

Republic of the Philippines
ENERGY REGULATORY COMMISSION
San Miguel Avenue, Pasig City



RESOLUTION NO. 07, Series of 2018

**A RESOLUTION ADOPTING THE DISTRIBUTION
MANAGEMENT COMMITTEE (DMC) ISLANDING GUIDELINES**

WHEREAS, Section 2(b) of the Republic Act No. 9136, also known as the Electric Power Industry Reform Act of 2001, provides the policy objective of the government to ensure the quality, reliability, security and affordability of electric power supply;

WHEREAS, pursuant to the provision of Section 2.2.1. (c) of the Philippine Distribution Code (PDC), the Distribution Management Committee (DMC) is mandated to recommend standards, procedures and requirements for Distribution System connection, operation, maintenance and development.

WHEREAS, the DMC, as one of its mandate of providing a recommendation for improvements in distribution operations, developed a general guidelines to be used by Distribution Utilities (DUs) and Embedded Generation Companies in performing Islanding Operation to address the abrupt or possible loss of power supply.

WHEREAS, the DMC conducted series of meetings to draft the Islanding Guidelines and also engaged in a series of correspondence with East Asia and Utilities Corporation, Inc. to inquire from the latter its technical expertise in performing Islanding mode of operation.

WHEREAS, on a Commission meeting held on 19 December 2016, the ERC approved the request of the DMC for the web-posting of the Draft Islanding Guidelines to conduct Expository Presentation and Public Consultation;

WHEREAS, The ERC further instructed the DMC to inquire from and coordinate with Department of Energy (DOE) and Philippine Electricity Market Corporation (PEMC) if there is any policy/guideline/rule they are developing for embedded generation.

WHEREAS, the DMC had undergone several revisions incorporating comments, in particular, from the Department of Energy (DOE) and Philippine Electricity Market Corporation (PEMC);

WHEREAS, on 20 February 2018, the DMC presented the new draft of the Guidelines to the Commission for approval;

NOW THEREFORE, the ERC hereby **RESOLVES** to **APPROVE** and **ADOPT** "Islanding Guidelines", attached hereto and made integral part hereof as Annex "A".

RESOLVE FURTHER, that "Islanding Guidelines" shall take effect fifteen (15) days after its publication in a newspaper of general circulation or in the Official Gazette.

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Let copies of this Resolution be furnished the University of the Philippines Law Center-Office of the National Administrative Register (UPLC-ONAR) and all Distribution Utilities (DUs).

SO ORDERED.

Pasig City, February 20, 2018.

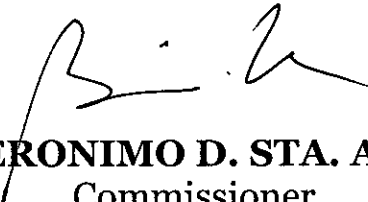

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ISLANDING GUIDELINES

1. GENERAL

1.1. Background

Under Section 7.7.3 of the Philippine Distribution Code (PDC), a Distribution Utility (DU) shall decide if it is desirable for the Embedded Generating Plant to continue operating once part of its Distribution System becomes isolated from the Grid. Such provision of the PDC allows DU to make use of Embedded Generating Plants connected to its system in cases when the Grid fails to transmit power.

Although Islanding is no longer a new term in the industry, operational policies directing the usage of these embedded generations are still needed.

The Distribution Management Committee, as one of its mandate of providing recommendation for improvements in distribution operations, developed general guidelines to be used by DUs and Embedded Generation Companies to perform Islanding.

1.2. Purpose

This guideline is aimed to:

- (a) Establish general procedures and requirements in the performance of Islanding by DUs through the use of Embedded Generating Plants in its system;
- (b) Identify situations where Islanding is allowed; and
- (c) Specify the operational responsibilities of DUs, the System Operator (SO), and Embedded Generation Companies during Islanding.

1.3. Scope

These guidelines shall apply to:

- (a) All DUs with: (i) an Embedded Generating Plant capable of starting up without any feedback power from the Grid connected to its system, (ii) the ability to separate from and reconnect to the Grid, and (iii) the capability to operate during Islanding;
- (b) Embedded Generation Companies capable of starting up without any feedback power from the Grid; and

- (c) Other Embedded Generation Companies which are specified in the agreed Standard Operating Procedures (SOP).

