All our energy.
All the time.

MARITIME ELECTRIC
A FORTIS COMPANY

January 6, 2026



Island Regulatory & Appeals Commission
PO Box 577
Charlottetown PE C1A 7L1

Dear Chair and Chief Executive Officer Williams:

***Plans for Rotating Outages***

On December 11, 2025, the date of your letter, Maritime Electric filed an application with the Commission requesting approval of a deferral account to capture any operating costs associated with executing our rotating outage plan (the "Application"). This Application should address most of the questions in your December 11th letter.

As outlined in previous submissions and technical sessions with the Commission, the Application reiterates the fact that demand for electricity on Prince Edward Island ("PEI") is at risk of exceeding the energy supply available and the physical capacity to import sufficient supply to meet that demand. As a result, the Company is aggressively preparing for the execution of its rotating outage plan because there is a risk that demand will exceed energy supply this winter season. The Company also believes the most timely and lowest cost solution for this issue is the installation of additional on-Island dispatchable generation, as identified in our capacity application.[1]

The requirement for additional dispatchable generation was introduced in our annual capital budget applications beginning in July 2021 when we filed our 2022 Capital Budget Application. In Appendix A to that application, and subsequent capital budget applications, new dispatchable generation was identified as a future requirement.[2] This additional capacity is necessary to address Maritime Electric's increasing capacity deficit.

The following addresses the requested information in your December 11th letter.

**"... the Commission requests that Maritime Electric file the referenced plan, together with any supporting analysis or relevant operational information ... [including] the criteria or thresholds that would trigger each element of the plan."**

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1 The capacity application is Exhibit M-1 under Docket UE20742.

2 In Appendix A to the 2022 Capital Budget Application, installation of combustion turbine #4 ("CT4") was forecast to begin in 2025. In Appendix A to the 2023 Capital Budget Application, the installation of CT4 was forecast to begin in 2026. In Appendix A to the 2024 Capital Budget Application, the installation of new generation was forecast to begin in 2026. The 2025 Capital Budget Application did not include the forecast of new generation as a separate application was filed in December 2024 that detailed the requirement for new generation.

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The Application, filed on December 11, 2025, intentionally excluded a copy of our operational plan for executing rotating outages because that plan is considered a 'living document' that will continue to evolve and change as new information is available.[3] The Application noted some of the various complications encountered in trying to develop such a plan. The number of variables make it impossible to establish a precise criteria or threshold, as it depends on the facts and circumstances at the time a system peak occurs.

Our experienced staff, who are responsible for executing a rotating outage, will decide the best course of action, exercising their professional judgement, based on the facts and circumstances at the time of the event, using the plan as a set of guiding principles. The current version of that plan is attached, as requested. However, as noted above, this version is considered a guideline.

**"The Commission also requests that Maritime Electric identify any mitigating measures or operational strategies in place to reduce the likelihood of implementing rotation outages. This should include any steps the utility may take to manage peak demand, secure additional supply, or encourage customer conservation prior to initiating service interruptions."**

Rotating outages are a last resort measure when demand exceeds supply (i.e., capacity), neither of which is controlled by the Company. Therefore, the Company's ability to avoid a rotating outage is extremely limited.

Addressing supply first, capacity can either be purchased or owned. The Company is predicting a supply shortage on PEI because there is no additional capacity available for purchase in the region and/or due to transmission import limitations.[4] There is no additional supply available for us to secure, as all utilities in eastern Canada are experiencing or forecasting a capacity shortage, and our owned capacity is insufficient to supply the Island's increasing demand.[5]

To resolve the supply shortage, the Company's only option is to increase its owned generating capacity. In December 2024 a capacity application was filed, with a supplemental filing provided in August 2025, for which an order remains outstanding. In accordance with the *Electric Power Act*, the Company is unable to install new generation without Commission approval.

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3 After the first rotating outage event occurs, the plan may change significantly based on the lessons learnt from that event, which is the purpose of a 'living document' – to change with experience and new information.

4 The forecast supply shortage reflects the Company's plan to operate all of its owned generation.

5 The Company's historical practice and preference is to secure the required capacity on a firm (i.e., guaranteed) basis. There is no additional firm capacity available for purchase. Therefore, when additional capacity is required, the Company purchases non-firm capacity from New Brunswick, if it is available. However, there is no guarantee that such capacity will be available for purchase when required.

