DECISION

Document Title:

The Commonwealth of Dominica

Electric Utility Sector

Generation Code

Document Reference: 2016/001/D

Independent Regulatory Commission
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DOCUMENT TITLE AND APPROVAL PAGE

DOCUMENT NUMBER: **2016/001/D**

1. **DOCUMENT TITLE**: **Electric Utility Sector Generation Code**

2. **PURPOSE OF DOCUMENT**

This document covers the guiding principles, operating procedures and technical standards governing the operation of the electric power grid in the Commonwealth of Dominica and all interconnected generating facilities. The Code seeks to facilitate the economic, safe and reliable operation of the Dominican Power Grid and to avoid any undue discrimination among Generators. The provisions of the Code are enforceable under the Electricity Supply Act #10 of 2006.

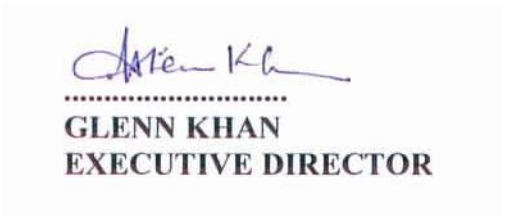
3. **RECORD OF DOCUMENT ON ISSUE**

Document Number	Description	Date
2016/001/D	**Electric Utility Sector Generation Code**	**February 29, 2016**

4. **APPROVAL**

This document is approved by the Independent Regulatory Commission (IRC) and the provisions therein become effective on 29th day of February 2016.

On behalf of the Commission:



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GLENN KHAN
EXECUTIVE DIRECTOR

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PREFACE

The Generation Code (the "Code") covers the guiding principles, operating procedures and Technical Standards governing operation of the Power Grid of the Commonwealth of Dominica and all interconnected Generating Facilities. The Code seeks to facilitate the economic, safe and reliable operation of the Commonwealth of Dominica Power System and to avoid any undue discrimination among Generators. The provisions of the Code are enforceable under the Electricity Supply Act #10 of 2006. (the "Act"). The Code is divided into the following sections:

Connection Conditions specifies the normal method of connection and the minimum technical, design and operational criteria which must be complied with by all Generators and prospective Generators.

Operational Metering specifies the Technical Standards and procedures for metering applicable to Metering Systems installed by Generators.

Generation Scheduling and Dispatch specifies the procedures for Generating Unit scheduling, dispatch, System security and communications between Generators and the System Operator via an Authorized Person.

Load Shedding and Power Restoration specifies the procedures for automatic and manual shedding of load and restoration of power following partial or total black out.

Generator Maintenance Planning specifies the criteria and procedures governing the planning and scheduling of maintenance requirements of Generators' Generating Facilities.

Testing and Monitoring specifies the list, time table and procedures for all tests to be performed by the Generator and System Operator.

General Provisions encompass several provisions pertinent to the functioning of the Code, including procedures for review of the Code and for derogation of existing installations and equipment not in compliance with the standards specified in this Code at the time of execution.

Dominica Electricity Services Limited ("DOMLEC") has responsibilities under this Code in two distinct capacities. These are as follows:

i) DOMLEC is responsible for prudent and efficient management of the electricity system of the Commonwealth of Dominica and, in that capacity, for dealing with all Generators in a consistent and non-discriminatory manner. This Code applies the term "System Operator" whenever referring to DOMLEC in this capacity;

ii) As the owner of power stations, DOMLEC is also subject to the rights and obligations in this Code as it applies to Independent Power Producers and Grid Connected Distributed Generation Facilities. Any reference to "Generators" in this Code should be interpreted to include DOMLEC in this capacity.

INTERPRETATION OF CODE

In this code:

i) Expressions defined under `Terms and Definitions' (Schedule A) shall bear the respective meaning set out therein;

ii) The headings are for convenience only and shall not be used in construing the Code;

iii) The singular includes the plural and vice versa;

iv) Terms not herein defined shall have the meaning ascribed thereto in the Oxford English Dictionary; such meaning as ascribed under the relevant statute of the Act and regulations, as well as such meaning as normally ascribed and accepted within the power industry; and

v) References to clauses, recitals and schedules are, unless the contents otherwise requires, references to clauses of and recitals and schedules to this Code.

1. INTERCONNECTION CONDITIONS

Interconnection Conditions specifies the normal method of connection and the minimum technical, design and operational criteria which must be complied with by any Generator and prospective Generators.

In addition, details specific to each Generator's connection may be set out in a separate Interconnection Agreement or in some cases a Power Purchase Agreement. The Interconnection Conditions set out in the Code shall be read in conjunction with either or both of these Agreements as relevant. In the event that, there is any conflict between the provisions of the Code and any Interconnection Agreement and/or Power Purchase Agreement and the said Interconnection Agreement and/or Power Purchase Agreement was signed before the present Code came into effect, then, the provisions of the Interconnection Agreement and/or Power Purchase Agreement will supersede the Code. Notwithstanding the foregoing, all Interconnection Agreements and/or Power Purchase Agreements shall be read in conjunction with the Code in force at any material time and in accordance with Sub-section 7.1 of this Code.

1.1 METHOD OF INTERCONNECTION

The method of interconnection shall be determined on the basis of several technical and economic factors which include:

i Safety
ii Generating Unit MW rating or Generating Facility MW capacity;
iii Supply voltage;
iv Proximity to the Grid;
v Reliability considerations;
vi Auxiliary power supply;
vii Substation configuration; and
viii Costs.

It should be noted that it will not be technically or economically practicable to achieve uniformity of the method of interconnection. In all cases however, Prudent Utility Practice will influence the method adopted.

The method chosen by the Generator shall be reviewed and approved by the System Operator on the grounds of System security, stability and safety.

Distributed renewable intermittent grid connected systems shall be interconnected as per the Interconnection Policy approved by the Independent Regulatory Commission.

INTERCONNECTION POINT

The Generating Unit(s) shall be interconnected to the Grid via a circuit breaker if the facility's output voltage matches that of the system at the Interconnection Point, or via a Substation.

If via a Substation the Interconnection Point shall normally be on the High Voltage side (Grid side) of the Generating Unit(s) transformer.

Unless otherwise negotiated the Interconnection Point will demarcate the boundary of responsibility between the Generator and the System Operator.

The Generator shall be responsible for the installation of all auxiliary and interconnecting equipment on the Generator's side of the Interconnection Point.

The finalized number of connection points shall be determined by the relevant System Analysis Studies at the time of interconnection to the system.

The Generator shall be responsible for all costs related to interconnection to the Grid.

SUPPLY VOLTAGE

The voltage level at which the Generating Unit(s) are interconnected to the Grid will be dependent on but not limited to the size and number of units and the other factors that determine the Interconnection Point.

Subject to other technical considerations, Generating Units shall be interconnected to the Transmission or Distribution or Supply System at 69kV, 33kV, 11kV or 415/230V as is appropriate for the agreed Interconnection Point.

Distributed Renewable Generating Facilities with rated capacity up to 250 kW may be connected as per DOMLEC’s Interconnection Policy.

The chosen method of interconnection shall be determined by the System Operator on the grounds of system security, stability and safety.

CONFIGURATION OF SUBSTATIONS

All Generation Substations shall have the capability to disconnect or separate, from the Grid, any transmission line and/or Generating Unit which is interconnected to the Substation.

For reasons of ensuring safety and reliability of operation, Generation Substations with more than three transmission lines or Generating Units interconnected to them shall be of a "**breaker and a half'** configuration. The size of the Generating Units shall be considered for applicability of the breaker and a half requirement. The Substation shall be equipped with all requisite

protection measures necessary to meet the System Operator's System protection standards as set out in Section 1.2.4.

GENERATOR PERFORMANCE STANDARDS AND TECHNICAL CRITERIA

TECHNICAL STANDARDS

All components of the connection shall be constructed, installed and tested in accordance with the current edition at the time of construction of the following codes and standards, or their international equivalents and Prudent Utility Practice:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASCE	American Society for Civil Engineers
ASME	American Society for Mechanical Engineers Performance Test Codes
ASNT	American Society for Non-Destructive Testing
ASTM	American Society for Testing Materials
AWS	American Welding Society
DBOS	Dominica Bureau of Standards
IEC	International Electro-technical Commission
IEEE	Institute of Electrical and Electronic Engineers
ISO	International Organization for Standardization
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electric Manufacturers Association
NESC	National Electric Safety Code
NETA	National Electric Testing Association
NFPA	National Fire Protection Association
NRCA	Natural Resources Conservation Authority
OSHA	Occupational Safety and Health Association
SSPC	Steel Structures Painting Council
UL	Underwriters Laboratory

PERFORMANCE STANDARDS

Each Generating Unit interconnected to the Grid shall be required, as a minimum, to meet the following performance standards:

i) Sustained operation at any Load within the loading limits within the System frequency range 48.5 Hz to 51.5 Hz;

ii) Emergency operation at any Load within the loading limits within the system frequency range 48.5 Hz to 51.5 Hz during exceptional circumstances;

iii) Maintain normal rated output at the Grid voltages specified in Clause 1.3; and

iv) Sustained operation at the rated Power Factor range set out in the Interconnection Agreement; and

v) As per Interconnection Policy

STATION CAPABILITIES

i) Synchronizing Facilities

Each Generating Unit shall be equipped with synchronizing facilities to ensure Synchronization with the Grid. The Synchronization facilities shall include a synchronism check relay to support Synchronization under the following range of conditions:

a) Grid frequency within the limits 48.5 to 51.5 Hz; and
b) Grid voltages within the limits specified in Section 1.3.

ii) Auxiliary Supply

Each Generating Unit shall have the facility to provide its auxiliary supply during normal operation. Each Generator shall provide the facility to connect to the Grid for an incoming station service supply from the System Operator.

iii) Automatic Frequency Response And Automatic Voltage Regulation

It is required that Dispatch Generating Units have continuously fast acting response automatic governor and excitation control systems to control the Generating Unit's power output and voltage levels without instability of operation within the operating range of the unit.

iv) Cycling Capability

Cycling Units as designated by the System Operator will be required to have the capability of generating for up to 8000 hrs but no less than 2000 hrs per annum. The unit should be so designed to possess the capability of withstanding the stresses associated with the expected repeated startup

and shutdown in its normal operating mode, accommodating at a minimum 350 starts per year.

v) **Governor Response Capability**

The droop characteristics from no load to full load for Generating Units shall be adjustable in the range of 0-5%.

vi) **Black Start Capability**

Some Generating Units shall be designated to have Black Start Capability primarily considering their type and location on the system. This shall enable Generators to restart their facilities without incoming supply from the Grid, connect to a Dead Bus, and supply load as necessary; once on line Generators are required to be in frequency sensitive mode so as to vary with load changes. In the event of the Generator "black starting" the Grid, the Generator may act, temporarily upon the provision of instructions from the System Operator.