2. DEFINITION OF TERMS

Any capitalized terms in this Guidelines not explicitly defined under this Section adopt its meaning as those stated in the existing ERC Rules and Regulations, as may be applicable.

Act. Republic Act No. 9136 also known as the “Electric Power Industry Reform Act of 2001”, which mandated the restructuring of the electricity industry, the privatization of the National Power Corporation, and the institution of reforms, including the promulgation of the Philippine Grid Code and the Philippine Distribution Code.

Amended Connection Agreement. An agreement between a User and the Distribution Utility, which specifies the terms and conditions pertaining to the renovation or modification of the User System or Equipment at an existing Connection Point in the Distribution System.

Connection Agreement. An agreement between a User and the Distribution Utility, which specifies the terms and conditions pertaining to the connection of the User System or Equipment to a new Connection Point in the Distribution System.

Distribution Management Committee. The committee established by the ERC to perform the functions stated under Section 2.2.1 of the Philippine Distribution Code and Article II of the Guidelines to Govern the Formation of the Distribution Management Committee.

Distribution System. The system of wires and associated facilities belonging to a franchised Distribution Utility, extending between the delivery points on the transmission, sub-transmission System, or Generating Plant connection and the point of connection to the premises of the End-User.

Distribution Utility (DU). Any Electric Cooperative, private corporation, government-owned utility, or existing local government unit, which has an exclusive franchise to operate a Distribution System in accordance with its franchise and the Act.

Embedded Generation Company. A person or entity that generates electricity using an Embedded Generating Unit.

Embedded Generating Plant. Same meaning as Embedded Generators.

Embedded Generating Unit. A Generating Unit within an Embedded Generating Plant.

Embedded Generators. Refers to Generating Units that are indirectly connected to the Grid through the Distribution Utilities' system or industrial Generation Facilities that are synchronized with the Grid.

Extreme State of the Grid. A condition when the corrective measures undertaken by the System Operator during an emergency state failed to maintain system security and resulted to cascading outages, islanding, and/or system voltage collapse.

Grid. The High Voltage backbone System of interconnected transmission lines, substations, and related facilities, located in each of Luzon, Visayas, and Mindanao, or as may be determined by the ERC in accordance with Section 45 of the Act.

Islanding. A situation in which a distribution and/or portion of the system becomes electrically isolated from the remainder of the power system, due to the following, but not limited to:

- i. unplanned outage due to a fault from the Grid and Distribution Systems, or affected by the MLD of the connection line due to power deficit and during Extreme State of the Grid; or
- ii. any planned outage,

and such isolated portion is energized by the Embedded Generation Company connected to it.

Manual Load Dropping (MLD). The process of manually and deliberately removing pre-selected loads from a power System, in response to an abnormal condition, and in order to maintain the integrity of the System.

Power Quality. The quality of the voltage, including its frequency and resulting current, that are measured in the Grid, Distribution System, or any User System.

Red Alert. An alert notice issued by the System Operator when the Primary Reserve is zero, a generation deficiency exists, or there is

Critical Loading or Imminent Overloading of transmission lines or Equipment.

System Operator (SO). The party responsible for generation dispatch, the provision of Ancillary Services, and operation and control to ensure safety, Power Quality, Stability, Reliability, and the Security of the Grid.

Transmission Network Provider (TNP). The party that is responsible for maintaining adequate Grid capacity in accordance with the provisions of the Philippine Grid Code.

3. OPERATIONAL RESPONSIBILITIES

3.1. Distribution Utility

The DU shall be responsible for:

- (a) Maintaining the stability and Power Quality in the Distribution System during Islanding;
- (b) Coordinating with the SO (de-energization and synchronization to the Grid) during the course of Islanding; and
- (c) Monitoring and maintaining Distribution System stability in cases when several Embedded Generation Companies are called upon to operate during Islanding.

3.2. Embedded Generation Company

The Embedded Generation Company shall be responsible for:

- (a) Ensuring that its Generating Units can deliver the capabilities declared in its Connection Agreement or Amended Connection Agreement; and
- (b) Executing the instructions of the DU during Islanding conditions.