During a supply shortage, the Company's only option to avoid a rotating outage is to ask customers to reduce demand. The Company has a limited number of interruptible customers and when a supply shortage is likely to occur those customers will be interrupted. At the same time, the Company will initiate our Communication Plan asking all customers to reduce consumption during those peak hours.[6] However, the Company does not expect these potential reductions will be sufficient to avoid rotating outages.

**"Additionally, the Commission is requesting that, where possible, it receive advance notice of planned outages, including the location, duration, and purpose of the interruptions.**

Our Customer Communication Plan seeks to provide our customers, and the Commission, as much advance notice as possible. As noted above, please refer to the Application filed on December 11, 2025, for a copy of our Customer Communication Plan.

**"The Commission further asks that Maritime Electric outline any associated public communication strategies, including how customers will be notified, what information will be provided, and how critical or vulnerable customers will be supported."**

Our Customer Communications Plan addresses how customers will be notified and what information will be provided. With respect to critical or vulnerable customers, the Company will exclude from its rotating outage plan all circuits that supply hospitals in our service territory.[7] Additionally, the Company has been actively coordinating with the PEI Emergency Measures Organization, as well as the PEI Energy Corporation and government officials, such that government organizations are prepared to provide assistance to vulnerable customers.

We hope that the December 11, 2025 application and this supplemental information fulfills the Commission's information requests. Once you have had a chance to review, we will be happy to address any outstanding questions you may have.

Yours truly,

MARITIME ELECTRIC

Jason Roberts
President & Chief Executive Officer

JCR01
Enclosure

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6 The Customer Communication Plan was included with the Application filed on December 11, 2025.

7 Applicable circuits include Riverside Drive, Alberton, O'Leary, Montague and Souris Town. Note that the Prince County Hospital is not in the Maritime Electric service territory.

# MARITIME ELECTRIC RESTORATION PLAN FOR ROTATING POWER OUTAGES

| | | |
|---|---|---|
| MARITIME ELECTRIC A FORTIS COMPANY | **Document** | 307002 |
| | **Version #** | 08 |
| | **Effective Date** | December 01, 2025 |
| | **Owner** | Energy Control Centre |
| | **Approver/Title** | Kent Nicholson<br>Director, Production & Energy Control Operations |

## 1.0 PURPOSE

1.1 The purpose of this guideline is to outline the general requirements and process to be followed when completing rotating power outages because of a forecasted supply Shortfall Event on the New Brunswick-to-Prince Edward Island interconnected system.

## 2.0 REFERENCE MATERIALS

2.1 Maritime Electric “Electric Emergency Plan” – Appendix AA (Maritime Electric Intranet)

2.2 Winter Rotating Blackout Feeder List Excel Spreadsheet (Appendix ZZ - Document #307002A)

2.3 Rotating Outages ICS Structure

2.4 Rotating Outages Communication Flowchart

## 3.0 SCOPE

3.1 This guideline applies to Energy Control Centre (“ECC”) supervisors and operators as well as Maritime Electric’s Engineering Department staff involved with the coordination and implementation of the rotating power outages. This guideline is intended for experienced ECC and operations staff with detailed knowledge of Maritime Electric’s distribution system.

## 4.0 DEFINITIONS

4.1 **Cold Load Pickup** - Cold load pickup is an overcurrent condition that takes place when a distribution circuit is re-energized following an extended outage. The increase in the cold load pickup current is due to inrush currents and loss of load diversity since all loads are switched on and drawing current at the same time after re-energization. It is referred to as cold load because the power supply has been unavailable for a period so that the load has reached a “cold” state before being re-energized. In most cases the cold load pickup current is greater than the pre-outage current. This may cause protection relay tripping as the cold load current will be misinterpreted as if it is a fault current (meanwhile the circuit is healthy).

4.2 **Rotating Power Outages** - Rotating power outages, as referred to as rotational load shedding, is an intentionally engineered electrical power shutdown in which electricity delivery is stopped for non-overlapping periods of time over different parts of the distribution region. Rotating outages are a last-resort measure used by an electric utility company to avoid a total blackout of the power system.

4.3 **Shortfall Event** - A Shortfall event is a forecasted supply shortfall possibly due to a generation shortfall, or due to curtailments related to transmission in New Brunswick, or possibly due to transmission outages/constraints on PEI.

4.4 **Rotating Outage Coordination System** - A ROCS is the process that Maritime Electric will use to select feeders for rotating outages based on peak loading and projected cold load pickup using a Microsoft Excel spreadsheet. This spreadsheet will also track/log which feeders have had outages and for how long to attempt to spread out the outages equitably (except for those feeders having critical customers).