The specification of the Black Start Generating Unit will be a subject of the Interconnection Agreement (normally contained in the PPA as a Schedule) between the System Operator and the Generator.

Where a Generator has a facility with a capacity of 1.5MW or greater, at least one source of Black Start supply shall be located at the site. Black Start facilities shall be routinely tested by the Generator to ensure satisfactory operation. The System Operator shall have the right to require the Generator to demonstrate the performance of the Black Start Capability.

At a minimum, the Generator is required to provide a formal report to the System Operator twice a year, detailing the results of the Black Start generator test. One of these reports must be based on a test done in May of that year and shall be submitted to the System Operator before June 1 (the official start of the hurricane season).

A failed event shall automatically trigger the reporting of that black start test event by the relevant Generator to the System Operator. A further report is also to be immediately submitted by the Generator to the System Operator upon subsequent successful maintenance and operation of said black start generator.

vii) **Fuel Supply Capability** (Thermal Plants Only)

If the interconnected units use gaseous or liquid fuels, the Generator shall ensure firm arrangements to maintain at least twenty (20) days of fuel requirement at normal rated output subject to the provisions of Clause 3.10. The arrangement may include any of the following:

- Wholly owned and maintained storage facility;
- Supplier owned storage with contractual arrangements guaranteeing the required storage;
- A combination of the above.

PROTECTION REQUIREMENTS (Reference is made to IEC Guidelines or Equivalent)

i) Protective systems shall be provided in accordance with the Technical Standards set out in Clause 1.2.1 and Prudent Utility Practice.

ii) All protective relaying equipment shall comply with the appropriate Technical Standards.

iii) Generating Units shall at a minimum have protection against the following incidences:
   a. Loss of excitation;
   b. Under excitation;
   c. Unbalanced load operation;
   d. Stator phase faults and earth faults;
   e. Generating unit differential protection;
   f. Reverse power protection;
   g. Main transformer phase and earth faults, HV and LV;
   h. Station service transformer phase and earth faults, HV and LV;
   i. Transformer tank sudden pressure and transformer differential;
   j. Backup protection in the event that external phase and earth faults are not Cleared by remote protection system;
   k. Backup protection in the event of circuit breaker failure to operate;
   l. Over and under frequency;
   1) Over speed;
   m) Stator over temperature;
   n) Rotor over temperature; and
   o) Restricted earth fault(s).

iv) Transformers

   a) Differential current protection for generator step-up transformers
   b) HV/LV phase and ground overcurrent protection (for station service/unit auxiliary transformers)
   c) Buchholz and/or Sudden pressure (gas relay)
   d) Over excitation protection (for generator step-up transformers)
   e) Backup protection in the event of circuit breaker failure to operate for generator step-up transformers
   f) Over-temperature protection (winding and oil)

v) Interconnection

   a) Differential (line current high-impedance) for Phase and earth faults.
   b) Backup interconnection protection in the event that external phase and earth faults are not cleared by remote protection system.
   c) Backup protection in the event of circuit breaker failure to operate.

d) The protection requirements for the HV interconnection with Grid will depend on the connection voltage and the Substation configuration. The detailed arrangements for each Generating Facility are set out in the respective Interconnection Agreement. In all cases it should be ensured that each Generating Unit can be separated from the Grid as rapidly as possible in the event of a sustained electrical fault on either side of the Interconnection Point.

e) The protective relaying systems shall provide the levels of sensitivity, speed and reliability as required by the System Operator. The operation of all protection schemes shall be coordinated with the operation of the System Operator's equipment.

f) The Generator shall submit the following design data for approval by the System Operator:

i Tele-metering single line diagrams;
ii Protection and Metering single line diagrams;
iii Tripping logic diagrams;
iv AC and DC schematic diagrams for the interconnection and Generating Unit protection schemes;
v Setting calculations and setting lists for the interconnection and Generating Unit protection schemes including closing time for major circuit breakers; and
vi Rating and transfer function data as required for computer simulation of the Generating Unit(s). This shall include data on the Generating Unit(s), transformer(s), automatic voltage regulator(s) and prime mover governor.
vii Substation single line diagram.

SYSTEM OPERATOR PERFORMANCE AND TECHNICAL STANDARDS

i) **Grid Frequency**

The normal operating frequency of the Grid shall be 50.0 Hz ± 3%.

For the avoidance of doubt, generators shall be designed for sustained operation within the frequency limits as specified in Clause 1.2.2 (i) and for restricted time based operation within the emergency frequency limits as specified in Clause 1.2.2 (ii).

ii) **Grid System Voltages**

A. The Nominal Operating Voltages on the Grid shall be:

1. 33 kV or higher on the Transmission System; and
2. 11 kV on the Distribution System
3. 400/230V on the Supply System

B. The Normal Operating voltages shall be within:

1. + 4 % to -8% on the Transmission System;

2. +4% to -8% Distribution System; and

3. +4% to -8% on the Supply System.

iii) **Short Circuit Levels**

The system shall be designed to withstand a three phase symmetrical short circuit at the Generating Unit Substation for fault levels as specified in the appropriate Technical Standards as set out in Clause 1.2.1.

OTHER RIGHTS VESTED WITH THE SYSTEM OPERATOR

INSPECTION OF GENERATING PLANT BY SYSTEM OPERATOR

The System Operator retains the right to inspect any aspect of the Generator's plant in so far as that plant is pertinent to the provision of capacity and/or energy to the Grid, or to the safe and secure operation of the Grid, in order to verify the correct operation of all equipment including controls, circuit breakers, relays (and relay settings), metering and tele-metering. Prior to exercising its right to inspect the Generator's facilities and Metering System, the System Operator must give the Generator two (2) working days' notice and provide adequate reason for the inspection.

The Generator shall keep records to provide verification of tests and maintenance in accordance with agreements between the System Operator and Generator.

DISCONNECTION OF GENERATOR BY THE SYSTEM OPERATOR

The System Operator retains the right to disconnect any Generating Facility from the Grid thereby isolating equipment, without prior notice under the following circumstances:

i) In cases of System Emergency or exceptional circumstances;

ii) During system restoration following partial or complete loss of power;

iii) If at any time the Generating Facility is being operated outside acceptable operating parameters in a manner which violates the Connection Conditions set out in the Generation Code or which is likely to cause any of the following:

a) A safety risk to personnel;
b) Risk to stability or security of the Grid or Other Generating Units;
c) Any behavior causing sustained operation outside the normal Grid operating frequency and voltages as stated under Section 1.3; and
d) Any other material breach of the Connection Conditions which prevents the System Operator from meeting its license obligations.

Breach of any Power Purchase Agreement clause which stipulates that this action may be taken.

Notwithstanding the forgoing, in the event of any material breach of Interconnection Conditions which prevents the System Operator from meeting its Licence obligations, the System Operator

may disconnect after using best commercial efforts to give notice to the Generator.

2. OPERATIONAL METERING

Adequate Metering Systems consistent with the technical specifications of this clause shall be installed by the Generator. The Metering System shall comprise a Primary and Backup Metering System and shall be designed, owned, installed and maintained by the System Operator. All associated costs of the design and installation shall be borne by the Generator.

TECHNICAL STANDARDS FOR OPERATIONAL METERING

LOCATION OF PRIMARY AND BACKUP METERS

i) Both Primary and Backup Metering Systems shall be installed to accumulate the outputs and/or inputs at the High Voltage side bushing of the Generating Unit step up transformer.

ii) Each meter shall have its own current transformer (CT) and potential transformers (PT) and necessary independent systems to function effectively.

For Generators less than the quantum stated in the Interconnection Policy, metering requirements of the Standard Offer Contract in addition to Clause 2.2.4 of this code shall apply.

METERING STANDARDS

i) Instrument transformers shall conform to ANSI Standards C12.11 and C57.14 Class 03 and shall have sufficient capacity to handle the attached equipment.

ii) The current transformers secondary winding used for metering purposes shall supply only the metering equipment and associated systems. Notwithstanding the foregoing each current transformer may have other secondary windings that may be used for purposes other than metering.

iii) Potential transformers' secondary windings may be used for metering and other purposes provided that the total loading does not exceed one half the rating of the transformer.

iv) Any metering and accumulating equipment shall have sufficient accuracy so that any error resulting from such equipment shall not exceed ±0.5% of full scale.

SEALING, FIELD TESTING AND INSPECTION OF METERING SYSTEMS

Meters and associated instrument transformer boxes or enclosures shall be sealed by and at the expense of the Generators at the respective meters. The type of seal shall be approved by the System Operator.

For wiring used only for metering purposes, only conduits which comply with IEC or equivalent

standards shall be used to enclose the wiring connecting the instrument transformers and the related accumulating and metering equipment. Any boxes or enclosures or other devices used to join two or more sections of conduit shall be securely covered, fastened and sealed with seals approved by the System Operator.

If the wiring used for metering must pass through a panel, panel board or switchgear structure, it shall be fastened together and cabled as a unit separate and apart from the rest of the wiring.