3.3. System Operator

The SO shall be responsible for providing approval on DUs' request for resynchronization/reconnection to the Grid.

4. PRE-REQUIREMENTS FOR ISLANDING

The following requirements must be established and met before any Islanding be allowed:

- (a) The DU shall have an isolating means (i.e. Power Circuit Breaker) from the Grid, with or without the capability of synchronization.
- (b) The resynchronization of the DU's system on Islanding back to the grid shall be through the isolating means (i.e. Power Circuit

Breaker). If the isolating means has no capability for the subsequent resynchronization, the Embedded Generation Company shall disconnect its Embedded Generating Unit prior to the DU's system re-energization.

- (c) The DU, SO and Embedded Generation Company shall have an agreed Standard Operating Procedures for Islanding.

5. PRECONDITIONS BEFORE ISLANDING

5.1. Abrupt or Possible Loss of Power Supply

There is an abrupt or possible loss of power supply of DU from the Grid or Distribution System due to any of the following:

- (a) Feeders and/or equipment outage (unplanned and planned);
- (b) Prolonged outage of feeders and/or equipment and force majeure outages;
- (c) The Grid is in a state of extreme condition; or
- (d) The Grid is under Red Alert and the isolation of the DU is imminent due to the following:
 - i. MLD caused by power supply shortfall; and
 - ii. Transmission or equipment contingencies.

5.2. Extreme State of the Grid

During an Extreme State of the Grid, DUs connected to the feeders that are utilized by the SO for Black Start Recovery (Power Restoration Highway) shall be excluded from Islanding.

6. GENERAL GUIDELINES

All DUs, Embedded Generation Companies and SO shall follow general procedures mentioned in Section 6.1 and 6.2 in performing Islanding.

6.1. Unplanned Islanding

Unplanned Islanding shall take effect whenever unexpected or unforeseen interruption due to outage of feeder and/or equipment occurred.

- (a) The DU shall notify the SO/TNP of its intent to operate through Islanding;
- (b) The DU shall inquire from all available Embedded Generation Companies which can provide power to the Distribution System;
- (c) The Embedded Generation Company with units capable of starting-up without off-site power shall confirm that its units are available and shall start-up immediately;

- (d) The Embedded Generation Company shall advise the DU that it is ready for dispatch;
- (e) The DU shall then give the Embedded Generation Company clearance to supply power to parts of the Distribution System identified and isolated by the DU. In cases where there is supply shortfall during Islanding, the DU may call for additional Embedded Generation Company readily available for dispatch; and
- (f) The DU shall inform and seek clearance from the SO/TNP prior to the resynchronization or re-energization of the isolated part of the Distribution System to the Grid.

Process Flow for Section 6.1 is attached as Annex A.

6.2. Planned Islanding

Planned Islanding, on the other hand, shall take effect when there is an interruption due to maintenance and those that are predetermined in nature (prolonged outage of feeder and equipment).

- (a) The DU shall notify the SO/TNP of its intent to operate through Islanding as scheduled in the agreed planned activities;
- (b) The DU shall instruct the Embedded Generating Plant to start-up its available units for Islanding;
- (c) The DU shall isolate its customer loads which are parts of the highway in the Islanding or as stipulated in the agreed SOP;
- (d) The DU shall then give clearance to the Embedded Generation Company to energize the highway and supply power to parts of the Distribution System identified and isolated by the DU;
- (e) The DU shall inform the SO/TNP that the Embedded Generation Company has commenced Islanding;
- (f) The DU shall coordinate with the SO/TNP for the resynchronization of the islanded load to the Grid or to the Distribution System; and
- (g) The DU shall coordinate with the Embedded Generation Company for the auto-resynchronization. If not available for auto-resynchronization, the DU shall inform the Embedded Generation Company to disconnect its unit/s prior to the Distribution System's reconnection to the Grid.

Process Flow for Section 6.2 is attached as Annex B.

