2 Submission to the Code Review Panel

Where the Parties fail to settle the Dispute amicably, either party to the Dispute may submit the Dispute to the Secretariat of the Code Review Panel, which shall consider the Dispute and propose to the Authority within thirty (30) days, a revision to any aspect of the Codes that will resolve the Dispute.

Upon receipt of a proposed revision of the Codes from the Code Review Panel, the Authority shall indicate its approval or disapproval within thirty (30) days of receipt thereof and shall subsequently submit the proposed revision(s) to the Minister for approval.

Any such revision of the Codes shall determine the outcome of the Dispute.

GC 10.3 Determination by the URA

Subject to sub-section GC 10.1 and any legally binding agreement between the Parties, if the Dispute cannot be settled within thirty (30) days after issue of the Dispute Notice, either party shall have the right to refer the Dispute to the Authority for resolution. In this case the procedure shall be as follows:

1. The request for referral to the Authority shall be made in writing to the Authority with the copy of the original Dispute Notice between the Parties attached.
2. Upon receipt of a request for referral, the Authority shall write to both Parties acknowledging that the Dispute has been referred to the Authority for resolution.
3. Following receipt of Authority acknowledgment, each party shall have five (5) working days to submit their reason(s) as to the cause of the Dispute in writing to the Authority.
4. No later than ten (10) working days after the Authority has received each party's reason(s) in writing, the Authority shall write to each Party setting out how the Authority intends to resolve the Dispute and indicate a date by which its determination of the Dispute may be expected which in any case shall not exceed three months from the date of the request for referral.
5. The determination by the Authority shall be legally binding on both Parties, subject to the right of either party to appeal such determination which shall be exercised in accordance with the provisions of the Electricity Act 2005 or the Electricity Licence.

GC 11 DEROGATIONS

GC 11.1 Granting of Derogation from Obligation

The Authority may, after consultation with the System Operator, issue a Derogation from Obligation suspending the Transmission Licensee, the Distribution Licensee, any Generation Licensee or User from the obligations to implement or comply with the Codes to the extent specified in the Derogation from Obligation; provided that

the exercise of the power to issue such Derogation from Obligation is consistent with the provisions of applicable legislation.

Where at the Effective Date of the Codes, an existing and in use Apparatus in the System is not able to meet the Technical Standards or technical requirements defined therein and where it is not reasonably economical or technically necessary to upgrade the existing Apparatus to meet the required standard or technical requirements, consideration should be given to a permanent Derogation from Obligation for such Apparatus.

GC 11.2 Request for Derogation from Obligation

A request for Derogation from Obligation from any provision in the Codes shall contain the following information:

1. The clause against which the present or predicted non-compliance is identified;
2. The reason for non-compliance with the provision;
3. Identification of the Apparatus in respect of which a Derogation from Obligation is being sought; and
4. Whether the Derogation from Obligation sought is permanent or temporarily for the purposes of achieving compliance. If temporarily for the purpose of achieving compliance, the date by which the non-compliance will be remedied.

GC 12 TRANSITIONAL PROVISIONS AND EXEMPTIONS

GC 12.1 Effective Date and Transition Period

The Codes shall come into operation on the Effective Date. However, a transition mechanism is required to enable the Licensee and Users to reconfigure current operations for compliance prior to full enforcement of all the provisions of the Codes. This section establishes (1) a transition period to enable full compliance by the Licensee and all Users; (2) a mechanism for the Licensee and Users to identify and seek time-limited derogations from URA for non-compliant operations during the transition period; and (3) a requirement that the Licensee and Users seek to bring all PPAs, ESPAs and licences into compliance with the Codes. The intent is to bring all Parties into compliance with the Codes as soon as economically and technically feasible, to provide a uniform system applicable to the Licensee and all Users to support a safe and reliable Grid.

GC 12.2 Purpose and scope

The Authority recognizes that the Licensee and Users relied upon the existing procedures and guidelines for the construction and installations of equipment in their current facilities, and in training their staff to meet the performance standards set forth in the existing procedures and guidelines. Some of the facilities currently in operation may not meet all the required criteria set forth in the new Codes, and need to be accommodated as they transition to full compliance. Furthermore, the management systems and the human resources of the System Operator will need to be developed over a period of time to accommodate the functional unbundling of the System Operator from the CEB and other Licensee functions under the Electricity Licence. Therefore, transitional arrangements and exemptions are needed to bridge these non-compliant facilities into compliance with the Codes.

The Licensee and Users who are unable to comply with the Codes will be required to submit a Request for Relief to the Authority, the details of which are described below. Once the Request for Relief is submitted, the Authority will, in consultation

with the System Operator, review the request and may to the extent necessary issue a Transition Period Derogation Order. The Transition Period Derogation from Obligation Order may combine temporary reliefs and/or relaxation of standards, conditioned upon an acceptable plan to bring its equipment and installations into compliance and capacity building for personnel in response to changes in roles, obligations and responsibilities under the Codes.

GC 12.3 Request for Relief

In seeking relief from enforcement of Codes provisions during a transition period, there shall be a submission of a Request for Relief to the Authority within ninety (90) days of the Effective Date of the Codes. Applicants are encouraged to contact and meet with the Authority staff prior to submission to expedite final approval.

The Request for Relief must contain the following:

A. a list of all assets, installations, and equipment owned or operated by the applicant which cannot comply with the Codes;
B. a reasonably detailed description of the specific technical characteristics of the reasons that the assets, installations or equipment cannot meet the Codes; and
C. a detailed plan to bring all assets, installations, and equipment into compliance with the Codes and to train all personnel in Codes compliance as soon as economically and technically feasible, but in all cases within two (2) years of the Effective Date of the Codes; and
D. any additional information that the Applicant considers necessary for the Authority's assessment.

The Authority shall issue a Transition Period Derogation Order in response to a complete and acceptable Request for Relief, providing temporary relief and exceptions as required to enable a transition period for the applicant to come into compliance. The Authority, prior to issuing a Transition Period Derogation Order, shall consult with the System Operator.

The general framework for the Transition Period Derogation Orders shall be as follows:

1) Any non-compliance or deficiency in assets, installations or equipment noted in the Order will be treated as if compliant with the Codes during the term of the Derogation Order, so long as the Licensee or User remains compliant with the legislation, rules and licence provisions applicable immediately prior to the Effective Date.
2) If performance benchmarks are applicable to the Licensee or User, the corresponding performance benchmarks pursuant to the legislation, rules, and licence provisions in existence immediately prior to the Effective Date shall be applicable during the term of the Transition Period.
3) In response to an acceptable Request for Relief, the Authority shall issue a Transition Period Derogation Order for assets, installations and equipment that are in operation within the System on the Effective Date of the Codes authorizing continued operation as part of the System during a transitional period which shall not exceed twenty- four (24) months. Equipment and facilities not included in the Request for Relief shall be deemed fully compliant and subject to the provisions of the Codes.