At its own expense, the Generator shall provide any terminal blocks that may be used along the length of the metering conductors within a panel, panel board or switchgear with covers or strips that limit access to the respective connections and said covers or strips shall be affixed with a seal approved by the System Operator. Boxes or enclosures shall be sealed with pre-numbered seals

approved by the System Operator.

Seals shall not be broken by anyone except the System Operator's personnel when the meters are to be inspected, tested or adjusted. The System Operator shall notify the Generator in advance of such inspection, testing or adjustment, and the Generator has the right to have a representative present.

Before the commissioning of any Generating Unit, the System Operator shall test the Metering System for correct wiring and accuracy, using equipment whose accuracy is equal to or better than that of the individual meters. Individual meter components found to be inaccurate before commissioning shall be returned to the Generator for replacement. Malfunctioning identified after full acceptance of the Metering System shall be the responsibility of the individual owners.

The System Operator shall test the Metering System within ten (10) days after:

a. The detection of a difference larger than the Allowable Error in the readings of the meters;

b. The repair of all or part of a meter caused by the failure of one or more parts to operate in accordance with the specifications; and/or

c. Each anniversary of the commissioning date of the unit. If any errors in the readings of the meters are discovered by such testing, the Party owning those meters shall repair, recalibrate or replace those meters and shall give the other Party reasonable advance notice so that the Party receiving notice may have a representative present during any such corrective activity.

METER READING PROCEDURES

PARAMETERS FOR METER READING

The Generator shall provide and install appropriate equipment and shall make a continuous recording on appropriate magnetic media or equivalent of the Net Energy Output of the Generating Unit(s).

The parameters to be metered shall be subjected to the Interconnection Agreement between the

Generator and the System Operator, and may consist of but not limited to any or all of the following parameters:

i) Active energy (MWh) OUT;
ii) Active energy (MWh) IN;
iii) Reactive energy (MVArh) First Quadrant;
iv) Reactive energy (MVArh) Fourth Quadrant;
v) Active Power Demand (MW) OUT;
vi) Active Power Demand (MW) IN;
vii) Apparent Power Demand (MVA) OUT;
viii) Apparent Power Demand (MVA) IN;
ix) Reactive Power Demand (MVAr) First Quadrant; and
x) Reactive Power Demand (MVAr) Fourth Quadrant.

FREQUENCY OF READING

The Demand Interval shall be thirty (30) minutes and shall be set to start at the beginning of the hour. Demand shall be calculated by averaging the respective parameters over the stated Demand Interval.

The System Operator shall read the appropriate meters and the Demand register shall be reset, within five (5) minutes of midnight of the last day of each Month or two Month period as agreed upon by the Parties. If readings are obtained remotely, copies of the printout produced by the computer which initiates the reading protocol shall be made and provided to the Generator.

The System Operator shall read the appropriate meters to prevent clock drift. The clocks shall be checked and reset as agreed by the Parties. If readings are obtained remotely, copies of the data produced by the computer which initiates the reading protocol can be made and provided to the Generator if requested.

The meters shall be read by the System Operator at an interval as agreed between the System Operator and the Generator.

CONTROL PROCEDURES

The System Operator shall inform the Generator at least 24 hours prior to reading the meters and the Generator shall have the right to have a representative to witness such readings.

As a backup of the manual records of the Demand actually experienced throughout the billing period, the meters shall be equipped with a mass memory module which will record the MWh and MVArh produced during each Demand Interval.

METERING REQUIREMENTS FOR GENERATORS LESS THAN OR EQUAL TO 250 kW

For small Generating Facilities with rated capacity equal to or below 250 kW the full metering requirements in Sub-section 2.1 may be reduced. These Facilities will be permitted to be metered

using separate import and export meters. The terms and conditions of this arrangement shall be guided by the Standard Offer Contract (SOC).

The metering equipment shall be a bi-directional device or a smart meter having the capability of mass memory, remote reading and power quality monitoring. Specification of the meter shall be provided by the System Operator.

RECONCILIATION PROCEDURES

If the Primary Metering System is known to be inaccurate or otherwise functioning improperly, then the Backup Metering System shall be used during the period that the Primary Metering System is not in service and the provisions described in Section 2.2 shall apply to the reading for the Backup Metering System.

If the Primary Metering System is found to be inaccurate by more than the Allowable Error or to otherwise have functioned improperly during the previous Month, then the correct amount of Net Energy Output and Dependable Capacity for the actual period, during which inaccurate measurements if any were made, shall be determined as follows:

i) First, the reading of the Backup Metering System shall be utilized to calculate the correct amount of Net Energy Output and Dependable Capacity, unless a test of such Backup Metering System, as required by either Party, reveals that the Backup Metering System is inaccurate by more than the Allowable Error or is otherwise functioning improperly; and

ii) If the Backup Metering System is not within the acceptable limits of accuracy or is otherwise functioning improperly, then the Generator and the System Operator shall jointly prepare a reasonable estimate of the correct reading on the basis of all available information and such guidelines as may have been previously agreed to between the Generator and the System Operator. This estimate shall take into account but not be limited to Dispatch Instructions as recorded in the System Operator dispatch log and meter readings, remote or manual.

RESOLUTION OF DISPUTES OVER RECORDED METERING DATA

If the System Operator and the Generator fail to agree upon an estimate for the correct reading within 30 days of the Dispute being raised, then the matter may be referred by either party for determination by the IRC pursuant Clause 7.6 of this document.

If the System Operator and the Generator fail to agree upon an estimate for the correct reading within a reasonable time (as specified in the relevant PPA) of the Dispute being raised, then the matter may be referred for arbitration by either Party in accordance with the relevant PPA.

3. GENERATOR SCHEDULING AND DISPATCH

The System Operator is required to operate and maintain a merit order system for Generating Units as per Section 3.2.

In order to operate the Grid in a safe, secure and economic manner, the System Operator will require accurate and timely information on Generating Units' availability, efficiency and technical

operating capability.

This section outlines the procedures used to determine how individual Generating Units or Complex are operated in parallel to achieve these objectives based on the information received by the System Operator.

CRITERIA FOR SCHEDULING AND DISPATCH

The System Operator, shall seek at all times to minimize the total cost of production and supply of electricity subject to constraints of system security and reliability, safety, fuel availability, emission limits and other environmental considerations and contractual obligations.

MERIT ORDER SCHEDULING

The System Operator shall establish a Merit Order based on least cost principles and efficiency. The fuel surcharge exerts a significant influence on the tariff. Consequently the preceding informed the methodology for determining the merit order under the following guidelines:

a) Maximize hydro production commensurate with the existing lake level and water flows

b) Diesel units must not run below the minimum of 50% of installed capacity

c) Spinning Reserve to be kept on Diesel units only.

d) When diesel units are to run at low loads, maximize loading at SL units and reduce loading at FC medium speed units.

e) Match minimum diesel production with most appropriate buildup of medium speed units, excluding inefficient units

f) When a unit has to be run continuously below 50%, a medium speed unit must be the ONLY choice

g) Spinning Reserve must be equal to the output of the largest unit currently online.

h) Units are dispatched by order of best actual fuel efficiency and effective forced outage rate (EFOR). Fuel efficiency takes precedence.

   i) Fuel efficiency Formula (kWh/IG): $\frac{\text{Electrical Energy delivered in kWh}}{\text{Fuel Consumed in Imperial Gallons (IG)}}$

   ii) Effective Forced Outage Rate Formula (%): $\frac{\text{Forced Outage Hours for Operating Period}}{\text{Operating Period Hours}} \times 100$

3.2.1 REVIEW OF MERIT ORDER

a) FOSSIL FUEL GENERATORS

The Merit Order is reviewed on the following bases:

i. Daily Fuel Efficiency and availability checks done by Operations
ii. Semiannual comprehensive Fuel Efficiency Tests mandated by the IRC

The Generator may request a fuel efficiency test of its own unit if it can provide information to substantiate that it has made improvements in the performance of its Unit(s). No more than two such requests will be accommodated within any calendar year.

Fuel Efficiency Tests for all Generating Units, shall be coordinated by the System Operator. Such tests are to be held on dates mutually agreed upon with the Generator. The System Operator shall reserve the right to witness all such tests.

The IRC shall be duly notified beforehand when such tests are contemplated and carried out and reserves the right to witness all such tests. The IRC will be provided with the results of the tests within one month of the conduct of the tests.

b. R E N E W A B L E GENERATORS

For Generators supplying electrical power from renewable source(s) these units will be dispatched as per the Merit Order and the Power Purchase Agreement.

3.2.2. NOTIFICATION OF MERIT ORDER

i) The System Operator shall notify the Generator as to the relative position of its Generating Unit(s) in the Merit Order in terms of ranking number each day.

ii) The System Operator shall notify the IRC of the revised Merit Order each day.

SYSTEM SECURITY STANDARDS

SPINNING RESERVE

The System Operator shall carry a minimum Spinning Reserve margin as set out in Schedule D subject to the approval of the IRC. Before such approval can be granted, the System Operator shall submit the revised Spinning Reserve policy to the IRC for review, analysis and determination. The determination of the Spinning Reserve margin shall be based on economics and System security considerations.

OPERATING RESERVE

The System Operator shall co-ordinate Scheduled Outages such that the N-2 Reserve margin and the Operating Reserve margin are maintained at or above the level set out in Schedule D. This shall allow the Grid to be able to accommodate at least two (2) of the largest Generating Units being out of service and still maintain adequate available Capacity to meet System Demand. In the case of

System Emergency and unplanned outages, the Scheduled Outages of Generating Units shall be rescheduled if possible to maintain this reserve margin.

UNIT COMMITMENT SCHEDULING AND SYSTEM OPERATION

It is the System Operator's obligation to prepare a Unit Commitment Schedule which reasonably reflects the likely System conditions. This schedule shall be prepared for the following week and revised on a daily basis. The scheduling of Generating Units shall be in accordance with the most recent available Merit Order, subject to relevant technical constraints specified in Clause 3.2.

Each Generator must submit to the System Operator by approved communication means a declaration of plant availability and Capacity, and any other information as agreed between the Generator and the System Operator from time to time. This data is to be declared to facilitate the timely preparation of a Unit Commitment Schedule over the short term period specified.