## 5.0 GENERAL

5.1 When New Brunswick Power ("NB Power") foresees a possible generation shortfall or transmission constraint on the New Brunswick-to-Prince Edward Island interconnected system, NB Power will advise Maritime Electric of the amount and duration of the forecast shortfall. Should the shortfall be related to an internal system event, Maritime Electric staff will advise on the amount and duration of the shortfall.

5.2 Maritime Electric will then use the "Weekly Energy Report" (produced by staff of the ECC Department) which uses Amperon's AI-based Load Prediction Software[1] as well as renewables predictions from the WPred Weather Prediction Service[2] (wind & solar power forecasts) as well as known limitations on the import capability from New Brunswick (i.e., NB Power Short Term Operating Procedures; curtailment notices; etc.) to predict when Maritime Electric may be short on generating capacity or approaching that situation.

5.3 The Weekly Energy Report ("WER"), when run/published, predicts the surplus (or deficit) in capacity for the next 168 hours (7 days x 24 hours/day) looking forward. The WER will normally be run by the ECC Senior Control Room Operator every morning between 07:00-08:00 hours in the winter months from November 1 through February 28. The WER may also be run more than once a day during the winter months if shortages are predicted and more frequent updates are required, or if STOPs, or curtailments, or generator outages arise that may change the results of the morning report. The WER will be run in the Spring/Summer/Fall months (March 1 through October 31) only when STOPs, or curtailments, or generator outages may indicate the possibility of a shortfall.

5.4 Where the WER shows capacity shortfalls, or specific hours approaching a shortfall (i.e., surplus margin is small), the report can be updated every morning, as needed, to firm-up any shortfalls as renewables forecasts such as wind predictions get more accurate the closer we approach the hour in question.

5.5 The WER will be shared outside of the ECC/Production Department (when shortfalls greater than 0 MW are forecast), first with a smaller group including EXEC, and specific Directors in the areas of Corporate Communications; T&D Operations; and Engineering. When the likelihood of shortfalls becomes almost a certainty, then a summarized WER will be shared with a much larger group - the "MECL Group- Storm Warnings" email distribution list used for notification of hurricanes and ice storms to allow employees to prepare within their department for these outages.

5.6 As we approach the hour of concern, Maritime Electric's ECC/Production Department will run all of its available dispatchable generation, and issue a request to Interruptible Customers to curtail as

[1] www.amperon.co
[2] www.wpred.com

requested. ECC staff will estimate the expected start time and end time for a specific quantity of load (MW) to be shed in order to match the load/demand with the availability of generating/import capacity. This information will be provided to the Engineering Department who will be running the Rotating Outage Coordination System ("ROCS") to select feeders to shed and who will provide this information to the ECC Operator(s).

5.7 This initial response will be to maximize the frequency of feeders being rotated, but decrease the duration of the feeder being off to reduce cold load pickup issues and damage to customers homes. This will result in customers being impacted more frequently, but will reduce the likelihood of any damage to their homes and reduce the health & safety risks to our customers as well.

5.8 If there are pre-existing power outages on the system due to the cold weather event (i.e., ice/tree on the power line), and not related to Rotating Outages, then the assumption will be that crews are responding to restoring power to those outages and so they can't be included in the Rotating Outages plan. For example, if ECC is predicting a shortfall of 10 MW, and we have two feeders (approximately 10 MW) from a specific substation out-of-service due to the cold weather event (i.e., ice/tree on the line), we will make an assumption that power could be restored to those two feeders at any time and without warning, so we need to find a location to shed an additional 10 MW, so that when power is eventually restored to those two feeders, that the system won't be overloaded.

5.9 Rotating power outages will typically involve multiple distribution feeders off simultaneously. The number of feeders involved, and the number of customers affected will depend on the magnitude of the forecasted shortfall.

5.10 The approach to rotating power outages adopted by Maritime Electric is intended to maximize the use of available generation supply and minimize the duration of aggregate customer outages. This approach will also strive to limit the duration of individual feeder outage times to less than one hour (and preferable closer to 1/2 hour), minimizing the impact of cold load pickup on feeder restoration.