GC 12.4 Existing Generation Facilities

In response to an acceptable Request for Relief, the Authority shall issue a

Transition Period Derogation Order for all generation equipment and facilities that are in operation and interconnected to the System on the Effective Date authorizing continued operation during a transitional period which shall not exceed twenty- four (24) months. Equipment and facilities not included in the Request for Relief shall be deemed to be fully compliant and subject to the provisions of the Codes.

GC 12.5 Existing Off-taker Facilities

In response to an acceptable Request for Relief, the Authority shall issue a Transition Period Derogation Order for all User facilities that are interconnected to the System on the Effective Date authorizing continued operation during a transition period which shall not exceed twenty-four (24) months. Equipment and facilities not included in the Request for Relief shall be deemed to be fully compliant and subject to the provisions of the Codes.

GC 12.6 Existing Contracts

Power Purchase Agreements, Energy Supply and Purchase Agreements, Connection and Energy Trading Agreement and Connection Agreements, existing on the Effective Date shall continue in force unless the contract is revoked or amended by agreement. The Codes shall apply to all such existing contracts insofar as the provisions thereof does not impair the obligations arising from the existing contract.

The Authority and the System Operator shall cooperate and consult with licensees to address any claims that a Licensee, Power Purchase Agreement, Energy Purchase and Supply Agreement, Connection and Energy Trading Agreement or Connection Agreement prevents the application of the Codes to the licensee or in any other way exempts the licensee from complying with the Codes. The System Operator and Single Buyer shall ensure that contracts entered into after the Effective Date conforms to all the provisions of the Codes, as amended from time to time, in order to attain uniform and non-discriminatory implementation of the Codes.

The System Operator and Single Buyer shall not enter into a new contract or agree to extend any existing Power Purchase Agreement, Energy Supply and Purchase Agreement and Supply, Connection, Connection and Energy Trading Agreement or Connection Agreements that is not in accordance with the Codes. The contracts shall ensure that licensees remain compliant with the Codes so as to assure the safe and reliable operation of the Grid.

GC 13 NOTICES

Notices and communique relating to the Codes should be directed to the following contact details:

Entity	Responsible Person	Address	Phone/Fax	Email
Utility Regulatory Authority (URA)	The Chief Executive Officer	1st Cybercity Building, Level 8, Ebene	4548070/4892796	info@uramauritius.mu

Term	Definition
Act	The Electricity Act 2005
Active Power	The product of voltage and the in-phase component of alternating current, measured in Watts (W) or multiples thereof.
Advanced Metering Infrastructure (AMI)	Metering Systems that measure, collect and analyse energy usage, from advanced electricity meters using various communication channels either on request or on a pre-defined schedule. The infrastructure includes hardware, software and communications
AIS	Air Insulated Switchgear
Ancillary Service	Those services necessary to support the transmission and distribution of electric power from seller to purchaser.
Apparatus	An item of equipment in which electrical conductors are used, supported or of which they may form part and includes meters, lines, cables, appliances and any associated SF6 Gas Equipment used or intended to be used for carrying electricity for the purpose of supplying or using electricity.
Apparent Power	A unit of electric measurement, measured in Volt-Ampere (VA), or multiples thereof, equal to the product of a volt and an ampere and that for the DC constitutes a measure of power equivalent to a Watt (W).
Applicant	A person that applies to the **Distribution Licensee** for a connection as a **Distributed Generator** through any **SSDG** or **MSDG** installation under prevailing policy and scheme
Asynchronous Generating Station	A **Generating Station** comprising an indivisible set of an alternating current machines which can generate electrical energy such that the frequency of the **Generating Unit** mechanical shaft speed and the frequency of **Grid** voltage are not in a constant ratio.
Authority	The Utility Regulatory Authority (URA)
Authority for Access	Authority granted to a person(s) by the **System Operator** to enter its site
Automatic Generation Control (AGC)	A control system installed between the **System Control Centre** and a **Generating Station or Power Park Station** whereby **MW** set points can be adjusted remotely by the **System Operator** to reflect the **Dispatch Instruction**
Automatic Voltage Regulator (AVR)	The continuously acting automatic equipment controlling the terminal voltage of a **Synchronous Generating Unit** or **Synchronous Generating Station** by comparing the actual terminal voltage with a reference value and controlling by appropriate means the output of an Exciter, depending on the deviations.

Term	Definition
Auxiliaries	Any item of **Plant** and/or **Apparatus** not directly a part of the boiler plant or **Generating Unit**, but required for the boiler plant's or **Generating Unit's** functional operation.
Available Active Power	The amount of **Active Power**, measured at the **Interconnection Boundary**, that a **Variable Renewable Generating Station** could produce based on plant availability as well as current renewable primary energy conditions (e.g. wind speed, solar radiation).
Average Minimum Demand Conditions	Set of conditions, deemed by the User providing the forecast, to be most likely to occur on the date and time of the System's minimum demand, as forecast by the System Operator.
Backup Metering System	The meters and metering devices financed and owned by the **Single Buyer** and used to measure the delivery and receipt of Net Energy Output, Dependable Capacity and other parameters.
Black Start	The procedure necessary to recover the System from a total or partial shutdown.
Black Start Capability	The ability to restart the **Generating Unit** in the absence of incoming power from the **Grid**.
Block Load	The level of output that a **Generating Unit** immediately produces following **Synchronisation**. For avoidance of doubt, **Block Load** can equal 0 MW.
Breaking Capacity	A value of prospective current that a switching device is capable of breaking at a stated voltage under prescribed conditions of use and behaviour.
Certified Electrical Inspector	Person authorized by the **Authority** to undertake work inspecting electrical installations for safety or compliance with regulatory requirements after demonstrating having the qualifications, experience, competency and proficiency for the class of required inspection.
Circuit breaker	Switching device capable of making, carrying, and breaking currents under normal circuit conditions and also making, carrying for a specified time, and breaking currents under specified abnormal conditions such as those of short circuit;
Code Review Panel	A panel established by the Authority to review the **Codes**
Codes	The **Generation**, **Transmission**, **Distribution** and **System Operator Codes** collectively or any combination of more than one Code as developed and updated by the Authority and approved by the Minister with responsibility for electricity, from time to time.
Co-Generator	A facility which simultaneously provides electrical and thermal energy from a singular fuel source for its process requirements as well as electrical output to the System.
Cold Start	Any Synchronisation of a **Generating Unit** that has previously not been Synchronised for a period of time longer than its submitted **Warm Cooling Boundary**.