A Weekly Unit Commitment Schedule shall not be regarded by any Generator to be Dispatch Instructions but shall be provided as a service to Generators for planning purposes.

The daily revision of the Unit Commitment Schedule will at all times take over the short term predictions.

PREPARATION OF UNIT COMMITMENT SCHEDULE

In the preparation of Unit Commitment Schedule, the System Operator must take into consideration, among other things, pertinent to commitment schedule, the following factors:

i Forecasted Demand and geographical Demand distribution;
ii Each Generator's declaration of each of their Generating Unit(s) MW capability and availability;
iii Generator's contracted operating characteristics;
iv Contracted and declared Heat Rate Curves;
v Fuel prices and constraints;
vi System reserve requirements;
vii System Stability implications and frequency and voltage control; and
viii Grid constraints.

Monday - Friday: The daily schedule of expected availability and Generation Dispatch shall be prepared by each Generator and made available to the System Operator by 3 p.m. each day for the 24 hour period starting 12 a.m. (midnight) the following day. This shall be reviewed by 7 am on the following morning.

Weekends: The daily schedule of expected availability and generation levels for the weekend shall be done and made available to the System Operator by 3 p.m. on the Friday preceding the weekend. This schedule shall cover the period from Saturday 12 am to Tuesday 12 a.m. and shall be reviewed by 7 am on the following Monday morning.

To facilitate preparation of these schedules, the Generator shall make a declaration of plant availability and Capacity and any other information, as agreed between the Generator and the System Operator from time to time for the following day starting at 12 midnight and no later than 1:00 pm.

The specific procedure for receiving data and making notification of commitment of Generating Units for dispatch shall be based on the following:

i) An agreed and approved means of communication between the Generator and System Operator with adequate backup in case of the failure of this approved means; and

ii) In order to ensure rapid transfer of information an interim declaration shall normally be verbally submitted in the first instance and shall be confirmed by the approved means without delay.

Where a Generator becomes aware of any changes in these declared values or other data

subsequent to the declaration, then the Generator shall without delay notify the System Operator

DISPATCH INSTRUCTIONS

This section sets out the procedures for issuing Dispatch Instructions to the Generators operating Dispatchable Generating Units, and the responsibilities of the System Operator in the minute to minute control time frame.

Real Power (kW)

Real Power (kW) dispatch shall be based on actual fuel efficiency. Dispatch Instructions are normally given on a half hourly basis or anytime that is warranted by the operational requirements of the System.

Reactive Power (kVAr)

Reactive Power (kVAr) is dispatched at the discretion of System Operator to maintain the System voltage within the tolerable limits. Under normal operating conditions Generating Units may operate at 0.85 pf but could be required to operate at as low as 0.8 pf.

In instances when the System Operator makes the request for the Generator to absorb VArs, the Generator should not be penalized on their electricity bill during that period, to the extent that the

absorption of reactive power has affected the ratcheting mechanism. All Generators are required to provide the generator capability curve for the unit upon request by the System Operator. The System Operator shall at all times use the most economical choice available to manage the system voltage.

Ancillary Service

The System Operator subject to the approval of the IRC may contract with suitably qualified Generators for ancillary services (Voltage Support, Frequency Control, Reserve Support, etc.) to the extent that it does not violate the Power Purchase Agreements.

INSTRUCTION TO SYNCHRONIZE / DESYNCHRONIZE

The times at which a Generator shall be synchronized and desynchronized shall be directed by the System Operator.

FREQUENCY AND VOLTAGE CONTROL

Adherence to the frequency and voltage standards shall be the responsibility of the System Operator who shall issue to each Generator the required Dispatch Instructions for both Real Power (kW) and Reactive Power (kVAr) output in accordance with the declared operating limits of each Generating Unit as agreed upon between the System Operator and the Generators to ensure adherence to these operating standards.

Automatic Generation Control (AGC) can be used to perform frequency control by sending signals to the generating unit to adjust output. To the extent that the application of AGC is deemed economically feasible to the consumer and technically possible based on the specific generator capability and/or its expected operating regime, each new Generator shall ensure that the Generating Units are AGC enabled and can, without human intervention, accept and respond to a signal to adjust load. Additionally, the SCADA/EMS system shall have the capability to facilitate the use of AGC. The range of control afforded by the implementation of AGC shall be the subject of the Generator's PPA.

System Operator Responsibility

The System Operator shall be responsible for issuing any instruction necessary to:

i) Maintain the voltage on the 11 kV and 33 kV or 69kV Systems in accordance with the stated operational limits with the normal operational limits of + 4% /- 8%;

ii) Maintain, or enable others to maintain, the voltage of supply to consumers within the statutory limits of +4- 8% of the Nominal Operating Voltages;

iii) Supply the Reactive Power requirements of the System as economically as possible, and to organize the disposition of Reactive Power reserves for proper control of the System voltage in accordance with the requirement of i) and ii) above;

iv) Maintain frequency within the limits of 48.5 Hz to 51.5 Hz.

v) Designate Generating Units to operate in Dispatch or Spinning Reserve mode

Generator Responsibility

The Generator shall be responsible for:

i) Ensuring that Generating Units operate in frequency control mode unless operation in this mode has been agreed as being impracticable between the Generator and the System Operator;

ii) Ensuring that Generating Unit automatic voltage regulators are in service continuously. The System Operator shall be informed whenever a Generating Unit is operating without its automatic voltage regulator or Reactive Power Limiter; and

iii) Notifying immediately the System Operator of any unusual voltage, frequency or power condition or any dynamic disturbances occurring upon any Generating Unit.

In the event of a sudden change in System voltage a Generator must not take action to override automatic Reactive Power generation response, unless instructed otherwise by the System Operator or unless immediate action is necessary to comply with stability limits or declared constraints of plant apparatus.

CHANGES TO GENERATION CONDITIONS

The Generator shall notify the System Operator as soon as possible of any factors which will or are likely to, affect the power output capacity, flexibility, response or cost of production of any of its Generating Units.

Generating Units and apparatus shall not be taken out of service or rendered unavailable without reference to the System Operator except in cases of Emergency. In such cases the System Operator should be informed as soon as possible of the action taken.

A Generator experiencing an unplanned outage of any of its Generating Units shall inform the System Operator as soon as possible of all relevant details concerning this outage. As soon as the cause of the outage has been properly assessed and a recovery plan established, the Generator shall inform the System Operator of the expected time and the condition under which the Generating Unit shall return to service.

The actual time that the outage occurred and the Generating Unit was returned to service and any other information deemed to be important in relation to the outage shall be logged by the System Operator and the Generator

3.6. SWITCHING INSTRUCTIONS

High Voltage switching shall only be carried out with the permission of the System Operator except for agreed routine switching or in case of System Emergencies. Persons required to carry out high voltage switching must be specifically authorized by the System Operator to carry out such switching.

The following procedures should be adhered to when carrying out complex switching operations:

i) When switchgear, normally operated to the instruction of the System Operator has been operated without instruction from him, the Generator concerned shall notify the System Operator immediately. Switchgear normally operated to the instruction of the System Operator shall not be operated without his permission;

ii) the System Operator shall ensure that any instruction for switching issued by him is repeated phrase by phrase as received and at the termination of the message is read back to him in full by the recipient; and

iii) Any instruction issued by the System Operator relating to the operation of switchgear shall, be written down and every such instruction shall be repeated phrase by phrase as received. At the termination of the message it shall be read back in full to sender to ensure that the instruction has been accurately received.

Instructions from the System Operator shall be carried out without delay and at the time of completing the operation or sequence of operations shall be reported back to the System Operator

A Generator shall inform the System Operator immediately of any objection to any instruction. The System Operator shall then investigate the matter and if necessary refer it to higher authority endowed with the necessary powers of authority, to make a determination on such matters.

3.7 NON-CENTRALLY DISPATCHED PLANT

Non Dispatchable Generating Units shall operate as agreed upon between the System Operator and the Generator. The System Operator shall inform such Generators where there is a need for outage on the Generating Unit or of any incident which would affect the operations or safety of the Generating Unit. During an Emergency or where there is life at risk the System Operator reserves the right to disconnect and so isolate any Generating Unit without prior notification.

The Generator shall communicate with the System Operator on matters of switching and Synchronization during normal operations and in the event of System Emergency.

COMMUNICATION AND REPORTING

The Generator is required to provide information as requested pertaining to the operation of their Generating Unit(s).

3.8.1 DESIGNATED CONTACT PERSONS

The System Operator shall at all times have a suitably qualified person designated for communication with the Generators on matters relating to the operation of the Grid as per above.

Each Generator shall at all times have a suitably qualified person designated for communicating with the System Operator in matters relating to the operation of the Generating Units and the Grid.