5.11 Due to the inaccuracy of renewables forecasting (i.e., MW of wind and solar) even a few hours in advance, and due to the dynamic nature of the rotating outage process, it is unlikely that Maritime Electric will be able to provide its customers with specific advance notice of the timing and highly specific location of rotating power outages. However, Maritime Electric should be able to provide generic notices when shortages are expected and generally what regions of the province may be affected (i.e., shortfalls are expected on Tuesday evening between the hours of 4:00 p.m. till 8:00 p.m. and rotating outages are expected in the West Prince, Stratford, and southern Kings County areas).

5.12 Refer to rotating outage communications procedures, as provided by the Corporate Communications Department, for details on the messaging, frequency of messaging, graphics and other communications details.

5.13 Maritime Electric will however provide general information to customers that rotating outages are imminent, the general geographic location of the rotating outages, and the general area where initial rotating outages will commence. Maritime Electric will also communicate its target that individual customer outages be no longer than 1 hour in duration, but preferably closer to 1/2 hour. Although our initial internal target may be one hour, it may be challenging to maintain due to crew constraints, especially before additional crews arrive. As the event proceeds, the target should be reduced to have the duration be less than 0.5 hours.

## 6.0 PREPARING FOR ROTATING POWER OUTAGES

6.1 Maritime Electric maintains a list of distribution feeders for rotating power outages. This list includes information for each distribution feeder such as peak load, an estimated cold load pickup loading, and if priority customers are served from the feeder.

6.2 The feeder rotation list is maintained as an electronic spreadsheet that has pre-established filters for operating district, priority, and load. The spreadsheet also contains sequential numbering for each feeder within a substation that allows for random sorting of the feeders to aid in the selection process for rotating outages.

6.3 Prior to November 15th of each year the Director, Engineering will ensure that the feeder rotation list is updated with the most current information. The individual feeder rotation lists for each district operating area will be in a rotating power outage spreadsheet stored on the ECCOPER server accessible by the ECC Operators.

6.4 Prior to implementing rotating power outages, the distribution feeder list shall be reviewed for accuracy by the Supervisor, ECC and prioritized to minimize impact of feeder rotation to priority customers. High priority customers include, but are not limited to, hospitals, airport/ferry/bridge and other critical infrastructure.

6.5 Depending on the location and size of the shortfall event, field staff may be dispatched to pre-selected switching locations to manually complete some of the rotating power outages. The dispatch of field resources will depend on the amount difficulty experienced when restoring feeder after a rotating power outage has occurred. The exact number and location of field staff dispatched will be determined prior to starting the rotating power outage and may change throughout the period of rotating outages.

6.6 The list of distribution feeders considered for rotation will be adjusted depending upon operating experience and consultation with customers and other stakeholders.

6.7 To prepare for rotating power outages, the Company's Corporate Communications group will be activated as well as Customer Service, Engineering, T&D Operations and Energy Control Centre staff are mobilized. The aim of the mobilization exercise is to ensure appropriate customer communication and maximize the use of available generation to minimize the number of customers impacted at any given time.

## 7.0 TECHNICAL CONSIDERATIONS

7.1 **Cold Load Pickup**

a. Reference Section 10.0.

## 8.0 ROTATING POWER OUTAGE PROCESS

8.1 The process for rotating power outages will include the following steps:

a. Director, ECC to Activate the Rotating Outage Coordination System ("ROCS"). See Section 9 below.
b. Sort feeder rotation list spreadsheet by district, priority customers and load.
c. Start feeder rotations once the shortfall event occurs.
d. Maintain continuous communication with Customer Service and Corporate Communications staff on the status of feeders affected.

e. Record the load (MW) and time on each distribution feeder immediately prior to initiating a rotating outage on said distribution feeder.
f. Use the load information and outage time recorded to estimate the load impact which may occur upon restoration of power to that feeder including the effect of cold load pick-up.
g. Continuously monitor rotating power outage log to ensure the targeted 1 hour maximum outage time is maintained.
h. Select distribution feeders to be included in subsequent rotating outages by matching available generation and the estimated load that will be picked up from feeders which had previously been rotated off. This is done on a minute-by-minute basis with the overriding goal of keeping as many customers connected to the electrical system as possible at all points in time.
i. Rotate power to individual feeders by disconnecting the required quantity for energized feeders and reconnecting de-energized feeders.
j. Once forecast generation shortfall period ends. Communicate with NB Power and restore service to all disconnect feeders.