Term	Definition
Combined Cycle Gas Turbine (CCGT)	A collection of **Generation Units** comprising one or more combustion turbine units and one or more steam units where, in normal operation, the waste heat from the combustion turbine units is passed to the water/steam system of the associated steam unit or steam units and where the component **Generating Units** within the **CCGT Generating Station** are directly connected by steam or hot gas lines which enable those **Generating Unit**s to contribute to the efficiency of the combined cycle operation of the **CCGT Generating Station**.
Commercial Operation Date (COD)	The date at which all testing of a Generating Station or a Generating Unit or a Transmission or Distribution System Development or a User Development is completed and is certified by the relevant party for commercial use with the System.
Commissioning	The systematic activities and process undertaken by the **System Operato**r, User and **Generator** to prepare **Plant, Apparatus** and **Equipment** newly installed or retrofitted for connection to and operation within the System**.**
Commissioning Test	A test or a series of tests for establishing, by measurement, the characteristics of Plant or Apparatus or Equipment are in accordance with the specified Equipment standards and its fitness for interconnection to and safe, reliable, continuous operation on the System without any adverse effects.
Completion Date	The date of energization of the **Interconnection Boundary**
Connection Agreement	Agreement to be signed by the **Applicant** and the **Distribution Licensee** or Single Buyer as the case may be, before or after, as the case may be, successful testing of the former's installation
Contingency	The unexpected Fault or Outage of a System component, such as a Generation Unit, transmission line, circuit breaker, switch, or other **Equipment or Apparatus**. A Contingency also may include multiple components, which are related by situations leading to simultaneous component outages.
Contingency Condition	Condition of the **System** after the occurrence of a **Contingency.**
Critical Fault Clearing Time	The longest fault duration not leading to out-of-step conditions such as pole-slipping in a **Generating Unit** following a **Fault**. **Critical Fault Clearance Time** will vary according to the active and reactive power output of the **Generating Unit**. The minimum **Critical Fault Clearance Time** for a particular **Fault** is likely to occur when the **Generating Unit** is at maximum **Active Power** output and maximum leading **Reactive Power** output.
Current Transformer (CT)	A device which has its primary winding connected in series with the current to be measured and a secondary winding which provides a current proportional to the primary current at a range suitable for measurement or control.
Customer	As defined in the Electricity Act 2005: "any person to whom electricity service is, or is required to be, provided by a licensee".
Customer Service Department	Department within the **Distribution Licensee**, in charge of relations with customers, including among others processing applications for connection, meter reading, collection and customer claims.

Term	Definition
Dead band	An interval of a signal domain or band where no action occurs.
Dead Bus Control	Connecting a Generating Station to a de-energised grid and having afterwards perform frequency and voltage control.
Demand	The **Demand** of both **Active** and **Reactive** Power unless otherwise stated
Demand Control	All or any of the methods used by the **System Operator** of achieving a **Demand** reduction or an increase in **Demand**.
Demand Interval	The period over which the Demand is integrated
Dependable Capacity	The maximum Capacity modified for ambient limitations which a Generating Unit, or item of electrical equipment can sustain over a specified period of time measured at the Interconnection Boundary
De-Synchronise	The act of taking a **Generation Unit** which is **Synchronised** to the **Transmission System** off the **Transmission System** to which it has been **Synchronised** and the term "**De-Synchronised**", and other like terms, shall be construed accordingly.
DG Grid Code (Distributed Generation Grid Code)	Document elaborated by the **Distribution Licensee** containing the detailed procedures, starting from the submission of the application by **Distributed Generators** to the **Distribution Licensee** to the signature of the **Connection Agreement** and the Proclamation, and all technical and safety requirements for the connection of the **Distributed Generators** to the **Distribution System**.
Dispatch	The activities involved in the central management and control of **Generating Units** and other sources of supply to the **System** in order to achieve the optimal safety, reliability and economic supply of electricity
System Operations Code	The rules made by the **Authority**, and approved by the **Minister**, to govern the elaboration of the **Integrated Resource Plan**, the operation of the **Transmission and Distribution Systems**, the **Dispatch** activities and the coordination of maintenance outages.
Dispatch Instructions	The instructions issued by the System Operator from the System Control Centre to the Generator to schedule and control its Generation in order to increase or decrease the electricity delivered to the System.
Dispatchable Generating Units	Generating Units whose required level of output at any instant of time is determined and regulated by the System Control Engineer.
Distributed Generating Station	Any facility whether containing one or more **Distributed Generating Units** and associated infrastructure producing and delivering electrical energy to the **Distribution System** and has no **Interconnection** to the **Transmission System**.
Distributed Generating Unit	An individual **Generating Unit** which is part of a **Distributed Generating Station**.
Distributed Generation	**A Generating Station** connected to the **Distribution System**

Term	Definition
Distributed Generator	A person or entity that generates electricity using a **Distributed Generating Station** which can be a Power Park Station, **VRGS** or conventional **Generating Station**.
Distributed Generator Back-up Meter	All meters and metering devices (financed, owned and operated by the **Distributed Generator**) used to measure the delivery and receipt of Net Energy Output, Gross Energy Output, Dependable Capacity and other parameters as defined in the **Generation Code** or the **Distribution Code**.
Distribution	As defined in the Electricity Act 2005: "means the conveying of electricity to **Customers** over **Electric Lines** of less than 66 kV by any licensee licensed for that purpose"
Distribution Code	The rules made by the **Authority**, and approved by the Minister, to govern the **Distribution System** and activities relating thereto.
Distribution Licensee	As defined in the Electricity Act 2005: Holder of a **Distribution License** issued by the Authority. The **Distribution Licensee** will have the role of retail supplier of electricity to end users connected to the Distribution System.
Distribution System	That part of the electric **System** that operates below 66kV from the point of the outgoing isolators of a Feeder at Transmission substations transforming to 22kV and 6.6kV, consisting of **Apparatus** and meters owned and maintained by the **Distribution Licensee or Transmission Licensee** used for the distribution of electricity.
Disturbing Loads	Loads which have the potential to introduce harmonics, flicker or unbalance into the **System**.
Earth Fault Factor	As defined in entries 195-05-14 and 614-03-06 of IEC 60050: "At a given location of a three-phase system and for a given system configuration, the ratio of the highest r.m.s phase-to-earth power-frequency voltage on a healthy phase during a fault to earth affecting one or more phases at any point on the system to the r.m.s value of phase-to-earth power-frequency voltage which would be obtained at the given location in the absence of any such fault."
Earthing	A way of providing a connection between conductors and earth by an **Earthing Device**.
Earthing Device	A means of providing a connection between a conductor and earth of adequate strength and capability for the intended purpose.
Electric Lines	As defined in the Electricity Act 2005: "means a wire, conductor or other means used for the purpose of conveying, transmitting or distributing electricity together with any pole, casing, coating, covering, tube, pipe or insulator enclosing, surrounding or supporting it, or any apparatus connected therewith, used for the purpose of conveying, transmitting or distributing electrical energy"