SYSTEM OPERATOR RECORD OF DISPATCH

A record of events shall be kept at the System Operator's facility, which shall include, but not be limited to:

a. All instructions regarding switching, voltage control and Generating Unit operation;

b. Details of changes in target frequency;

c. Each operation or sequence of operations of circuit breakers, disconnectors and earthing switches under the control of the System Operator and, where appropriate, alarms and protection indications;

d. Transformer tap changes instructed or operated by the System Operator;

e. The synchronization or taking off-line of Generating Units according to local procedures;

f. Details of the application and removal of main short and grounds and other safety precautions, including the issue and cancellation of safety documents and HV live line working certificates, by the System Operator or designate as required by the System Operator's safety rules;

g. The commissioning, taking out of service or re-commissioning of plant and apparatus, including automatic switching systems, protection and changes to relay settings, together with relevant details;

h. The failure, or change of state, of plant or apparatus on the Grid together with relevant details;

i. The failure of plant or apparatus affecting the availability of Generating Unit(s), together with relevant details;

j. The location and identification of switchgear for which a risk of trip is accepted;

k. Generating Units which are not operating in the frequency sensitive mode;

l. Any significant abnormal or dangerous occurrence in operation including incidents involving the use of emergency public service;

m. Any interruption and restoration of supply together with relevant details;

n. Details of the System Operator system load reductions, restorations and Demand control;

3.8.3 GENERATOR OPERATIONS LOG

The Generator shall maintain an accurate and up-to-date Operations Log. The purpose of this Operations Log is to record events, plans, requests and instructions. Entries into the Operations Log should be made on a daily basis and should include, as necessary, the following:

i) Dispatching Instructions and times of receipt of such instructions from the System Operator

ii) Time of implementation of instructions;

iii) Any request from the Generator to the System Operator which includes:

a) Scheduled outages;
b) Forced outages;
c) Load adjustments;
d) Maintenance Outages;
e) Emergencies of any kind affecting the operation of the Generating Facility; and
f) Daily available Capacity.

iv) Names and status of all personnel on each shift;

v) Daily midnight readings of fuel used in stock;

vi) Statements relating to abnormal running conditions of Generating Unit (s) and auxiliaries;

vii) All Real (kW) and Reactive (kVAr) Power at half hour intervals, frequency, 11 kV bus voltage and 33 kV bus voltage at half hour intervals;

viii) Time of trip-out or removal of Generating Units from service and the time of return to service; and

ix) Visits by local regulatory agencies (e.g. IRC, etc.) to the Generator's facility.

FUEL PLAN

All Generators using fuel storage systems shall be required to:

i) Obtain and maintain reliable supply of fuel of quality and quantity sufficient to generate the Dependable Capacity and the Net Energy Output requirements of their Generating Facilities for a period of at least 20 days;

ii) Provide the System Operator, for its prior written approval, the Fuel Supply Plan;

iii) Only enter into fuel supply arrangements consistent with the Fuel Supply Plan most recently approved by the System Operator.

3.9.1 FUEL SUPPLY AGREEMENT

The Fuel Supply Agreement shall:

a. Demonstrate a dependable and sufficient fuel supply;
b. Detail the infrastructure installed for delivery of the fuel from the central storage point to the generating Units;
c. Provide mitigating strategies in the event of natural disaster affecting the supply
d. of fuel delivery to the Commonwealth of Dominica ;
e. Detail Fuel Transportation Agreement; and
f. Detail alternative fuel supply arrangements and infrastructure requirements.

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All Generators shall be required to:

1. Obtain and maintain reliable supply of fuel (on-site storage plus offsite storage arrangements exclusive to the Generator's facility) of quality and quantity sufficient to generate the Dependable Capacity and the Net Energy Output requirements of their Generating Facilities for a period of at least eighteen (18) days and the minimum inventory level should be 7-10 days. Generators must report inventory levels weekly in writing, and advise the System Operator when the levels are below required levels or trending negatively for uninterrupted operations. The System Operator shall seek permission via an application to the IRC to trigger an emergency plan.

2. Provide the System Operator the Fuel Supply Plan; as duly approved by the IRC in consultation with the System Operator.

3. Only enter into fuel supply arrangements consistent with the Fuel Supply Plan.

GENERATOR SCHEDULING & DISPATCHING TOOLS

1. The System Operator is required to ensure consistency and objectivity in the decision making mechanisms used.

2. These mechanisms may be in the form of standardized procedures and/or computational systems.

3. The System Operator is responsible for updating the System Dispatch and Operations Policy & Procedures as required, due to changes in the system characteristics or international best practices, where it has relevance to the Commonwealth of Dominica's Electric Power Grid.

   Documentation of the procedures followed in making System operations decisions must be promulgated to individual Generators after ratification by the IRC.

4. The tools used to assist in the Generating Units Scheduling and Dispatch optimization process must be based on an internationally accepted optimization algorithm. The tools must be used in accordance with its intended design and the System Operator is responsible for ensuring that it is functional and accurate.

TRANSPARENCY AND FAIRNESS

In order to assure transparency and fairness while being cognizant of the confidentiality provisions in individual contracts, the following outlines how and what type of information will be shared among stakeholders in the generation market. Unless explicitly stated otherwise in the document, the following shall prevail:

i **The Regulator:** The IRC shall be allowed access to any and all available information it requires from both the individual Generators and the System Operator. Periodically as agreed between the System Operator and the IRC, Technical Reports will be compiled by the System Operator and provided to the IRC, and will contain information from the logged system parameters as agreed from time to time.

ii **Individual Generator:** The System Operator is required to provide, in a timely manner, individual Generators with any technical system information that affects the operation of interconnected Generating Units for example, fault information should be shared with all Generators, with due consideration of the specific confidentiality provisions contained in each PPA and Licence.

iii **System Operator:** The System Operator shall have timely access to all information it reasonably requires from the individual Generators.

New generation technologies that have parameters not covered by this Code may be given consideration for inclusion to the Grid. However, the IRC, in full consultation with the System Operator, shall first provide written approval of the technical compatibility of the technology with the Grid, before the new technology can be interconnected.

4 LOAD SHEDDING AND POWER RESTORATION

LOAD SHEDDING PROCEDURES

UNDER FREQUENCY (AUTOMATIC) LOAD SHEDDING

During incidents in which the frequency decay is such that the Generating Units' governors cannot adequately compensate for the decay, the Under frequency Load Shedding Scheme is designed to shed the appropriate amount of Load to improve the System frequency so as to prevent damage to the Generating Unit(s) and/or collapse of the power System.

The System Operator shall provide the IRC with the details of the Under-frequency Load Shedding Scheme which may be in force from time to time.

LOW FREQUENCY ALARMS

Low frequency alarms shall be installed in power station control rooms and shall be set at 49.5 Hz. These alarms will warn Unit Controllers of low frequency problems, but no action should be taken without verification from the System frequency meter at the System Operator.

Low frequency alarms shall be installed at the System Operator’s premises and shall similarly be set at 49.5 Hz.

ACTION AT LOW FREQUENCY ALARMS

At a low frequency alarm, Plant Operators shall confirm:

i) That the alarm is genuine by reading the analog and digital frequency meters/charts; and

ii) Whether the System is still interconnected and whether the alarm is for the entire System or section(s) thereof.

At the first stage alarm the Generator shall not act to restore the System frequency without prior consultation of the System Operator.

The exception to this rule is allowed when the decay in System frequency results from a loss in Generating Unit output, in which case the relevant Generator shall act to restore its former level of output. The System Operator must be informed as soon as possible thereafter.

ACTION BELOW 49.5 HZ

At 49.5 Hz and falling the Generator shall act to increase Generating Unit output within operating limits, in order to restore the System frequency and then report action taken to the System Operator.

To help relieve the System overload, the System Operator may carry out further manual load shedding in accordance with Clause 4.1.2.

ACTION BELOW 48.5 HZ AND FALLING

In order to save the System from total collapse and prolonged outage, the circuit breakers of the affected Generating Units shall be opened.

The auxiliaries, however, should be on `unit supply' as the objective is not to trip the Generating Unit but to remove it from the System with it operating on its own unit auxiliary power.

After a total System failure is confirmed Generating Units should be black started as quickly as possible to be ready to restore supply as instructed by the System Operator in accordance with black start procedures.

Should a System failure occur, restoration of the System will commence as soon as possible in accordance with the procedures set out in Clause 4.2.

MANUAL LOAD SHEDDING

Where there is insufficient generation to meet the Load it may be necessary for the System Operator to institute Load Shedding on a programmed basis. When it is known that Generation deficiency will extend over a period of several hours or days, particularly during Peak Hours, such Load Shedding shall be done in blocks consisting of a number of feeders supplying various sections of the System, usually for 1 to 4 hour periods. The Load represented by the blocks shall be arranged to equate the amount of Load shed with the extent of the known generation deficiency and also to equitably distribute the time and period of Load Shedding among the blocks.

A manual Load Shedding procedure may be implemented to rotate the blocks shed after Under-frequency Load Shedding has taken place. Manual Load Shedding may also be implemented to prevent further Under-frequency Load Shedding.

Every effort must be made to ensure that the programmed duration of each outage is maintained as near as possible to the planned schedule or for a shorter duration where possible.

Feeders supplying critical loads should be identified and whenever possible the shedding of these feeders should be avoided.

If the shedding of feeders supplying hospitals and other critical loads becomes necessary the following actions must be taken by the System Operator prior to effecting this measure:

i) Alert the hospital(s) and critical loads supplied from the feeder(s); and
ii) Advise the staff at these institutions to activate stand-by plant if available.

In order to maintain supplies to the maximum number of consumers permitted by available Capacity, the System Control Operator must, whenever possible, avoid shedding a complete block of Load when a portion thereof will provide the necessary relief to the Generating Units. The Load

Shedding log sheet shall be properly completed.

To achieve Load reduction and upon consultation with higher authority, the System Control Operator may decide to change the target frequency from 50.0 Hz to a minimum of 49.6 Hz. or reduce busbar voltages by up to 4% if necessary at all Generating Facilities.

It should be noted that Substation locations having automatic on-load tap changers will attempt to maintain normal voltage. The result of bus voltage reduction must be carefully noted.

Any adverse effect of changing target frequencies and/or voltages on any Generating Unit must be reported to the System Control Operator immediately who will take the necessary corrective action.

CONTINGENCY PLANS FOR POWER RESTORATION

PROCEDURES FOR RESTORATION OF POWER FOLLOWING WIDESPREAD BLACKOUT

The System Operator is responsible for coordinating all activities required to restore the System following partial or total System shutdown.

During the event of a total System shutdown the following procedures shall apply to restore power system-wide:

i) Designate Generating Units with Black Start Capabilities to commence restoration;

ii) Restart these designated Generating Units;

iii) Establish a transmission line pathway to the nearest other Generating Unit which is to be restarted while clearing all Load in this pathway;

iv) Establish a manageable distribution load preferably adjacent to the Generating Unit;

v) Start and synchronize the Generating Unit;

vi) Repeat procedures 4.2.1. (iv) to 4.2.1. (v) above until all Generating Units required to restore power are brought back into service; and

vii) Gradually return Load to the System while ramping up the power output of the Generating Units until System is totally restored.