## 9.0 ROTATING OUTAGE COORDINATION SYSTEM ("ROCS")

### 9.1 ROCS Priorities

a. The priorities of the ROCS are as follows:
   i. Maintain the safety of life and property by coordinating a rotating outage and preventing a widespread island wide blackout.
   ii. Coordinate rotating outages in a manner that is equitable.
   iii. Provide technical assistance, where possible, during restoration activities related to rotating outages.
   iv. Communicate rotating outage updates to the Incident Commander and Information Officer. The Provincial Government, the Island Regulatory and Appeals Commission ("IRAC"); and the Emergency Measures Organization ("EMO") will be updated as required; and
   v. The Planning Section will document all necessary information related to the rotating outage event.

### 9.2 Activation of ROCS

The ROCS will be activated when rotating outages are required, and when the coordination of said outages can no longer be reasonably managed by ECC Operators solely.

The Energy Control Branch Director is responsible for the activation of the ROCS. Where possible, advance notice should be provided to ROCS staff when weather forecasts indicate the possibility of capacity shortages.

### 9.3 ROCS Centre

The meeting room on the ground floor of the Energy Control Centre ("ECC") building will serve as the Incident Command Post for ROCS events.

### 9.4 Staffing Roles and Responsibilities

a. <u>Rotating Outage Operations Coordinator</u>
   i. Devise feeder rotation execution plans
   ii. Plan outage activities on an hourly basis
   iii. Assist ECC Operators with managing challenges related to rotating outages

iv. Assist ECC Operations department, where possible, with restoration efforts

b. Rotating Outages Reporting Coordinator
   i. Prepare hourly and shift reports
   ii. Communicate with Command Staff and General Staff as required
   iii. Informal Communication contains information regarding the incident, it can be passed horizontally or vertically within the organization without restriction. Critical information must flow freely. (Sharing of information to all involved in the incident response is encouraged.)
   iv. Keep Executive updated through reports

9.5 **Staffing Assignments**

The following staffing assignments will be reviewed and updated prior to November 15th of every year:

| Team # | Rotating Outages Operations Coordinator(s) | Rotating Outages Reporting Coordinator |
|---|---|---|
| Team A | Feng Liang & Nick Johnston | Jordan Sampson |
| Team B | Cecil MacPhail & Katie Affleck | Adam MacKenzie |
| Team C | Catherine Callaghan & Zachary Sencabaugh | Daniel Emery |
| Team D | Mehrtash Moghadam & Hannah Casey | Manpreet Singh |
| Alternates | Adam Lidstone | Carrie Houston; Ryan Faubert |

24/7 Rotating Outages Technical Support: Adam Lidstone, Feng Liang
24/7 On-call reporting resources: Mark Victor; Mike Hickey

9.6 ROCS Staff Scheduling

Typically, rotating outages will occur during the morning peak (6:00 a.m.-10:00 a.m.) and during the evening peak (4:00 p.m.-8:00 p.m.). However, if significant curtailments, or outages on significant generators are involved, then around-the-clock coverage may be required.

The following schedules may be used as templates for organization of around-the-clock coverage at the ECC, if required:

| Sample Shift Schedule # 1 | | | | | | |
|---|---|---|---|---|---|---|
| | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 |
| Day Shift (0700-1900) | Team A | Team A | Team C | Team C | Team B | Team B |
| Night Shift (1900-0700) | Team B | Team B | Team D | Team D | Team A | Team A |

| Sample Shift Schedule # 2 | | | | | | |
|---|---|---|---|---|---|---|
| | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 |
| Day Shift (0700-1900) | Team A | Team C | Team B | Team D | Team A | Team C |
| Night Shift (1900-0700) | Team B | Team D | Team A | Team C | Team B | Team D |

## 10.0 COLD LOAD PICKUP GUIDELINE

10.1 The presence of Cold Load Pickup ("CLPU") during the power rotation process will cause an increased risk of overloading distribution feeders or sections of feeders. The increased demand associated with cold load pickup can be as much as double the demand at the initial time of disconnection. This additional demand increases the risk that fuses protecting distribution equipment will operate to protect the equipment. Once this occurs, Maritime Electric is typically required to dispatch a line crew to re-fuse the equipment. This will extend the duration of customer outages and should be avoided, if possible, by minimizing the length of outages, and in turn the amount of cold load pickup.

In some circumstances the impact of cold load pickup may require adjustments to be made to substation equipment by engineers and technologists. This may involve adjusting relay settings to avoid protection trips due to feeder unbalance or phase overcurrent. This would tend to extend the duration of customer outages.