Term	Definition
Electrical Facilities	As defined in the Electricity Act 2005: "Means any equipment, apparatus or installation used to generate, transmit, supply or make use of electricity, including— (a) any generating stations, electric lines, substations, transformers and switchgear equipment; and (b) any buildings or civil works used for such purposes and any site on which such equipment, apparatus, installation or buildings are located;"
Emergency Operation Centre	The main control Centre for the operation of the **System** during emergency conditions (post cyclone restoration).
Energy Storage Unit (ESU)	A Generation Unit(s) using storage devices to generate and consume electricity as, or as part of, a **Power Park Station**, including Battery Energy Storage Systems (BESS)
Energy Supply and Purchase Agreement (ESPA)	The contract that governs the commercial relationship between an IPP and the Single Buyer which is approved by the **Authority** and that requires the Single Buyer to buy energy from the IPP and the IPP to sell energy to the **Single Buyer** in accordance with the terms and conditions thereof
Equipment	**Plant** and/or **Apparatus**
FACTS	Flexible AC Transmission System
Fault	Physical condition that causes a device, a component, or an equipment to fail to perform in a required manner, for example a short-circuit, a broken wire, or an intermittent connection.
Fault Clearance Time	The time interval between the **Fault** inception and the **Fault** clearance. Also fault Clearing Time.
Flicker	Variation of input voltage sufficient in duration to allow visual observation of a change in electric light source intensity;
Forbidden Zone	A **MW** range within which a **Generator** cannot operate in a stable manner due to an inherent technical limitation of the machine.
Force Majeure	Causes beyond the reasonable control of and without the fault or negligence of the Party claiming **Force Majeure**. It shall include failure or interruption of the delivery of electric power due to causes beyond that Party's control, including wars, sabotage, riots, hurricanes and other actions of the elements, civil disturbances and strikes.
Forced Outage	An interruption of a Generating Unit's capability to generate power that is not the result of: (i) a request by the System Operator; (ii) a Scheduled Outage or a Maintenance Outage; or (iii) an event or occurrence of Force Majeure.

Term	Definition
Fuel Supply Agreement	The Agreement entered by a Generator for providing fuel to ensure its operation in accordance with the terms and provisions of this Code or any contracted Power Purchase Agreement. The Fuel Supply Agreement shall include, but not be limited to, the Generator's proposed fuel specification, fuel supply and transportation arrangements, and the Generator's plans to obtain fuel on the most economic basis at any given time
Fuel Supply Plan	Plan elaborated by the Generator and approved by the Authority for the supply of fuel for the upcoming two years, presented to the System Operator no later than the 31st of December each year.
Full Load Point	The declared maximum capacity pursuant to the most recent Dependable Capacity Test (DCT) consistent with respective PPA conditions.
Full Load Rejection	The loss of demand that is equivalent to the full load rating of a **Generating Unit** that is disconnected from the **Grid** at the time when the **Generating Unit** is operating at **Full Load Point**.
Generating Station	As defined in the Electricity Act 2005: "Means any facility used for the generation of electricity"
Generating Unit(s)	Means one or more units for the **Generation** of electricity within a **Generating Station**
Generation	As defined in the Electricity Act 2005: "the conversion of any form of energy into electrical energy
Generation Code	The rules made by the **Authority,** and approved by the **Minister,** to govern **Generation** activities in the electricity sector.
Generation Licensee	As defined in the Electricity Act 2005: Holder of a Generation License issued by the Authority
Generation Maintenance Plan	Plan elaborated yearly by the System Operator and submitted to the Authority, containing a 3-year horizon maintenance plan for all generators.
Generator	Owner and/or operator of an electricity **Generating Plant,** supplying power to the **Transmission** and **Distribution Systems**
Generator Back-up Meter	All meters and metering devices (financed, owned and operated by the Generator) used to measure the delivery and receipt of Net Energy Output, Dependable Capacity and other parameters as defined in the Generation Code or the Distribution Code.
GIS	Gas Insulated Switchgear
Governor Control System	A system which will result in **Active Power** output of a **Generation Unit** changing, in response to a change in **System** frequency, in a direction which assists in the recovery to nominal **System** frequency.
Governor Droop	The percentage drop in the **Grid** frequency that would cause the **Generation Unit** under free governor action to change its output from zero to its **Registered Capacity**. In the case of a **Power Park Station**, it is the percentage drop in the **Grid** frequency that would cause the **Power Park Station** to increase its output from zero to its full **Registered Capacity**.

Term	Definition
Greenfield	An installation of a **Distributed Generating Station** at a location without existing Interconnection Boundary.
Grid	The terms "Grid" and System" have identical meanings and are used interchangeably
Grid Operator	Same meaning as **System Operator**
Gross Energy Output	Energy produced by a **Generation Unit** or **Generation Station**
Harmonic distortion	Continuous distortion of the normal sine wave; typically caused by nonlinear loads or by inverters, measured in **Total Harmonic Distortion** (**THD**);
High Voltage (HV)	The parts of the **System** operating at 66kV and above
HVRT	High-voltage ride-through
Hot Cooling Boundary	The period of time, following **De-Synchronisation** of a **Generating Unit** after which the **Warmth State** transfers from being hot to being warm.
Hot Start	Any **Synchronisation** of a **Generating Unit** that has previously not been **Synchronised** for a period of time shorter than or equal to it submitted **Hot Cooling Boundary**.
ICT	Information and Communications Technology
Incident	An unscheduled or unplanned (although it may have been anticipated) occurrence on the **Transmission** or **Distribution System** or **Users' System**, including, without limiting that general description, **Faults,** breakdowns and adverse weather conditions being experienced.
Independent Engineer	A panel of reputable consulting engineering firm or an independent **Registered Professional Engineer** jointly selected by the **Parties** who, among other things, shall receive copies of all test results performed pursuant to the Testing and Monitoring section of the **Generation Code**, on the **Generating Station** for the purpose of certifying in writing that the **Generating Station** can be satisfactorily commissioned.
Installer	A person who has been certified by the supplier or has followed a course on Distributed Generation installation and certified by the Authority.
Integrated Resource Planning (IRP)	A comprehensive decision support tool and road map for providing electric service to all customers who desire the service while addressing the substantial risks and uncertainties inherent in the electric utility business
Interconnection	The connection of a **Transmission** or **Distribution** line between the generation assets of a **Generation Licensee** or a **User** and the **Transmission System** or the **Distribution System** respectively, including the switchgear, protection and communication facilities among others.
Interconnection Agreement (IA)	An agreement between the Transmission Licensee and a **User** providing for the **Interconnection** of the **User Plant** to the **Transmission System** or the **Distribution System**
Interconnection Facilities	All Plant and Apparatus used for the Interconnection of a Generating Station, Generating Unit, Energy Storage Unit or VRGS to the Distribution or Transmission System.