7. EFFECTIVITY

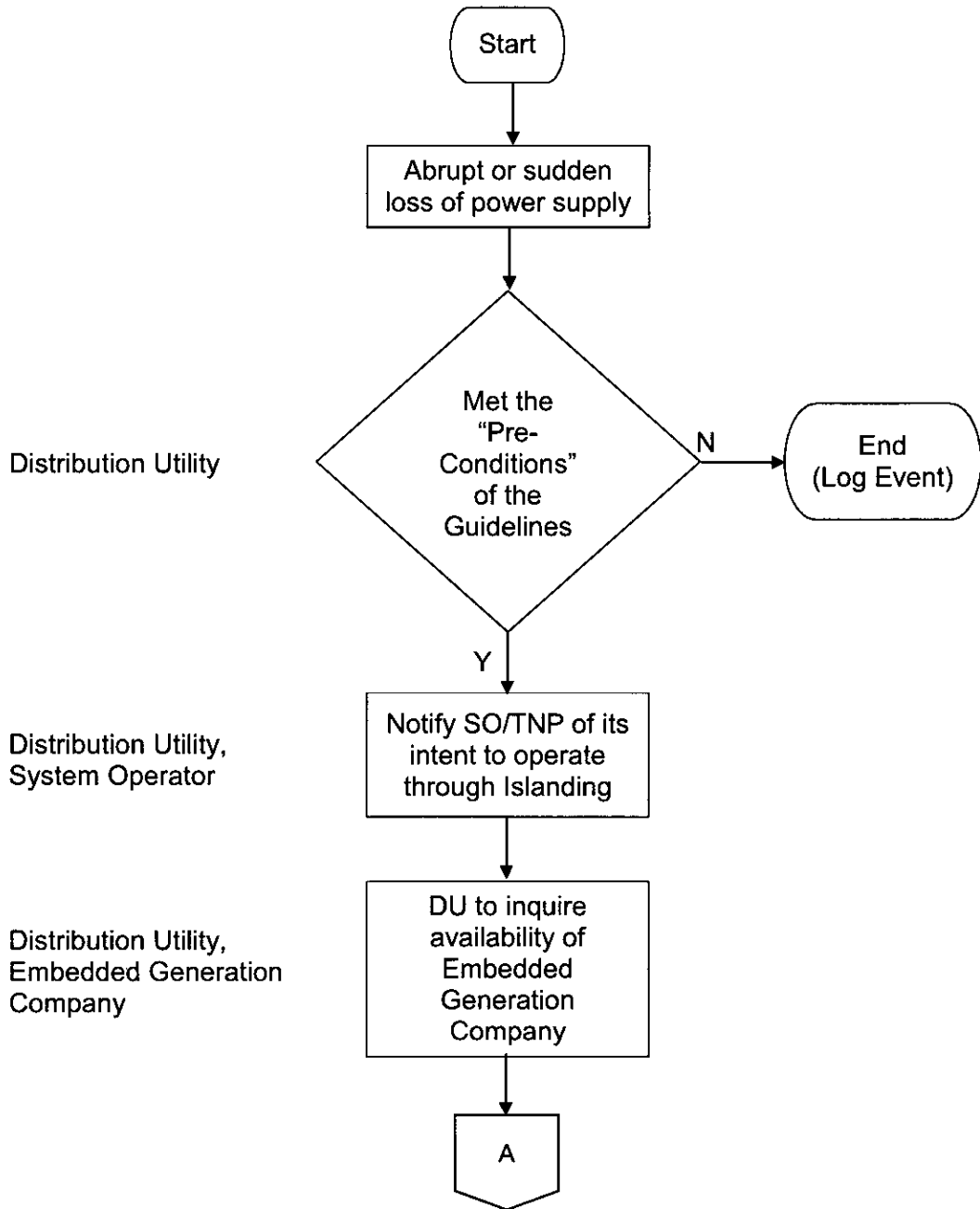
These guidelines shall be effective 15 days after its publication in a newspaper of general circulation or the Official Gazette.