The purpose of the guideline in Section 10.0 is to outline both the general and specific issues to be considered when dealing with CLPU on Maritime Electric's electrical system. This guideline is meant to be a reference document to inform Energy Control Centre ("ECC"), Engineering and Line Operations Staff on the practices and procedures for managing CLPU on the distribution system.

10.2 **Definition/Background**

Reconnecting a distribution feeder that has been disconnected from the electrical system requires due regard for an engineering phenomenon known as Cold Load Pickup. Cold load pickup is simply the additional electrical demand which presents itself when a disconnected feeder is reconnected. Prior to disconnection, a distribution feeder normally has a degree of diversity (i.e., randomness of electrical devices such as space heating on at any given time). The electrical demand which can be expected upon reconnection will be higher than that which existed prior to disconnection. This is the result of a lack of diversity of demand at the time of reconnection. When that distribution feeder is disconnected and later reconnected, or "picked up", the diversity is lost (all electrical devices are on at the moment of reconnection). This serves to increase the demand on the feeder at the time of reconnection from what it was at the moment of disconnection.

10.3 **Implications**

An implication of cold load pickup is an increased risk of overloading electrical equipment or conductor. The increased demand associated with cold load pickup increases the risk that protection devices will operate to protect the equipment, or that conductor could be overloaded and in some extreme cases melt. Once this occurs, Maritime Electric staff are typically required to react to these situations by increasing protection settings, sectionalizing feeders, increasing the size of fuses or installing solid blade disconnects. Depending on the magnitude and duration of the cold load pickup experienced a combination of these actions may be required to restore service to customers.

Typically, operations staff (engineers, system technicians, line crews) are required to be dispatched to the field to complete these actions. This tends to increase the duration of the customer outage.

10.4 **Considerations**

There are many factors that determine the magnitude and duration of cold load pick-up on the electrical system:

a. *Outage Duration*
The duration of an outage will impact the magnitude and duration of CLPU. As the length of an outage increases, the demand upon re-energizing the load will also increase due to the loss of load diversity.

b. *Weather*
Weather conditions will impact the magnitude and duration of CLPU. Extremely cold ambient temperatures and/or high winds will increase the amount and duration of the CLPU. Generally, feeders with a high penetration of electric space heating have the highest CLPU factors.

c. *Time of Day*
The daily profile of the load on a circuit varies with the type of load. A common daily profile during winter conditions is to have two peak load periods per day, one in the morning and the other in the late afternoon or early evening period. CLPU will normally be at its maximum during these peak load periods of the day.

d. *System Load*
CLPU is highly dependent on the amount of load being served by the feeder at the time of disconnection. The CLPU factor is defined as the CLPU divided by the normal winter peak load. If the maximum CLPU on a feeder is unknown, then the CLPU factor is assumed to be 1.5 and the duration is assumed to be 0.5 hour (Note: further study is needed on magnitude of the CLPU factor).

10.5 **Response**
Typical response to CLPU during restoration activities are as follows:

a. *Protection Setting Adjustments*

i. There may be special cases during feeder trouble response when Engineering Dept or Technical Services staff may request activation of alternate protection settings to prevent inadvertent feeder trips. Under these situations the settings should be changed as requested however they must be returned to normal once the risk of an inadvertent feeder trip due to abnormal load conditions has diminished.

ii. The CLPU effect during the restoration of single-phase lateral taps will significantly increase feeder unbalance and cause higher than normal neutral currents. This situation will require an increase in the ground protection relay setting to prevent an inadvertent protection trip upon reconnection of the single-phase lateral line. The adverse effects related to the restoration of single-phase tap can be limited by ensuring that the distribution system is balanced during normal operation.

iii. In some circumstances the impact of CLPU may require adjustments to be made to substation equipment by engineers or system technicians in addition to line crews.

b. *Sectionalizing*

i. Sectionalizing switches are installed in feeders to provide (i) better isolation of faults in all operating conditions, (ii) more flexible response to cold load pickup for timely restoration of feeders following extended outages, and (iii) a means of transferring a section of the feeder to an adjacent feeder.

ii. Sectionalizing switches are used to sectionalize the feeder into smaller sections. This enables service to be restored to customers in stages while staying within the capacity limits of the feeder conductors and substation equipment during CLPU conditions. Downline remote controlled reclosers may be installed on some of the larger feeders and allow for remote operation and sectionalizing of the feeder during restoration when CLPU is present (i.e., Tryon; Elliot River; etc.).