Term	Definition
Interconnection Boundary(ies)	The physical point(s) where the **User** and the **Grid** are connected, or the physical point(s) where a **Large Customer** is connected to the **Transmission System**.
Interconnection Related Planning Studies	Power flow simulations, short circuit and stability studies performed as necessary to determine the requirements for the Interconnection of loads to the System to ensure the security and reliability of the System
Interconnection Site	The physical site belonging to the **Transmission or Distribution Licensee**, **Generator** or **User** where an **Interconnection Boundary** is located.
Interlock	A device actuated by the operation of some other device with which it is directly associated, to govern succeeding operations of the same or allied devices, according to IEEE Std 37.100-1992.
Islanding	Condition in which a portion of the **Distribution** or **Transmission System** is energised by one or more **Generating Stations** through their Interconnection Boundary while electrically separated from the rest of the **System**.
Joint System Incident	An **Incident** which, in the opinion of the **System Operator** or a **User,** has or may have a serious and/or widespread effect on the **Transmission System**, **Distribution System** or on a **User System**.
Large Customer or Large User	Customers who by virtue of the magnitude or characteristics of their **Demand** are connected directly to the **Transmission System** or to the **Distribution System.** The requirements to be considered Large Consumer will be set and reviewed, from time to time, by the Authority.
Licence	Same meaning as in the Electricity Act 2005
Letter of Intent	A letter sent by the **Distribution Licensee** to a **Generator** after the **Generator** has submitted duly filled application forms to request the connection of a **Distributed Generating Station** to the **Distribution System**. The **Letter of Intent** is issued after the **Distribution Licensee** has analysed the **Distributed Generator** proposal with respect to the **DG Grid Code** requirements
Licensee	Means a person who holds a **Licence**
Local Safety Procedures	Procedures at each Interconnection Boundary approved by the **System Operator** or the relevant **User** setting out the methods to achieve safety for those working on **Plant and Apparatus** to which their **Safety Rules** apply.
Low Voltage (LV)	As defined in the Act, “means voltage, in the case of alternating current, of not more than 1,000 volts and in the case of direct current, of not more than 1,500 volts”
LVRT	Low-voltage ride-though
Main Meter	Meter(s) installed by the **Distribution Licensee** or **Transmission Licensee** used to measure the delivery and receipt of energy, capacity or other parameters as defined in the requirements of the **Code**

Term	Definition
Maintenance Outages	An interruption or reduction of the Generating Unit capability that: i. is not a Scheduled Outage; or ii. has been scheduled and allowed by the System Operator in accordance with the corresponding provisions of the System Operation Code and Generation Code; and iii. is for the purpose of performing work on specific components, which work could be postponed within a reasonable window as agreed between the **Generator** and the **System Operator**.
Maintenance Schedule	Document submitted to the System Operator by Generator, describing the proposed availability of Generating Units for each month of the twelve (12) month period beginning with January of the following Year
Major System Failure or Major Incident	Means a **System** failure that: a) has not been planned by the **System Operator**; b) affects at least two thousand customers [or another amount determined by the **Authority**]; and c) lasts at least three (3) hours. The **System Operator** shall establish procedures for determining when an incident on the **System** shall be considered a **Major System Failure** and also establish outline procedures for handling these **Major System Failures**.
Making Capacity (of a switching device or a fuse)	A value of prospective fault current that a switching device is capable of making at a stated voltage under prescribed conditions of use and behaviour.
MARENA	The Mauritius Renewable Energy Agency
MAURITAS	The Mauritius Accreditation Service
Maximum Demand Conditions	Set of conditions, deemed by the user providing the forecast, that, on the date and time of the System's maximum demand, as forecast by the System Operator, would cause a maximum value of its demand requirements.
Medium-Scale Distributed Generator 1 (MSDG 1)	**Distributed Generating Station** with registered capacity greater than 50 kW but not exceeding 500 kW and connected to the 22 kV **Distribution System**
Medium-Scale Distributed Generator 2 (MSDG 2)	**Distributed Generating Station** with registered capacity greater than 500 kW but not exceeding 4 MW and connected to the 22 kV **Distribution System**
Medium-Scale Distributed Generator 3 (MSDG 3)	**Distributed Generating Station** with registered capacity greater than 4 MW but not exceeding 10 MW and connected to the 22 kV **Distribution System**
Medium Voltage (MV)	Means voltage, in the case of alternating current, of more than 1 kV and less than 66 kV.

Term	Definition
Merit Order System	A procedure carried out by the System Operator providing the order of dispatch of the Generating Units based on their real or contracted variable operating costs
Meter Laboratory	A laboratory that performs calibration and testing of meters and metering equipment.
Metering Point	The point of Interconnection of the terminals of a whole current meter or the point of the transformers for **CT** and **VT** metering.
Metering System	All meters and metering devices (including the Main and Backup Metering Systems) used to measure the delivery and receipt of Net Energy Output, Dependable Capacity and other parameters as defined in the Transmission Code, the Generation Code or the Distribution Code.
Minimum Down Time	The minimum time that must elapse from the time of a **Generation Unit** is **Shut down** and its subsequent **Start-up** and synchronization to the Grid.
Minimum Load	Minimum **MW** output a **Generator** can maintain on a continuous basis, whilst providing **Ancillary Services**.
Minimum Load Acceptance Rate	The time, expressed in seconds, for a generating unit or group of generating units to increase the capacity output by an amount corresponding to 10% of the Registered Capacity, should such an increase be required by the System Operator for the System's stability and security of supply.
Minimum Run Time	The minimum time the **Generating Unit** or **Generating Station**, as the case may be, is required to operate at or above the **Minimum Load** once **Dispatched**.
Minimum Up Time	The minimum time that must elapse from the time of a **Generation Unit Start-up** and synchronised to the Grid before it can be instructed to **Shut down**.
Minister/Ministry	Minister of Energy and Public Utilities (MEPU)
Model(s)	A software representation(s) of a **User System** and/or **Plant** provided to the **System Operator** for the purposes of **System** simulation.
MSB	The Mauritius Standards Bureau
N Situation	Situation where no **Transmission System** equipment or **Generating Unit** is unavailable due to occurrence of an **Incident**
N-1 Criterion	The rule according to which the equipment remaining in operation in the **System** after the occurrence of a single **Fault** are capable of accommodating the new operational situation without violating operational security limits.
Net Energy Output	Net energy delivered by the **Generating Unit** to the **System** at the Interconnection Boundary
Network Review	It is a study carried out by the **System Operator** to determine what **Grid** modifications (reinforcements or extensions) are required, if any, to connect a **Distributed Generator** to the **Distribution System.**
Non-Dispatchable Generating Units	Generating Units will be classed as Non-Dispatchable when it is not practical to control or dictate the required level of output of these units to the system Grid on an ongoing basis
Normal Condition	A condition in which the system is within operational security limits in the **N Situation** or after the available remedial actions were taken after the occurrence of a contingency