Procedures 4.2.1 (iv) to 4.2.1 (vii) shall be used to restore the System after partial System shutdown.

4.2.2 PERIODIC REVIEW OF RESTORATION PLAN

At the end of each year or less than a year if deemed appropriate, the System Operator shall review its System restoration plans based on any changes in the configuration of the System. The revised

plan shall be presented to the Generation Code Review Panel for review prior to implementation.

Following implementation, the System Operator shall have the right to audit and test each Generator's ability to carry out the assigned duties.

5. GENERATOR MAINTENANCE PLANNING

LONG TERM MAINTENANCE

PLANNING HORIZON

The System Operator shall develop an overall generation maintenance plans for three (3) years in advance. The plans which must incorporate statutory maintenance requirements shall be reviewed annually and updated as may be necessary.

To achieve this objective, Generators shall submit to System Operator on or before the first day of September each year a rolling three year plan for the scheduled maintenance requirement for their facility beginning in January of the following year.

The System Operator shall endeavour to schedule both long and short term Maintenance Outages in a non-discriminatory manner as far as System security constraints allow. Both System Operator and Generator shall make best efforts to ensure that interconnection and other related facilities are maintained within the periods stipulated for scheduled maintenance of the Generating Facility.

ANNUAL COMMITMENT OF MAINTENANCE PROGRAM

Generators shall submit to the System Operator on or before the first day of September of each year, a schedule called the `Maintenance Schedule' describing the proposed availability of the Generating Facility for each month of the twelve (12) month period beginning with January of the following year. The Maintenance Schedule shall indicate the Generators' preferred dates and durations of all scheduled maintenance. In developing the plans the System Operator shall take into account the manufacturer’s recommendations for maintenance of the plant.

The System Operator shall notify the Generator in writing whether the scheduled maintenance periods requested on the Maintenance Schedule are acceptable. The System Operator shall have the right to request the Generator to conduct scheduled maintenance during periods other than those indicated in the Maintenance Schedule, provided that the period specified by the System Operator shall be as close as reasonably practicable to the periods requested by the Generator, shall be of equal duration as the periods requested by the Generator and shall be within the range of time periods identified by the Generator as the range of time periods within which such scheduled maintenance must be performed in accordance with the manufacturer's recommendations for the Generating Facility.

CHANGES TO THE COMMITTED MAINTENANCE SCHEDULES

Committed Generating Unit Maintenance Schedules shall be strictly adhered to unless unanticipated circumstances may mean interruption of supply to customers or a compromise in System security if the Maintenance Schedule is not adjusted. Under such circumstances both the System Operator and the Generator shall make best efforts to reschedule the outage as follows:

i) System Operator may upon ten (10) days prior notice request Generator to reschedule a scheduled maintenance provided, however, that System Operator shall not request that scheduled maintenance be rescheduled to a time that is outside of the range of time periods identified by the Generator as the range of time periods within which such scheduled maintenance must be performed in accordance with the manufacturers recommendations for the Generating Facility;

ii) The Generator may, upon five (5) days prior written notice, request that it be permitted to conduct additional scheduled maintenance period not identified in the Maintenance Schedule if the maintenance to be conducted cannot be postponed until the next period of scheduled maintenance identified on the Maintenance Schedules without damaging or otherwise threatening the Generating Facilities. The Generator's request shall also identify the range of time periods within which such additional scheduled maintenance must be performed in order to avoid damaging or otherwise threatening the Generating Facilities. The System Operator may upon three (3) days prior written notice, request the Generator to reschedule such additional scheduled maintenance; provided, however, that System Operator shall not request that such additional scheduled maintenance be rescheduled to a time that is outside of the time periods identified by the Generator as the range of time period within which such additional scheduled maintenance must be performed in order to avoid damaging or otherwise threatening the Generating Facilities.

5.2. SHORT TERM OUTAGE PROGRAM

For short term outages Generators shall give System Operator at least two (2) hours' notice prior to taking the Generating Facilities out of service.

6. TESTING AND MONITORING

PROCEDURES FOR CONDUCTING TESTS

The Generator shall provide to the System Operator a timetable and list of all tests to be performed on the Generating Units, and such tests shall be subject to approval by the System Operator. The System Operator shall be given five (5) days' notice of any testing and shall reserve the right to have a representative present during any such tests.

STANDARD TESTS

This section addresses procedures for testing and monitoring of Generating Units for purposes of determining available Capacity and, if relevant, operating characteristics in accordance with the commercial and technical conditions of Power Purchase Agreements. The manufacturer's representative shall be required for the commissioning of new Generating Facilities.

TESTS PRIOR TO FIRST SYNCHRONIZATION OF A GENERATING UNIT

Prior to the Synchronization of each new Generating Unit, the Generator shall carry out, or shall cause its contractors to carry out, the following tests at the Generator's expense:

Mandatory Tests that may be carried out at the Factory prior to Equipment delivery at the Site of the New Generator Facility

i Automatic voltage regulator setting up and adjusting, statically and with the Generating Unit running at no load;
ii Governor control checks;
iii Open and short circuit tests on the Generating Unit; open and short circuit tests on the generator as per IEC 60034 or equivalent under the standard bodies of Clause 1.2.1; and
iv Grounding test at the generator switchyard.
v Functional testing and timing of High Voltage switchgear in the Substation;
vi Voltage phasing checks between the Substation to which the Generating Unit is connected and the Grid;
vii Primary and/or secondary injection tests and functional tests to prove the calibration and function of the Generating Unit inter-tripping protection scheme under conditions inclusive of the following:

a) Loss of excitation;
b) Stator earth fault;
c) Negative phase sequence;
d) Reverse power;
e) Generating Unit transformer over current and earth faults;
f) Generating Unit under/over voltage and under/over frequency protection; and;
g) Differential protection relays covering all zones;
h) Engine/Turbine Overspeed

viii) The System Operator shall have the right to request additional testing if, in its sole judgment, any test results are not satisfactory for establishing the purpose for which the test was intended. Such additional testing shall be performed at the Generator's expense;

ix) The Generator shall confirm to the System Operator the program for any test as specified or advise of any adjustments thereto, not less than five (5) days prior to the commencement;

x) Upon completion of each test the Generator shall within forty eight (48) hours provide System Operator with two (2) copies of the results of such tests.

In each instance, the Generator shall provide the System Operator with the results of all such tests, within a reasonable time of the test being completed.

Tests that shall be completed at the Site of New Generating Facility

a) Grounding test at the generator switchyard;

b) functional testing and timing of High Voltage switchgear in the Substation;

c) voltage phasing checks between the Substation to which the Generating Unit is connected and the Grid;

d) primary and/or secondary injection tests and functional tests to prove the calibration and function of all electrical protection schemes installed for the Generating Unit(s) and the Facility.

Upon completion of each test the Generator shall within forty eight (48) hours provide the System Operator with two (2) copies of the results of such tests.

The System Operator shall have the right to request additional testing if, in its judgment verified by an Independent Engineer, any test results are not satisfactory for establishing the purpose for which the test was intended. Such additional testing shall be performed at the Generator's expense.

The Generator shall confirm to the System Operator the programme for any test as specified or advise of any adjustments thereto, not less than five (5) days prior to the commencement.

TESTS AFTER FIRST SYNCHRONIZATION

After the Pre-Synchronization tests as defined in Clause 6.2.1 and prior to the commissioning date, and under such subsequent conditions as defined by the PPA, the Generator shall carry out the following tests at the Generator's expense:

i) Dependable Capacity

If the Generator intends to supply capacity and energy the Generator shall test the Dependable Capacity of the Generating Unit. The test shall be performed according to ASME, IEEE, and NEMA standards or to equivalent standards approved by the System Operator. If any such standards are inconsistent in any respect, the test shall be performed in accordance with the most stringent standard.

ii) Reliability Run

The Generator shall test the reliability of the Generating Unit. The test shall be in accordance with industry standards based on the type of plant and prudent utility practice. The method and duration of this test shall be agreed by the System Operator and the Generator

iii) Automatic Voltage Regulator (AVR) Droop

The Generator shall test the AVR to demonstrate control of the Generating Unit voltage over the range of plus or minus five (±5) percent of rated voltage with a droop characteristic of plus or minus one half (±0.5) percent.

iv) Governor Operation

The Generator shall demonstrate that the speed governor for each Generating Unit operates over its range, the droop being adjustable from two (2) percent to five (5) percent.

v) Reactive Capacity

The Generator shall test each Generating Unit's capability to operate at rated voltage and frequency at power factors and under reactive conditions as follows:

100% output: 0.80 lag; 0.99 lead

vi) Short-term Load Capability

The Generator shall test each Generating Unit's capability to operate at a maximum safe load of one hundred ten (110) percent of the Dependable Capacity for one (1) hour and at a minimum safe load of zero (0) percent of the Dependable Capacity (0 MW) for one (1) hour.

vi) Response of Unit to Step Load Changes

The Generator shall test the capability of each Generating Unit to increase load by steps.

vii) Full Load Rejection

The Generator shall test the capability of each Generating Unit and auxiliaries to withstand full and part load rejection, all the while remaining in a safe condition and without initiating a trip of the Generating Unit.

viii) Thermal Performance Tests

The Generator shall test the Heat Rate of each fuel burning Generating Unit and shall be conducted according to IEC Standards or equivalent.

The System Operator shall have the right to request additional testing if, in its sole judgment, any test results are not satisfactory for establishing the purpose for which the test was intended. Such additional testing shall be performed at the Generator's expense. The results of the immediately prior test shall govern until the additional test is completed. The results of the additional test shall supersede the prior test for all purposes commencing on the day following the additional test.

The Generator shall notify the System Operator of the proposed program for any test specified in this Section, or advise of any adjustments thereto, not less than five (5) days prior to the proposed commencement of the relevant test. Upon receiving such notice, the

System Operator shall have the right to reschedule the commencement of such test; provided that the rescheduled commencement shall not be more than three (3) days before the proposed commencement nor more than ten (10) days after the proposed commencement. The System Operator shall be entitled to have representatives present for the purpose of observing any such test.