iii. For feeders without downline remote controlled reclosers, field staff must be deployed to manually operate the recloser or other downline sectionalizing devices such as disconnects or switches. Travel time, equipment setup, and switching required by field staff in these circumstances extends the length of the customer outage. The dispatching of field staff to sectionalizing points should be an early consideration to limit customer outage time.

iv. See Section 16 for an example of conductor loading and sectionalizing during cold load pickup.

c. *Re-fusing*

i. At times when the electricity system is being restored during CLPU conditions, downline protection fuses may operate. This requires a line crew to be dispatched to replace the fuse with another fuse of a higher amperage rating. Normally this will involve fuses protecting single-phase lateral lines or individual distribution transformers. During extreme cold load conditions, the response may include the installation of a solid blade disconnect ("solid door") on the lateral lines. While the single-phase tap is disconnected from the three-phase trunk feeder, and following reconnection when cold load pickup is present, the three-phase trunk feeder is unbalanced. Distribution feeder protection schemes cannot distinguish between single phase fault currents and large feeder unbalances. The substation and downline protection relays (if applicable) may require the neutral setting to be increased prior to re-fusing larger taps, although given PEI's good grounding conditions likely not much of a concern here.

ii. All fuses replaced with a higher rating or solid blades will be determined by Engineering Dept and the ECC Operators. The details of these replacements must be logged along with geographical location so that they can be removed and replaced with the appropriate fuse size following the completion of the CLPU events.

10.6 **Cold Load Pickup Restoration - Checklist**

The following steps should be addressed when restoring for Cold Load Pickup:

a. Consider load, time of day, and weather to predict possible impact of CLPU when outage occurs.
b. Confirm capacity of substation transformers are adequate (refer to appropriate technical staff).
c. Confirm ratings of aerial conductors and underground cables (refer to appropriate technical staff).
d. Confirm equipment ratings of substation protective devices are adequate.
e. Confirm phase and neutral protection settings for the transformer and feeder relays and reclosers are adequate (adjust if necessary).
f. Dispatch field staff as required to mitigate impact of CLPU during outage restoration activities.

g. Advise Customer Service Dept and Corporate Communications Dept staff of outage information (location and duration) and make request for customer conservation, if required.

ECC operators will likely require assistance from the appropriate engineering and operations personnel in order to assess the impact of CLPU and determine the response required.

10.7 **Example Of Feeder Sectionalizing For Cold Load Pickup**

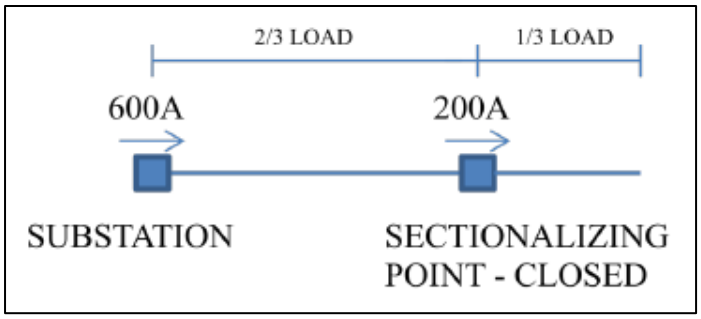
Consider an aerial feeder with no sectionalizing using 477 ASC conductor. The winter conductor ampacity is approximately 800 amps rating at 0°C. Using a typical cold load pickup factor ("CLPU") of 2.0, the "feeder ampacity without sectionalizing" is 400 amps (i.e., 50% of the conductor winter ampacity).

If a sectionalizing switch were installed in the feeder at the optimal location (i.e., 2/3 of the load in the first section of the feeder), the feeder ampacity is 600 amps (i.e., 75% of the winter conductor ampacity).

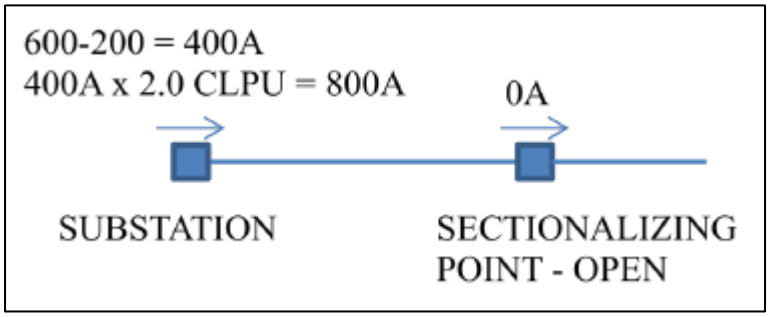
Under this scenario, when the first section of the feeder is energized (up to the downline sectionalizer) after an extended outage, the CLPU will be 800 amps (400 x 2.0). At no time does the CLPU exceed the winter ampacity of 800 amps.