UNPLANNED ISLANDING

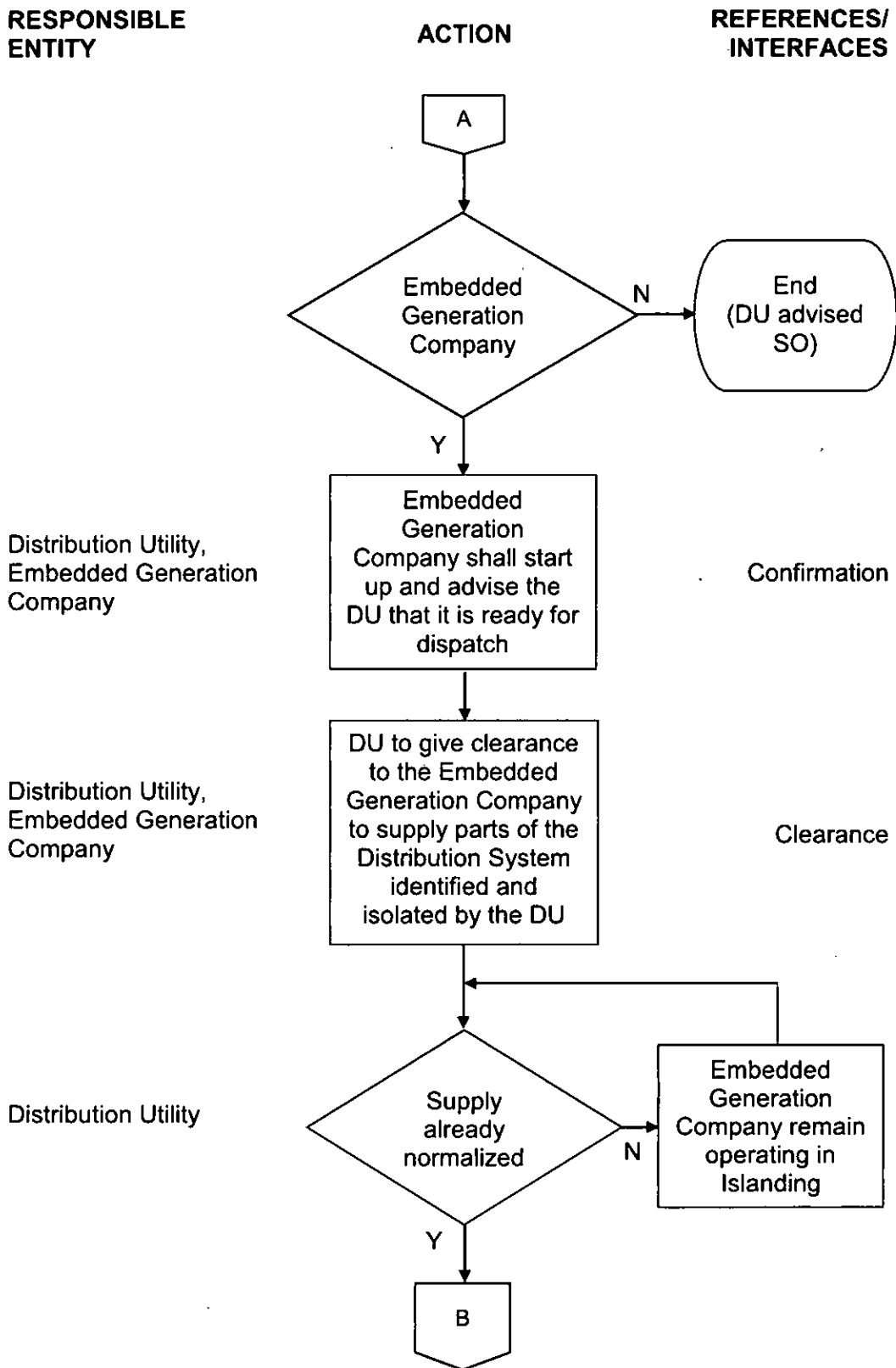
RESPONSIBLE ENTITY

ACTION

**REFERENCES/
INTERFACES**



UNPLANNED ISLANDING

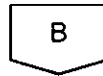


UNPLANNED ISLANDING

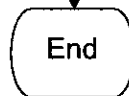
RESPONSIBLE ENTITY

Distribution Utility,
System Operator

ACTION