Upon completion of each test specified in this Section, the Generator shall promptly provide the System Operator with two (2) copies of the results of such test; provided that the Generator shall submit all such test results to the System Operator no later than ninety (90) days after the commissioned date of the relevant unit.

CO-GENERATORS AND NON-DISPATCHABLE GENERATORS

Co-Generators and Generators with Non-Dispatchable Generating Units shall be required to perform all tests as listed in Section 6.2

TESTING OF METERING SYSTEM

These tests are specified in Clause 2 of this Code.

PARAMETERS MONITORING

For modeling of the Grid, Generators shall be required to periodically (5-10 years) submit the Generator operating parameters to determine if there is any decay which should be modeled.

Generators shall carry out routine and prototype response tests on excitation systems and governor systems (unit frequency response) for new power stations coming on-line or power stations at which major refurbishment or upgrades of these systems have taken place. Routine review is required of all power stations at least once every five (5) years.

7. GENERAL PROVISIONS

MATTERS TO BE AGREED

7.1.1. IRC RULINGS AND DIRECTIONS

In the event of any conflict between the provisions of the Generation Code (the "Code) and any direction or ruling issued by the IRC, such direction or ruling shall prevail, provided that the direction or ruling is legally binding on the person to whom it is addressed. No Party to this agreement shall be deemed to be in non-compliance of this Code for failing to comply with the conflicting provisions.

OTHER AGREEMENTS

It is recognized that existing Power Purchase Agreements contain clauses which may in a number of situations overlap with parts of the Generation Code. However, in the event of any conflict

between the provisions of this code or any other commercial bilateral agreements on System operations and security, the provisions of the Code shall have precedence over these agreements unless otherwise specified.

Where it is clearly undesirable to disturb the existing commercial contracts the procedures for exemption from the conflicting provisions shall be followed as outlined in Clauses 7.4 and 7.5 respectively.

Notwithstanding the above provisions, Generators existing prior to the adoption of the Code shall be required to immediately adopt the Code and come into compliance within 14 months. New Power Purchase Agreements shall explicitly be required to comply with the terms and conditions of the Code.

TREATMENT OF THIRD PARTY CONTRACTS

All obligations and rights under the Code shall remain with the Generator when engaging third party services. In instances where third party contractors are granted access to a Generator's facility by a Generator, the responsibility for ensuring that the rules and regulations under this Code are adhered to remain with the Generator.

MONITORING AND REVIEW OF THE GENERATION CODE

THE ROLE OF THE IRC

The role of the IRC with respect to this code shall be to promulgate, apply and enforce its provisions. The rights and obligations under this Code and the application thereof cannot be changed or otherwise altered without the written approval of the IRC. Such approval shall not be unreasonably withheld.

Upon receipt of a revised version of the Code from the Panel, the IRC shall submit comments to the Panel within 30 days and the final ratification process of the Code should take no more than 3 months.

THE GENERATION CODE REVIEW PANEL

The IRC shall establish and maintain a Generation Code Review Panel (the "Panel"), which will be a standing body charged with keeping the Generation Code and its working under review. The Panel shall report to the IRC on its dealings and, as appropriate, recommend amendments to the Generation Code for the IRC’s approval.

The Panel shall start the Code review at June 1 of each year and has up to 3 months to conduct the review before making its submission to the IRC.

Duties

As part of its mandate, the Panel shall have following duties:

i) Review of the Code prior to the beginning of each calendar Year to ensure that all

operational procedures and requirements governed by the Code remain up to date;

ii) Review all proposals for amendments to the Generation Code which the System Operator, the Generators or the IRC from time to time may wish to submit to the Panel for consideration;

iii) Following any unforeseen circumstances referred to it by the System Operator and in accordance with Clause 7.3 consider; whether the actions taken by the System Operator was justified; and what changes, if any, are necessary to the Generation Code;

iv) Present recommendations to the IRC as to amendments to the Generation Code that the Panel considers warranted and the reason for such changes.

Composition

The Panel shall consist of the following persons:

i One person representing the System Operator's Control Centre;
ii One person representing System Operator's Transmission System;
iii Two persons representing DOMLEC's Generation Department;
iv One person for each Generator with a total installed capacity above **250kW**; and
v One person for each Generator with a total installed capacity of less than or equal to **250kW**.

The IRC shall appoint the chairperson of the Panel.

Each Generator interconnected to the Grid shall have a licence to supply electricity generating capacity and a PPA or SOC with the System Operator.

The entities eligible for membership on the Generation Code Review Panel shall be responsible for providing the names of the persons (Primary and Alternate) who shall represent its membership to the Panel.

These names shall be provided to the IRC one month prior to the start of each annual review period starting January of each calendar year.

The person named as Alternate is required to remain fully abreast of all relevant discussions and proceedings to ensure a seamless transition from Primary to Alternate if required.

Each entity eligible for membership on the Panel reserves the right to change its named representative to the Panel at any time.

The tenure of the chairperson shall be one year, unless summarily removed by majority vote of the panel.

In addition to the annual review, the Chairperson shall preside over quarterly meetings of the Panel, to review and address issues relevant to the Code that may arise from time to time.

The IRC shall set up and maintain a Generation Code Secretariat responsible for providing routine administrative support to the Generation Code Review Panel.

Administrative responsibilities of the Secretariat include, inter alia, compiling a list of the Code issues received throughout the year, arranging meetings of the Panel, developing and managing a budget (provided by the IRC); taking minutes of meetings and also liaising with the Chairperson of the Panel; disseminating information generated by the Panel among other things.

The Generation Code Secretariat shall work in tandem with the Chairperson on matters relating to the Code.

Rules and Procedures for Conduct of Business

The Panel shall establish and comply at all times with its own rules and procedures governing the conduct of its business which the IRC shall approve.

If the Panel on any matter presented before it is unable to reach unanimous agreement or consensus, that matter shall be referred to the IRC for determination. Any such referral to the IRC shall set out the cause of disagreement and the views held by the respective members.

REVISIONS OF THE CODE

The System Operator, from time to time shall prepare and issue amended versions of the Generation Code containing such amendments as has been discussed by the Panel and approved by the IRC. The System Operator shall inform, in writing, all Generators subject to this Code that an amended version has been issued.

UNFORESEEN CIRCUMSTANCES AND SYSTEM EMERGENCIES

UNFORESEEN CIRCUMSTANCES

If circumstances arise which the provisions of the Generation Code had not foreseen the System Operator, shall, to the extent practicable in the circumstances, consult promptly and in good faith with all affected Parties in an effort to reach agreement as to the required course of action. If such agreement cannot be reached in the time available the System Operator shall determine the course of action to be taken.

Whenever the System Operator makes a determination, it shall do so having regard, wherever possible, the view expressed by the Generators and, in any event, to what is reasonable in the circumstances. Each Generator shall comply with the instructions given to it by the System Operator as a consequence of such a determination, provided that the instructions are consistent with the technical parameters set out in the Code and the Interconnection Agreement or, as appropriate, the Power Purchase Agreement. The System Operator shall promptly refer all unforeseen circumstances and any determinations to the Generation Code

Review Panel for consideration.

FORCE MAJEURE

All Parties should note that the provisions of the Generation Code may be suspended in whole, or in part, due to Force Majeure.

NON-COMPLIANCE

If a Generator finds that it is, or will be, unable to comply with any provision of the Generation Code it shall, without delay, report such non-compliance to the System Operator and, subject to Clause 7.5 make all reasonable efforts as are required to remedy the cause of non-compliance as soon as reasonably practicable.

The System Operator shall report all material incidents of non-compliance to the IRC.

DEROGATION

NORMAL PROCEDURE WHEN NON-COMPLIANCE IS:

i) In respect of apparatus connected to the Grid and is caused solely or mainly as a result of amendments to the Generation Code issued pursuant to Clause 7.2 ; or

ii) In respect of apparatus for which approval to connect is being sought; and the Generator judges that it would be unreasonable to require it to remedy the non-compliance or that it should be granted an extended period to remedy the non-compliance, the Generator shall promptly submit a request, in writing, to System Operator for a derogation from the affected provisions in the Generation Code.

Request for Derogation

A request for derogation from any provision in the Generation Code shall contain the following information:

i) The clause against which the present or predicted non-compliance is identified;
ii) The reason for non-compliance with the provision;
iii) Identification of the apparatus in respect of which a derogation is being sought;
iv) Whether the derogation sought is for a delay in achieving compliance or permanent; and
v) If a delay in achieving compliance is being sought, the date by which the non- compliance will be remedied.

Basis for Granting or Refusing Derogation

On receipt of a request for derogation pursuant to this clause, the System Operator shall

consider whether such derogation can be granted without having a material adverse effect on the security,

stability or economics of System operation. The System Operator shall submit its recommendation to grant or refuse derogation for approval by the IRC. The submission shall set out the reason for the recommendation and the original request.

Once a decision has been made and approved by the IRC, the System Operator shall promptly inform the requesting party of the decision and, in the event that the request is refused, the reason for such refusal.

7.5.2 DEROGATION FOR EXISTING APPARATUS NOT IN COMPLIANCE

Not all apparatus in use as at the date of adoption of this Code will be able to meet the Technical Standards defined by this Code. In some cases, it may not be economical or technically necessary to upgrade such existing apparatus to the required Technical Standards.

In order to allow existing Generators time to assess the condition of its equipment and, where appropriate, prepare a submission for derogation, the IRC has granted derogation for all existing apparatus until 14 months after code has been agree/approved. Requests for derogation of apparatus after this date shall be submitted in accordance with the procedures set out in Clause
7.5.1. Summary description of apparatus and installation will, within reasons, be accepted.

DISPUTE RESOLUTION

MUTUAL DISCUSSION

If a dispute or difference of any kind whatsoever (the "Dispute") between parties in connection with, or arising out of, any clause in this Code, either Party may issue to the other Party a written notice (the "Dispute Notice") outlining the matter in dispute. Following issue of a Dispute Notice both Parties shall discuss in good faith and attempt to settle the dispute between them.