The following illustrations demonstrate the sequence of restoring a feeder under cold load pickup conditions:

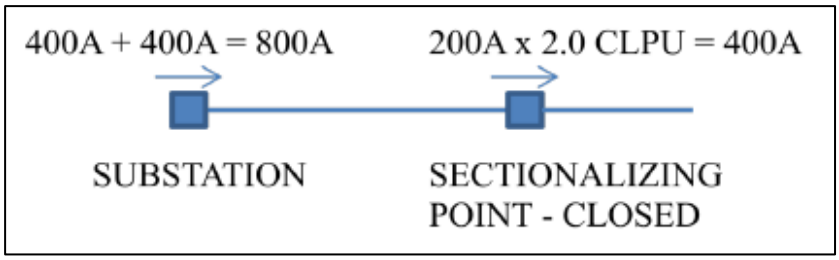
a. Originally the feeder is loaded to 600 amps, with 200 amps or 1/3 of the load beyond the sectionalizing point.



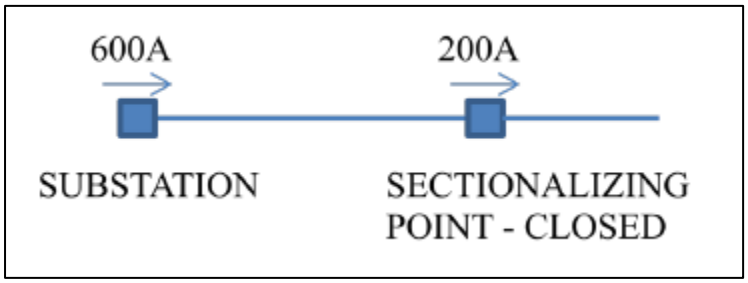

b. After the outage occurs, the sectionalizing point is opened and the substation breaker or recloser is closed. At this point, power is restored to the first 2/3 of customers and the load at the substation is 800 amps (i.e., 400 x 2). After a period of 0.5 to 1.0 hours, the CLPU will have subsided and the normal winter peak load of 400 amps will be present.



c. The second section of the feeder may then be energized and the total load will again be 800 amps (i.e., 400 + 200 x 2).




d. After a period of 0.5 to 1.0 hours, the CLPU will have subsided and the normal winter peak load of 600 amps will again be present.




## 11.0 APPROVALS

| | | | |
|---|---|---|---|
| **Owner** | *John MacLeod* | **Date** | *August 15, 2024* |
| **Approver** | *Kent Nicholson* | **Date** | *August 15, 2024* |

| Effective Date (mm/dd/yr) | Version Number | Individual Making Edits | Reason/Comments |
|---|---|---|---|
| 08/15/2024 | 01 | Kent Nicholson | ▪ Adoption of new policy and to ensure Maritime Electric has a procedure to follow in case of a generation supply shortfall necessitating an emergency plan to be implemented. |
| 10/30/2024 | 02 | Kent Nicholson | ▪ Updated a name on the Reporting Coordinator list. |
| 11/14/2024 | 03 | Kent Nicholson | ▪ Added Section 10.0 on Cold Load Pickup Guideline |
| 10/01/2025 | 04 | Kent Nicholson | ▪ Revised Section 5 to add details around the use of AI-load forecasting as well as the Weekly Energy Report. |
| 11/13/2025 | 05 | Kent Nicholson | ▪ Expanded Section 2.0 Reference Materials to add “Rotating Outages ICS Structure” and “Rotating Outages Communication Flowchart”<br>▪ Added Section 5.8 on pre-existing outages<br>▪ Revised Section 9.1a(iv) to expand list of Stakeholders for communications. |
| 11/18/2025 | 06 | Kent Nicholson | ▪ Updated the staffing assignments in Section 9.5. |
| 11/27/2025 | 07 | Kent Nicholson | ▪ Section 5.3 updated to increase frequency of publishing of WER report during winter months. |
| 12/01/2025 | 08 | Kent Nicholson | ▪ Updated the staffing assignments in Section 9.5. |