Term	Definition
Operating Characteristics	The technical capabilities, flexibilities and limitations for the operation of a Generation Unit or Demand Side Unit as registered or declared in accordance with the provisions of the National Grid Code.
Operating Margin	As defined in Section 4.4 of the **System Operation Code**
Operating Reserve	Generating capability in MW above firm System Demand available to provide for regulation, load forecasting error, equipment forced and scheduled outage. It consists of Spinning and Non-Spinning Reserve.
Operation	A scheduled or planned action relating to the operation of the **System** or a **User System.**
Operation Diagram	Diagrams which are a schematic representation of the **HV** and **MV Electrical Facilities** and the connections to all external circuits at an **Interconnection Site)**, incorporating its numbering, nomenclature and labelling.
Operational Effect	Any effect on the operation of the **System** which will or may cause the **Transmission System, Distribution System** or the **User's System**, as the case may be, to operate adversely from the way in which they would or may have operated in the absence of that effect.
Operational Tests	Tests carried out by the **System Operator** in order to maintain and develop operational procedures, update models, train staff or to acquire information in respect of **Transmission System** behaviour under abnormal **System** conditions, and also tests carried out by other **Users** for similar purposes in respect of their **Electrical Facilities**.
Operations Engineer	Person designated by a **User** that is responsible for daily technical and dispatching instructions
Operations Log	A record of significant operating events, plans, requests and instructions.
Outage	Total or partial reduction in availability of a **Generation Unit** such that the **Generation Unit** is unavailable to achieve its full **Registered Capacity**. Also means partial or total reduction of availability of a **Transmission System** facility.
Parallel Operation	Condition where the **Generating Unit** is operating while connected to the **Distribution** or **Transmission System**.
Parties	**System Operator** and all **Users** of the **System**
Plant	Fixed and moveable items used in the **Generation, Transmission** or **Distribution** of electricity other than **Apparatus**.
Power Factor	The ratio of **Active Power** to **Apparent Power.**
Power Island	A group of **Generating Units** together with complementary local **Demand**, disconnected from any other power source or the **Total System.**

Term	Definition
Power Park Station	A **Generating Station** comprising a **Generating Unit** or ensemble of **Generating Units**, which is either non-synchronously connected to the **Grid** or connected through power electronics, and that also has a single connection point to a **Transmission** or **Distribution System**.
Power Purchase Agreement (PPA)	As defined in the Electricity Act 2005: "Means an agreement entered into by a licensee to purchase electricity"
Power Quality	Quality of the voltage, including its waveform, magnitude and frequency measured in the **Transmission** or **Distribution System** during **Normal Conditions.**
Power System Stabiliser (PSS)	Equipment controlling the Exciter output via the voltage regulator in such a way that power oscillations of the synchronous machines are dampened. Input variables may be speed, frequency or power (or a combination of these).
P-Q Capability Diagram	A diagram describing the Reactive Power capability in the context of varying Active Power of a Generating Unit at its terminals or of a Generating Station the Interconnection Boundary, as the case may be.
Pre-Commissioning Tests	Test performed prior to initial synchronisation of any Generating Unit with the Grid.
Primary frequency response (PFR)	The instantaneous proportional increase or decrease in Active Power output provided by a Generating Unit or Energy Storage Unit and the natural real power dampening response provided by Load in response to system frequency deviations. This response is in the direction that stabilizes frequency.
Main Metering System	All meters and metering devices (financed and owned by the **System Operator**) used to measure the delivery and receipt of Net Energy Output, Dependable Capacity and other parameters as defined in the Generation Code and Distribution Code.
Operations Planning Phases	With regards to the planning performed by the **System Operator** for the reliable and secure operation of the system, covering different time scales, it refers to the period 2-3 calendar years ahead. These periods may be sub-divided in: • long-term: 2-3 years ahead; • mid-term: 1 year ahead; and • short-term: current year (year 0)
Programming Phase	With regards to the planning performed by the **System Operator** for the reliable and secure operation of the system, covering different time scales, it refers to the period 1 to 8 weeks ahead.
Control Phase	With regards to the planning performed by the **System Operator** for the reliable and secure operation of the system, covering different time scales, it refers to the period 1 day ahead.
Project	A proposed **User Development**
Protection	The provisions for detecting abnormal conditions in a system and initiating fault clearance or actuating signals or indications.

Term	Definition
Prudent Utility Practice	The practices generally followed by the electric utility industry in respect to the design, construction, operation, and maintenance of electric **Generation**, **Transmission**, and **Distribution** facilities, including, but not limited to, the engineering, operating, and safety practices generally followed by such utility industries.
Rated Capacity	Maximum continuous **Active Power** output which a **Generating Station** or **Generating Unit** was designed to achieve under **Normal Conditions**.
Rate of Change of Frequency (ROCOF)	The rate of increase or decrease of System frequency**.**
Reactive Power (VAR)	It is the product of the RMS voltage and the RMS value of the quadrature component of alternating current. In a three-phase system, it the sum of the Reactive Power of the Individual phases, measured in reactive Volt-Amperes (VAR) or multiples thereof.
Registered Capacity	The normal full load capacity of a **Generating Unit** or **Distributed Generating Unit** as declared by the **Generator** or **Distributed Generator** respectively, less the MW consumed by the **Generating Unit** or **Distributed Generating Unit** through auxiliary/unit transformers when producing at full load. It is expressed in MW or kW, measured at the **Point of Delivery**
Registered Professional Engineer	A person registered as a Professional Engineer under the Registered Professional Engineers Council Act (Mauritius)
Safety Coordinator	A person nominated by the **System Operator** and each **User** in relation to an **Interconnection Boundary** to be responsible for the coordination of safety precautions when work is to be carried out which requires the provision of safety precautions on **Apparatus**.
Safety Rules	The rules or procedures of the **System Operator** or **User** to ensure safety of persons working on or testing **Electrical Facilities** from the dangers inherent in working on or testing El**ectrical Facilities** that forms part or is connected to the **Transmission** or **Distribution Systems**, in line with provision of the prevailing laws.
Scheduled Outage	A planned interruption of the Generator's generating capability that: i. is not a Maintenance Outage; ii. has been scheduled and allowed by the Grid Operator in accordance with the corresponding provisions of the System Operation Code and Generation Code; and iii. is for inspection, testing, preventive maintenance, corrective maintenance or improvement
Secondary Meter	Meter(s) installed by the **Distribution Licensee** used to measure the delivery and receipt of energy, capacity or other parameters as defined in the requirements of the **Codes**

Term	Definition
Significant Incident	An Incident which in the opinion of the System Operator has had a significant effect on the Transmission or Distribution System or User System
Shutdown	The condition of a **Generation Unit** where the generator rotor is at rest or on barring.
Single Buyer	As defined in the Electricity Act Amendment: a holder of a Single Buyer license issued by the Authority and according to the Electricity Act amended in December 18th, 2020
Site Common Drawings	Drawings prepared for each **Interconnection Site** which incorporate **Interconnection Site** layout drawings, electrical layout drawings, common protection/control drawings and common services drawings.
Site Investigation Tests	Tests conducted in relation to **Plant, Apparatus** and Operational Procedures at **Generating Stations and User Sites** or to monitor and assess the characteristics of **Plant.**
Site Responsibility Schedules	Information specified in the respective **Code**, prepared by the **System Operator** in consultation with the **User** detailing required information of **Plant** and **Apparatus** at each **Interconnection Site**
Small-Scale Distributed Generator (SSDG)	**Distributed Generating Station** connected to the 230-single phase/400 V three phase Distribution System and has a maximum registered capacity of 50 kW
Spatial Load Forecast	It refers to the forecast of the future locations and magnitudes of electric load within the **Distribution** or **Transmission Licensee's** service territory.
Special System Tests	**Special System Tests** are those tests which involve either simulated or the controlled application of irregular, unusual or extreme conditions on the **System** or any part of the **System**, but which do not include commissioning or re-commissioning test or any other tests of a minor nature.
Spinning Reserve	Unloaded **Generation** capacity in MW which is synchronized and ready to serve additional **Demand** as set forth in the **Generation Code**.
Stand-by Generating Unit	It is a **Generating Unit** used as an independent reserve source of electric energy that, upon failure or outage of the normal source, provides electric power of acceptable quality so that the user's facilities may continue in satisfactory operation.
Start-Up	The action of bringing a **Generation Unit** from **Shutdown** to synchronous speed.
Substation	Grouping of **Equipment** inclusive of transformers, circuit breakers, switches and protective devices used to facilitate among other things the transformation of voltages and switching operations and the interconnection of generation, transmission, and distribution components within a specially defined area
Supply	Activities involved in the sale of electricity to **Customers.**
Synchronization	The controlled interconnection of **System** facilities to operate in phase at the same frequency and voltage. The terms "**Synchronise**", "**Synchronising**" and "**Synchronisation**" shall be construed accordingly.

