

From: [REDACTED]
To: [REDACTED]
CC: [REDACTED]
Sent: 7/14/2021 1:59:52 PM
Subject: RE: POTENTIAL CARIBOU ISLAND/OsUTAGE

Classification: [Internal](#)

Hi [REDACTED]
As agreed over the phone,
East Quincy: Offload East Quincy with SW 75 open (not 15), since fuse does not provide adequate protection for tertiary bus faults.

We will take this correction in account for future Caribou island setups.
Thank you,

[REDACTED]
[Pacific Gas and Electric Company](#)
Electric System Protection Engineering
RMC - W. Sacramento

From: [REDACTED]
Sent: Wednesday, July 14, 2021 9:05 AM

Subject: RE: POTENTIAL CARIBOU ISLAND/OsUTAGE

Classification: [Internal](#)

Hi [REDACTED]
Here are the Temporary relays setting changes intended for the island.

1. Spanish Creek sub: **Field Tech to make the change**
2. Caribou CB 22, 42, 62: change settings to group #3 (from group #1) - **GCC via SCADA.**
3. Hamilton Branch CB 12: change settings in group #1– **if no field Tech available, Protection Engineer can remotely change settings.**

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Spanish Creek Bank #1 -- Summary of Relay Setting Cha

Setting Name	Existing Setting
	151 (GE IAC53)

Tap	7
Lever	1.5

Caribou CB 22 (Plumas Jct) -- Summary of Relay Setting Changes

Setting Name	Existing Setting
611LA-1 (GE D60) -- CHECK TO SEE IF THESE SETTINGS ARE IN GROUP#3	
Phase Distance: Zone 1: Supervision	0.91
Phase Distance: Zone 2: Supervision	0.91
Phase Distance: Zone 2: Delay	0.5
Neutral Current: Neutral TOC1: Pickup	0.092
Neutral Current: Neutral TOC1: Curve	IEEE Very Inv
Neutral Current: Neutral TOC1: TD Multiplier	0.3

Setting Name	Existing Setting
611LB-1 (SEL 311C) -- CHECK TO SEE IF THESE SETTINGS ARE IN GROUP#3	
50PP1	4.6
50PP2	4.6
Z2PD	30
51GP	0.46
51GC	U3
51GTD	1.5

Caribou CB 42 (Caribou #1) -- Summary of Relay Setting Changes

Setting Name	Existing Setting
611LA-2 (GE D60) -- CHECK TO SEE IF THESE SETTINGS ARE IN GROUP#3	
Phase Distance: Zone 1: Supervision	0.96
Phase Distance: Zone 2: Reach	8.54
Phase Distance: Zone 2: Supervision	0.96
Phase Distance: Zone 2: Delay	0.833
Phase Distance: Zone 3: Supervision	0.8
Phase Distance: Zone 3: Delay	1.333
Neutral Current: Neutral TOC1: Curve	IEEE Very Inv

Setting Name	Existing Setting
611LB-2 (SEL 311C) -- CHECK TO SEE IF THESE SETTINGS ARE IN GROUP#3	
Z2P	8.54
50PP1	4.8
50PP2	4.8
50PP3	4
Z2PD	50
Z3PD	80
51GC	U3

Caribou CB 62 (Westwood) -- Summary of Relay Setting Changes

Setting Name	Existing Setting
611LA-3 (SEL 411L) -- CHECK TO SEE IF THESE SETTINGS ARE IN GROUP#3	
Z2MP	5.75
Z2PD	40
Z4PD	90
50G1P	20
51P01	1.42
51C01	U3
51TD01	2.64

Setting Name	Existing Setting
611LB-3 (SEL 411L) -- CHECK TO SEE IF THESE SETTINGS ARE IN GROUP#3	
Z2MP	5.75
Z2PD	40
Z4PD	90
50G1P	20
51P01	1.42
51C01	U3
51TD01	2.64

Hamilton Branch CB 12 (Chester) -- Summary of Relay Setting Changes

Setting Name	Existing Setting
611LA-12 (SEL 411L) -- CHANGE SETTINGS IN GROUP#1	
E51	1
51TD01	2.93
51O02	NA
51P02	NA
51C02	NA
51TD02	NA
51RS02	NA
51TC02	NA

Setting Name	Existing Setting
611LB-12 (SEL 411L) -- CHANGE SETTINGS IN GROUP#1	
E51	1
51TD01	2.93
51O02	NA
51P02	NA
51C02	NA
51TD02	NA
51RS02	NA

Caribou Island Additional general Requirements:

Caribou Island Configuration: The Caribou area has four transmission network connections. To set up the island, it is assumed that open points would be created at the following locations:

- Caribou CB 252
- Caribou CB 112
- Westwood CB 52
- Plumas-Sierra (PSREC) Marble CB 619

Caribou PH Generation Unit Requirement for Island:

- Operating Procedure indicates Caribou Unit 1, 2, 3 are required to be available and online.
- Caribou Unit 4 & 5 will be normally offline during islanding. Caribou Operators have the option to adjust available generation as needed.
- **System Protection requests three units online prior to entering island**
- Protection in island is adequate with two units online, but not optimal. Avoid this configuration if possible
- **Monitor Caribou PH, If units trip such that only one unit is online, open Caribou CB 22, CB 42, and CB 62 until more units are available.**
- This revision of Caribou Island Study had modeled Caribou PH Bank #8 out and the 11kV DE Tie closed.