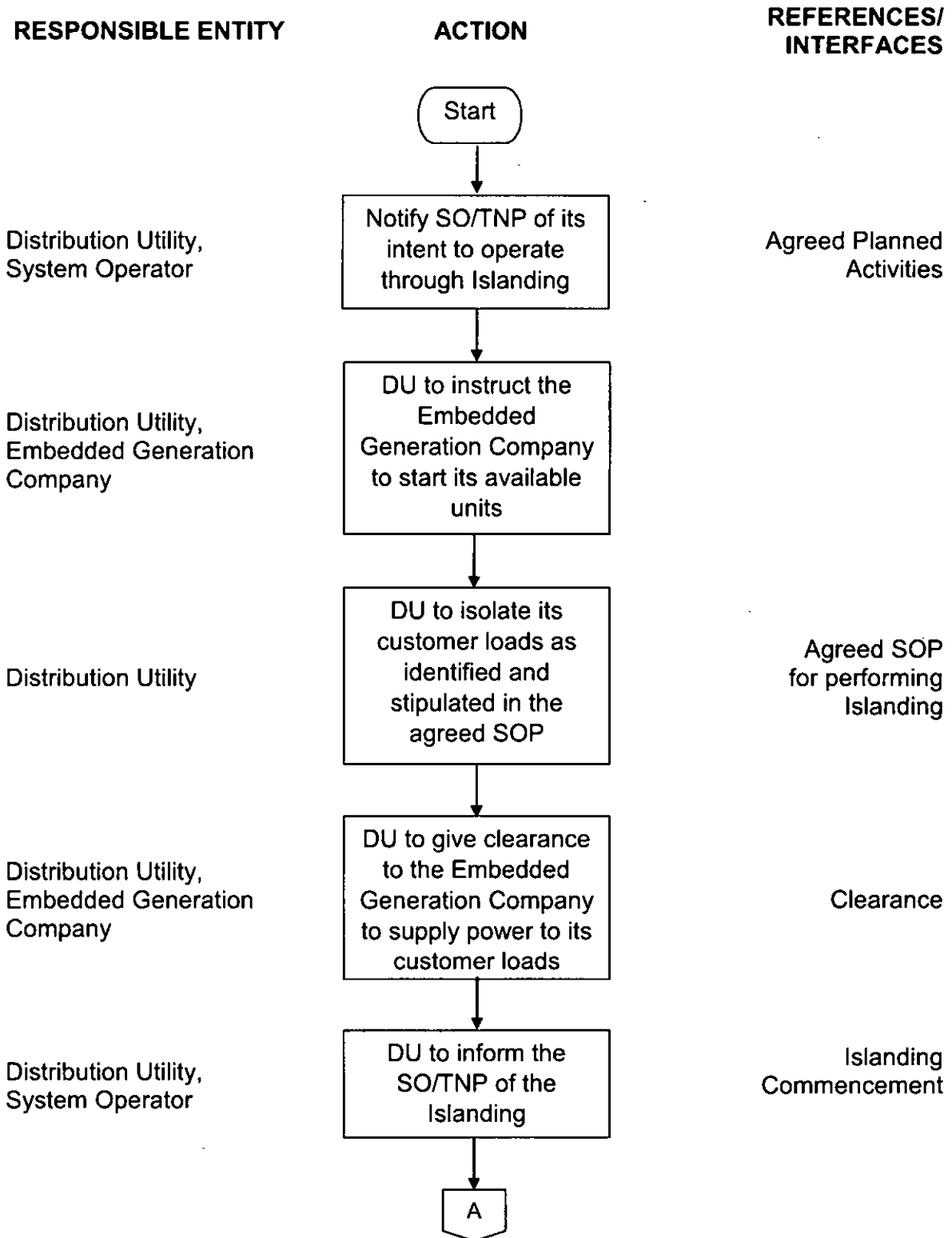
DU shall inform and seek clearance from the SO/TNP prior to the resynchronization or re-energization



REFERENCES/ INTERFACES

Request for
resynchronization or
re-energization

PLANNED ISLANDING



PLANNED ISLANDING

RESPONSIBLE ENTITY

ACTION

REFERENCES/
INTERFACES