REFERRAL AND DETERMINATION BY THE IRC

If the Dispute cannot be settled within 30 days after issue of the Dispute Notice, either Party shall have the right to refer the Dispute to the IRC for resolution.

I) The request for referral shall be made in writing to the IRC and a dated copy of the original Dispute Notice between the Parties shall be attached.

ii) Upon receipt of a request for referral, the IRC shall write to both Parties acknowledging that the Dispute has been referred to the IRC for determination.

iii) Following receipt of the IRC's 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 IRC.

iv) No later than ten (10) working days after the IRC has received each Party's reason (s) in writing, the IRC shall write to each Party setting out how the IRC intends to resolve the Dispute and indicate a date by which a determination may be expected.

The determination by the IRC shall be legally binding on both Parties subject to provisions of the IRC decision documents and the parties' right of appeal in law.

Schedules to Generation Code

Schedule A

Terms and Definitions

Allowable Error	This term shall have the meaning assigned to in Clause 2.12.iv
Backup Metering System	The meters and metering devices owned by the Generator and used to measure the delivery and receipt of Net Energy Output, Dependable Capacity and other parameters pursuant to Section 2 of this Code.
Base Load Unit	A Generating Unit designated to operate for more than 8000 hours per annum and does not go through cycles of economic shut down.
Black Start Capability	This term shall have the meaning assigned thereto in Clause 1.2.3.
Black Start Generating Unit	A Generating Unit with Black Start Capability
Code	This Generation Code and the Schedules hereto.
Cogeneration Facility	The facility which simultaneously provides electrical and thermal energy for a customer's process requirements and electrical output to Grid.
Interconnection Condition	This term shall have the meaning assigned thereto in Clause 1.
Control Centre/Primary Control Centre	A physical location from where the System Operator will give and receive information and instructions related to the operation of the Electric System.
Cycling Units	A Generating Unit required to operate less than 8000 hours per annum and designed to withstand cycle of economic shut down and start up.
Day	The 24 hour period beginning and ending at 00:00 hours Eastern Standard Time.
Demand	The rate at which electric energy is being used.
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.
Dispatch Instructions	The instructions issued by the System Operator to the Generator to schedule and control its generation in order to increase or decrease the electricity delivered to the Grid.

Dispatchable Generating Unit	Generating Units whose required level of output at any instant of time is determined and regulated by the System Operator.
Dispute	The meaning ascribed thereto in Clause 7.6
Dispute Notice	The meaning ascribed thereto in Clause 7.6
Distribution System	That portion of an electric system which transfers electric energy from the bulk electric system to the customers.
Economic Dispatching Technique	The approved method used to rank Generating Units by their economic merit and to determine at which level they should be dispatched to minimize total variable operating cost subject to Generating Units operating limits and system constraints.
Emergency Control Centre	A physical location from where, the System Operator will give and receive information and instructions related to the operation of the Electric System, in the event of the unavailability of the primary control centre.
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 acts of God 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 Grid Operator (ii) a Scheduled Outage or a Maintenance Outage; or (iii) an event or occurrence of Force Majeure.
Fuel Supply Plan	The Generator's plan 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 Plan 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.
Generator	Owner and/or operator of an electricity generating facility, supplying power system to the System Operator via the Grid. Includes DOMLEC.
Generating Facility	Any facility whether privately or DOMLEC owned containing one or more Generating Units and associate infrastructure producing and delivering electrical energy to the Grid
Generating Unit	Any electric power generating plant or apparatus, whether privately or DOMLEC owned, delivering electrical energy to the Grid.
Generation Code	The Code which covers the guiding principles, operating procedures and technical standards governing operations of the power grid and all interconnected generating facilities
Generation Code Review Panel	A panel responsible for keeping this Code and its working under review in accordance with Clause 7.2.2.
Heat Rate	The measure of a Generating Unit thermal efficiency, expressed as the number of thermal energy units to produce one kWh of electrical energy.
Heat Rate Curve	A plot of Heat Rate changes between minimum and maximum output levels of a Generating Unit.
Heat Rate Test	A test of a Generating unit thermal efficiency carried out in accordance with internationally accepted standards
High Voltage (HV)	Voltage exceeding 1kV (IEC 60269-1:2006, IEC 62271-200:2003)
Incremental Cost	The meaning ascribed thereto in clause 3.6.
Interconnection Agreement	An agreement which outlines the specific requirements for the interconnection of Generating Units to the Grid as arrived at between a Generator and the System Operator.

Interconnection Point	The physical point(s) where the Generator and the Grid are connected as specified in clause 1.1.1
Independent Power Producer (IPP)	Any private Generator other than DOMLEC selling power to the Grid.
kW	Kilowatts
kWh	Kilowatt hours
Load	Demand or Energy
Low Voltage (LV)	Voltage less than 1kV (IEC 60269-1:2006, IEC 62271-200:2003)
Load Shedding	Disconnecting or interrupting the electrical supply to a customer Load by the utility, usually to mitigate the effects of generating Capacity deficiencies or transmission limitations.
Maintenance Outage	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 grid Operator in accordance with Section 5; and iii) is for the purpose of performing work on specific components, which work could be postponed by at least six (6) Days but not be postponed until the Scheduled Outage.
Merit Order	The ranking of Generating Units based on their order of dispatch unto based on their order of dispatch unto the Grid as per sections 3.1. and 3.2.
Metering System	All meters and metering devices (including the Primary and Backup Metering Systems) used to measure the delivery and receipt of Net Energy Output, Dependable Capacity and other parameters pursuant to Section 2 of this Code.
Month	A calendar month according to the Gregorian calendar beginning at 00:00 hours local time on the last day of the preceding month and ending at 00:00 hours local time on the last day of that month.
kVA	Kilovolts Amperes
kVAr	Kilovars
kW	Kilowatts

kWh	Kilowatt hours
Net Energy Output	Net energy delivered by the Generator for sale to the Grid Operator at the Interconnection Point in accordance with a valid Dispatch Instruction.
Nominal Operating Voltage	Voltage that is required electrically at any point of the Grid
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.
Non Spinning Reserve	That reserve in kW not connected to the System but capable of serving Demand within a specified time.
Operating Reserve	Generating capability in kW 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.
Operations Log	A record of significant operating events plans, requests and instructions
Party	Stakeholder to an agreement, incident or other occasion related to this Code
Peak Hours	The hours between 9:00 am and 9:00 pm Eastern Standard Time every day of the week.
Power Factor (pf)	Ratio of Kilowatt output to corresponding kVA
Primary Metering System	All meters and metering devices used to measure the delivery and receipt of Net Energy Output, Dependable Capacity and other parameters pursuant to Section 2 of this Code.
Project	The design, financing, construction, ownership, operation and maintenance of Generating Units and all activities incidental thereto.
Prudent Utility Practice	The practices generally followed by the electric utility industry in respect to the design, construction, operation, and maintenance of electric generating, transmission, and distribution facilities, including, but not limited to, the engineering, operating, and safety practices generally followed by such utility Industries and in compliance with IEC Standards or equivalent.
Rated Capacity	A measure of the ability to generate electric power continuously usually expressed in Megawatts or kilo Watts.
Reactive Power (kVAr)	The product of voltage and current, which the Generating Unit shall provide to or absorb from the Grid and which is measured in kVAr.

Scheduled Outage	A planned interruption of the Generator's generating capability that: i) is a maintenance outage ii) has been scheduled and allowed by the System Operator in accordance with Section 5; and iii) is for inspection, testing, preventive maintenance, corrective maintenance or improvement.
Spinning Reserve	Unloaded generating capacity in MW which is synchronized and ready to serve additional Demand.
Standard Offer Contract	A long term agreement between a power authority and renewable electricity generating facility. The facility is installed for the primary purpose of self-generation with the excess capacity being off taken by the power authority.
Sub Station	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. A combination of generation, transmission, and distribution components within a specially defined area.
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 Operator	The entity responsible for prudent and efficient management of the electricity system of the Commonwealth of Dominica and in that capacity, for dealing with all Generators in a consistent and nondiscriminatory manner.
Grid	The Interconnected Facilities and any other transmission or distribution facilities on the System Operator' side of the Interconnection Point(s) through which the electrical energy output from the Generating Unit(s) will be distributed by the System Operator to users of electricity.
Synchronization	The controlled interconnection of System facilities to operate in phase at the same frequency and voltage.
Technical Standards	All standards as outlined in clause 1.2.1 or any other acceptable benchmark or method as defined or in use by the System Operator
Ten Minutes Reserve	An additional amount of operating reserve sufficient to reduce generation deficiency within ten minutes following the loss of generating capacity;

Transmission System	That section of the System Grid between the interconnection point and the Distribution and Supply Systems.
Unit Commitment Schedule	This System is operated at 33kV or higher voltages. The sequence of startup and shutdown time of thermal Generating Units which minimizes the total production cost including startup and shutdown costs over a period of at least 24 hours or up to a week, given the load forecast, and taking into account the Maintenance Schedule, generation reserve requirement and System security.
Week	A period of seven (7) consecutive days beginning at 00:00 hours local time falling between a Saturday and a Sunday.
Year	Each twelve (12) Month period commencing on 00:00 hours Local Time on December 31 and ending on 00:00 hours Eastern Standard Time the following December 31 during the term of this Code.

SCHEDULE B

REQUIRED COMMUNICATION EQUIPMENT

The Generator shall provide at its sole cost and expense:

1. Adequate control, communication and data acquisition channels to the System Operator for the purpose of telemetering, protection and telecommunications.

2. An extension of System Controls Center PBX System in the Generating Units control room to facilitate voice communication between the Generator control room and System Operator.

3. Equipment in the Generating Units control room to transmit and receive telecopies and electronic mail to and from System Operator respectively.

4. UHF and/or VHF radio equipment to permit voice communication between the Generating Unit control room and System Operator.