Operating Instructions: The following operating instructions must be monitored by GCC

- Maintain awareness of load limitations during switching and during islanding due to temporary settings
- Caribou CB 22 DTT to SPI Quincy Cut-Out
- Caribou CB 22 DTT to Plumas Jct Cut-Out
- Caribou CB 62 DTT to Collins Pine Cut-Out
- Caribou CB 62 DTT to Westwood for Honey Lake Cut-Out
- Monitor Caribou PH gen units; open Caribou CB 22, CB 42, and CB 62 if only one gen unit is online.

Additional Protection Force Off:

- Offload East Quincy Bank #1 and open SW 75 due to inadequate protection
- Open Caribou CB 122 due to inadequate line protection to Butt Valley
- SPI Quincy generation must be offline
- Collins Pine generation must be offline
- LMUD / Honey Lake must be separated from PG&E
- Hamilton Branch generation must be offline
- PSREC connected generation must be offline

Load Limitations: The following load limits must be monitored by GCC

NOTE: IF LOAD REACHES THE FOLLOWING LIMITS, BREAKERS MAY TRIP

- Hamilton Branch CB 12: 133A
- Spanish Creek Bank #1: 200A

Temporary Settings Required for Caribou Island: **Setting changes are required at the following substations prior to entering the islanding configuration**

- Hamilton Branch CB 12
- Caribou CB 22
- Caribou CB 42

- Caribou CB 62
- Spanish Creek CB 72

Third Party Sites: There are several third party transmission customer sites in the affected PSPS area. PG&E System Protection does not evaluate these sites for adequate protection. In cases where the third party point on interconnection bus is expected to have fault duty changes of greater than 15%, the EOC CIL Customer Lead will be notified to communicate the issues. For this event, the following locations will be included in the notification:

- Plumas Sierra Electric Co-Op
- Collins Pine
- SPI Quincy

Caribou Area SPS: Per OE requirements, Plumas-Sierra Separation scheme will be Cut-Out during islanding. Caribou SPS #1 is normally Cut-Out and should remain Cut-Out for islanding. Caribou SPS #2 is normally Cut-In, but may need to be Cut-Out for islanding.

East Quincy: Fuse does not provide adequate protection for tertiary bus faults. Offload East Quincy with SW 75 15 open.

Butt Valley PH: There is inadequate protection on the Butt Valley - Caribou 115kV line during islanding. Open Caribou CB 122 prior to entering the island configuration.

SPI Quincy Status: Generation must be offline if their load remains connected to PG&E. Alternatively, SPI Quincy can also island with their own generation and load.

PSREC: Plumas-Sierra load will be served within Caribou Island. The Marble Tie to NV Energy must be opened prior to entering island configuration. Third party protection should be verified by Plumas-Sierra.

Collins Pine: Generation must be offline if their load remains connected to PG&E. Alternatively, Collins Pine can island with their own generation and load.

LMUD: LMUD and Honey Lake system to island with their own generation and load during islanding. Westwood connection to LMUD should be open.

Hamilton Branch: Generation must be offline; all load can remain connected.

[REDACTED]
Pacific Gas and Electric Company
Electric System Protection Engineering
RMC - W. Sacramento

From [REDACTED]
Sent: Wednesday, July 14, 2021 7:34 AM

[REDACTED]
Subject: RE: POTENTIAL CARIBOU ISLAND/OUTAGE

Here the OE requirements for the potential Caribou Island. Per our conversation, I am assuming Belden will be force out offline due to overlap with Cresta-Rio Oso 230kV line clearance (T21-009080).