Term	Definition
Synchronizing or synchronism-check relay	A synchronizing device that produces an output that causes closure of a circuit breaker between two circuits whose voltages are within prescribed limits of magnitude, phase angle, and frequency, according to the definition of Device number 25 in IEEE Std C37.2-2008
Synchronous Generating Station	A **Generating Station** comprising an indivisible set of installations which can generate electrical energy such that the frequency of the generated voltage, the **Generating Unit** mechanical shaft speed and the frequency of **Grid** voltage are in a constant ratio and thus in synchronism
System	The **Interconnection Facilities** and any other **Transmission System** or **Distribution System**, transmission or distribution facilities on the **System Operator** side of the Interconnection Boundary**(ies)** through which the electrical energy output from the **Generating Unit(s)** will be distributed by the **System Operator** to **Users** of electricity.
System Control	Administrative and other arrangements established to maintain as far as possible the proper safety, security and economic operation of the System.
System Control Centre	The main control centre of the **System Operator** or such other control centre designated by the **System Operator** from time to time (but not more than one at any time) from which the System Operator shall issue dispatch instructions to the **Generators** and switching instructions to the **Transmission** and **Distribution Licensees**.
System Control Engineer	Person appointed by the **System Operator** and on duty at the **System Control Centre** with responsibility for controlling the generation, transmission and distribution of electrical energy.
System Emergency	A condition or situation that, materially and adversely, or is likely to materially and adversely; (i) affect the ability of the **System Operator** to maintain safe, adequate and continuous electrical service to its customers, or (ii) endanger the security of person, plant or equipment
System Incident	An event on a part of the System or a User System that has an adverse effect on the rest of the System or other User System
System Incident Communications Procedures	Procedures agreed between the System Operator and Users to ensure secure communications during System Incidents.
System Model	A software representation of the **Transmission and Distribution Systems** developed and maintained by the **System Operato**r for the purposes of power system simulation. The **System Model** contains all data relating to the **Transmission and Distribution Systems** network, **User** registered operating characteristics and **User Models.**
System Operator	As defined in the Electricity Act 2005: "Means the operator of a transmission, distribution, load dispatching or similar systems"
System Operations Code	The rules made by the Authority, and approved by the Minister, to govern the **System Operator** activities relating thereto
System Restoration Procedures	The set of procedures developed, maintained and applied by the **System Operator** to implement a **System Restoration Strategy** following a **Major Incident**

Term	Definition
System Restoration Strategy	The strategy setting out the procedures for the restoration of the **System** following a **Major Incident**
System Test	Tests which involve simulating conditions, or the controlled application of irregular, unusual or extreme conditions, on the **System**, or any part of the **System**, but which do not include **Commissioning** or recommissioning tests.
Test Committee	A panel established to prepare a detailed programme for the conduct of an operational test or **Site Investigation** and to prepare a formal **Test Document.**
Test Coordinator	Suitably qualified person recommended by the System Operator and acting as chairman of the Test Committee.
Test Document	The document prepared by the **Test Panel** setting out all aspects for the management and implementation of a test.
Test Proposer	Licensee that proposes to undertake a System Test
Test Request	A document setting out the detailed proposal for an **Operational Test** or **Site Investigation Test**
Total System	The **Transmission** and **Distribution Systems** together with all **User Systems**.
Total System Shutdown	The situation when all generation connected to the Total System has ceased and the Total System has ceased to function.
Transmission and Distribution Outage Plan	Coordinated planning of the Transmission and Distribution System outages, carried out by the System Operator
Transmission Code	The rules made by the Authority, and approved by the Minister, to govern the transmission system and activities relating thereto
Transmission Site	A site owned (or occupied pursuant to license or an agreement) by the **Transmission Licensee** in which there is an **Interconnection Boundary**
Transmission System	The Transmission System is the that part of the electric System that operates at 66kV or higher consisting of the Electrical Facilities used for conveyance of electricity over Electric Lines between a Generating Station and Substation, or between Generating Stations or between Substations, and consists of Electric Lines, Equipment and meters owned and operated by the Transmission Licensee in connection with transmission of electricity.
TT System	Means a TT Earthing system in which the protective earth connection of the User is provided by a local connection to earth;
Under Frequency Relay	An electrical measuring relay intended to operate when its measured grid **Frequency** is reduced below a predefined threshold.
Under Voltage Relay	An electrical measuring relay intended to operate when its characteristic quantity (voltage) reaches the relay settings by a decrease in voltage.
Unit Transformer	A transformer directly connected to a **Generating Unit's** terminals, and which supplies power to the **Auxiliaries** of a **Generating Unit**.
URA	The Utility Regulatory Authority

Term	Definition
User(s)	Term used to refer to any person using the **Transmission System** or **Distribution System**, as more particularly identified in each section of the respective **Code.** In the **Governance Code**, the term means any person (other than **Licensee)** to whom the **Codes** applies.
User Site	A site owned (or occupied pursuant to a lease, **Licence** or other agreement) by a **User** in which there is an Interconnection Boundary. For the avoidance of doubt, where a site is owned by the **Transmission System** or **Distribution System Licensee** but occupied by a **User** the site is a **User Site**.
User(s)' System	The **Transmission System** or **Distribution System** owned and operated by a **User,** as opposed to a **Transmission Licensee.**
Variable Renewable Generating Station (VRGS)	Renewable Energy **Generating Station** with continuously varying power output following the availability of primary energy (e.g. Wind, solar PV and others).
Voltage Transformer (VT)	A device which has its primary winding connected in shunt with the power circuit to be measured and a secondary winding which provides a voltage proportional to the primary voltage at a range suitable for measurement or control.
Warm Cooling Boundary	The period of time, which must be greater than that defined by the **Hot Cooling Boundary**, post **De-Synchronisation** of a **Generating Unit** after which the **Generating Unit's Warmth State** transfers from being warm to cold.
Warm Start	Any **Synchronisation** of a **Generating Unit** that has previously not been **Synchronised** for a period of time longer than it submitted **Hot Cooling Boundary** and shorter than or equal to it submitted **Warm Cooling Boundary.**
Warmth State	Either cold, warm or hot, as defined under the timeframes since last **De-Synchronisations** for **Cold Start**, **Warm Start** or **Hot Start** respectively.

GC 15 APPENDIX B - TABLE OF TECHNICAL STANDARDS

Renewable Energy Generators

This section summarizes the standards for Renewable Energy generators recommended for mandatory implementation in the National Grid Code

INVERTERS		
Standard	**Title**	**Generator Capacity**
IEC TS 62910	Test Procedure of Low Voltage Ride-Through (LVRT) Measurement for Utility interconnected PV Inverter	200 kW and above
IEC 62920	EMC Requirements and Test Methods for Grid-Connected Power Converters Applying to Photovoltaic Power Generating Systems	All sizes
IEC 62116	Test Procedure for islanding prevention measures for Utility connected photovoltaic inverters (utility-interconnected photovoltaic inverters)	All sizes
IEC 61683	Photovoltaic Systems – Power conditioners – Procedure for measuring efficiency	All sizes
IEC 60529	Degree of protection provided by enclosures	All sizes

GRID CONNECTED PV SYSTEMS		
Standard	**Title**	**Generator Capacity**
IEC 61727	Photovoltaic (PV) systems - Characteristics of the utility interface	All sizes
IEC 61724 (all parts)	Photovoltaic System Performance Monitoring	All sizes
IEC 62446-1	Photovoltaic (PV) systems - Requirements for testing, documentation, and maintenance – Part 1: Grid-connected systems – Documentation, commissioning tests and inspection	All sizes
IEC 60364-7-712	Low Voltage Electrical Installations - Part 7-712: Requirements for Special Installations or Locations - Solar Photovoltaic (PV) Power Supply Systems	Below 200 kW
IEC TS 63049:2017	Terrestrial photovoltaic (PV) systems – Guidelines for effective quality assurance in PV systems installation, operation and maintenance	All sizes
IEC 62738:2018	Ground-mounted photovoltaic power plants - Design guidelines and recommendations	50kW and above

WIND GENERATORS		
Standard	**Title**	**Generator Capacity**
IEC 61400-21	Wind turbines - Part 21: Measurement and assessment of power quality characteristics of grid connected wind turbines	50kW and above
IEC 61400-22	Wind turbines - Part 22: Conformity testing and certification	All sizes
IEC 61400-24	Wind turbines - Part 24: Lightning protection	All sizes

POWER QUALITY AND ELECTROMAGNETIC COMPATIBILITY		
Standard	**Title**	**Generator Capacity**
IEC 61000-3-2	Electromagnetic compatibility (EMC) – Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)	Below 2 MW
IEC 61000-3-3	Electromagnetic compatibility (EMC) - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection	Below 2 MW
IEC 61000-3-4	Electromagnetic compatibility (EMC) - Part 3-4: Limits - Limitation of emission of harmonic currents in low-voltage power supply systems for equipment with rated current greater than 16 A	Below 2 MW
IEC TR 61000-3-6	Assessment of emission limits for the connection of distorting installations to MV, HV and EHV power systems.	200 kW and above
IEC TR 61000-3-7	Electromagnetic compatibility (EMC) - Limits - Assessment of emission limits for the connection of fluctuating installations to MV, HV and EHV power systems	50 kW and above
IEC TR 61000-3-8	Electromagnetic compatibility (EMC) - Part 3: Limits - Section 8: Signalling on low-voltage electrical installations - Emission levels, frequency bands and electromagnetic disturbance levels	Below 200 kW
IEC 61000-3-11	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection	All sizes
IEC 61000-3-12	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase	All sizes
IEC 61000-6-1	Electromagnetic compatibility (EMC) - Generic standards – Immunity for Residential, Commercial and Light-industrial environments	All sizes
IEC 61000-6-3	Electromagnetic compatibility (EMC) - Generic standards – Emission standard for Residential, Commercial and Light-industrial environments	All sizes
IEEE 519	IEEE Recommended practice and requirements for harmonic control of electric power systems	All sizes

BATTERIES AND ENERGY STORAGE SYSTEMS (*)	
Standard	**Title**
IEC 62933-1:2018	Electrical energy storage (EES) systems - Part 1: Vocabulary
IEC 62933-2-1:2017	Electrical energy storage (EES) systems - Part 2-1: Unit parameters and testing methods - General specification
IEC TS 62933-3-1:2018	Electrical energy storage (EES) systems - Part 3-1: Planning and performance assessment of electrical energy storage systems - General specification
IEC TS 62933-4-1:2017	Electrical energy storage (EES) systems - Part 4-1: Guidance on environmental issues - General specification
IEC TS 62933-5-1:2017	Electrical energy storage (EES) systems - Part 5-1: Safety considerations for grid-integrated EES systems - General specification
IEC 61427	Secondary cells and batteries for renewable energy storage - General requirements and methods of test
IEC 62619 CD Under Development	Secondary cells and batteries containing alkaline or other non-acid electrolytes. Safety requirements for secondary lithium cells and batteries, for use in industrial applications
IEC 62620 CD Under Development	Large format secondary lithium cells and batteries for use in industrial applications
IEC 62485-2	Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries
UL 1973	Batteries for Use in Light Electric Rail (LER) and Stationary Applications
UL 1642	Lithium Batteries

Note (*): IEC standards and UL standards for batteries are mutually exclusive. Equipment should comply with either IEC standards or UL standards, although a product may have both certifications.

Other Standards

Source	Standard	Scope
TC 6; DC 4,6	IEEE 519	Harmonics, Flicker
TC 6; DC 6	IEC TR 61000-3-7 and IEC TR 61000-3 (LV)	Voltage Flicker
TC 6	IEC 61000-4-30 and IEC 61000-3-13	Phase Unbalance
TC 17; GC 3	IEC 61869	Instrument Transformers
DC 3	IEEE 1366-2012	Reliability (SAIDI, SAIFI)
DC 4	IEC 62305-3	Surge Withstand Capability
DC 4	IEEE C37.90	Surge Withstand Capability Control Systems
DC 4	IEC 60364-5-54, IEC 60364-5-55	Earthing
DC 4	IEC 62271-200	Protection Systems
DC 4	IEC 61400-21	Power Quality Tests
DC 18	IEC 6205X	Meters
DC 21; GC 5	IEC 870-2-1 and IEC 870-3	SCADA interface
GC 2	IEEE C37.102-2006	Protection Synchronous Generators
GC 2	IEE C37.91-2008	Protection Power Transformers
GC 2	IEC 60034, IEEE 421	Voltage Control and Power System Stabilizers Synchronous Generators
GC 2	IEEE 115-2009	Test Procedures Synchronous generators
GC 12	IEE 1453	Measurements voltage flicker

Key: GC: Generation Code; TC: Transmission Code; DC: Distribution Code