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PRE-CLEARANCE REQUIRMENTS
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OVERLAPPING CLEARANCE CONSIDERED:

- * Caribou-Palermo 115kV line out of service/retired
- * Caribou-Westwood 60kV line (T21-008310) 7/13/2021-7/16/2021
- * Westwood CB22 (T21-006961) 7/13/2021-7/16/2021
- *Cresta-Rio Oso 230kV line (T21-009080) 7/7/2021-7/17/2021

CONDITIONAL REQUIREMENTS:

- *Confirm Caribou-Westwood 60kV line clearance (T21-008310) started and on-going
- *Confirm LMUD will island with Honey Lake Power per T21-008310
- *Confirm Cresta-Rio Oso 230kV line clearance (T21-009080) started and on-going
- *Confirm Belden PH is served from the Caribou-Table Mtn 230kV line per T21-009080

SWITCHING SETUP SUMMARY:

- *Belden PH will be offline due to overlap with T21-009080 and Caribou-Table Mtn 230kV line force-out

Caribou-Table Mtn 230kV line force-out due fire threat cleared between:

- * Caribou 253
- * Belden 225
- * Table Mtn 243 and 245

- * The Caribou Area will be operated in a "Planned Island", described below:

- LMUD will island with Honey Lake Power (already in island per T21-009080)
- Caribou Generation Shedding Schemes #1 and #2 cut out prior to islanding
- SPI Quincy will island with their own load (if requested by SPI Quincy, load at SPI Quincy can be included in the island, but the generation must be offline - coordinate with SPI Quincy, GCC-Northstate and Caribou Hydro Operators as needed)
- Notify Plumas Sierra-REC (PSREC) to ensure there is no generation online within the PSREC system during the force-out/island
- The amount of load to be picked up in the planned island is ~40-46 MW at peak and ~26-29 MW off-peak. This includes load from Plumas Sierra-REC (PSREC)
- Substations in the island include: Chester, Hamilton Branch, Big Meadows, Grays Flat, Spanish Creek, East Quincy, Gansner, Collins Pine load, PSERC and any station load at Caribou PH

MARBLE TIE OPERATION:

- * Parallel Operation is not permitted during the Caribou Planned Island Condition
- * Separate tie with NV Energy prior to clearance.
- * Cut-Out Plumas Separation Scheme.

GENERATION REQUIREMENTS:

- * Caribou units#2, #3, #4, and #5 available for the planned island
- * Butt Valley PH offline and not part of the planned island
- * Hamilton Branch Units offline
- * Collins Pine generation offline (assumed Unit not connected to PG&E)
- * Generation Scheduling and Real-Time Dispatch for Caribou Units during the planned island condition to be coordinated between GCC Northstate and Caribou Operators/PG&E PowerGen:

Per Caribou Operators, the following is the tentative generation plan:

- Unit #1: Offline due to maintenance work
- Unit #2: ISOC

Unit #3: Online
Unit #4: Online
Unit #5: Online

* Real-Time output to be determined by and at the discretion of Caribou Operators / PG&E PowerGen based on anticipated load level and necessary water requirements for the given time of day.

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Real Time - Normal Operation
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Grid Operations will be relying on Caribou Operators to maintain island frequency, voltage and adjusting generation output as necessary to maintain a stable island and avoid violation of water regulations.

GCC to monitor area voltages (Caribou buses and PSREC Quincy Q02 voltage):

* Notify OE if voltages are out of normal ranges:

* 58 - 64 KV for 60 KV Buses (and Quincy Q02)

* 115 - 124 kV for 115 kV Buses

* 230 - 240 kV for 230 kV Buses

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Real Time - Emergency Operation
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1. Outage: Outage of both Caribou Units #4 and #5

1b. Impact: Remaining Caribou Units might not be able to serve the Caribou Island

1c. Mitigation: Terminate Caribou Island

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Customers at Risk
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CUSTOMER AT RISK OUTAGE SUMMARY:

* Total Customer at Risk for Clearance: 13,236

* Customer dropped by largest N-1: 13,236

Customers will be dropped if any of the following is lost:

* Loss of Caribou Generation to maintain planned Island

1a. Outage: Loss of Caribou Generation to maintain planned Island

1b. Customer Impact: (13,236 total customers)

* Grays Flat (129)

* Spanish Creek (35)

* Crescent Mills (878)

* East Quincy (1,553)

* Gansner (1,742)

* Plumas-Sierra REC (1)

*Hamilton Branch (2,310)

*Chester (1,658)

*Big Meadows (2,620)

1c. Emergency Clearance Restoration Time: TBD

Thanks,

[REDACTED]
PG&E - Transmission Operations Engineering
[REDACTED]

From: [REDACTED]
Sent: Wednesday, July 14, 2021 4:51 AM

Subject: POTENTIAL CARIBOU ISLAND/OUTAGE

Classification: [Internal](#)

All,

We have reports of a fire near the Feather River corridor in between the Caribou Table Mountain 230 KV Line, Rock Creek Powerhouse, & Cresta Powerhouse. We are discussing, if time permits, what would be necessary to establish an Island with Caribou if the fire was threatening the line to Table. Currently LMUD is already Islanded for planned work, & the Marble Tie is open. Is this possible to plan on short notice? If so, can you please send us requirements given current system conditions as soon as you can. Additionally, we have to consider the loss of all area Gen & those potential operational impacts in the area.

Thank You,

[REDACTED]
GCC NS