



# **Tropical Cyclone Beryl (AAL022024)**

## **Final Event Briefing**

### **Grenada Electricity Company Ltd (GRENLEC)**

#### **Triggering event**

**09 July 2024**

## 1 SUMMARY

Tropical Cyclone Beryl is the second named cyclone and the first hurricane of the 2024 Atlantic Hurricane Season. On 30 June at 1530UTC, Beryl became a Category 4 hurricane while approaching the Windward Islands. During the next day, 1 July, it crossed the waters between Barbados and Tobago, spreading tropical-storm-force conditions over these countries for several hours. Later on the same day, Hurricane Beryl made landfall on the island of Carriacou (part of Grenada), with its centre passing about 30 mi (50 km) NNE of Grenada. Both Grenada and the island of Carriacou experienced hurricane-force winds on 1 July between 1400UTC and 1600UTC. Saint Lucia and St. Vincent and the Grenadines were affected by tropical-storm-force winds from 0900UTC until 1800UTC. TC Beryl then moved away from the Windward Islands, towards the central Caribbean Sea.

This event briefing is designed to review the modelled losses due to wind and storm surge due to TC Beryl, calculated by CCRIF's Public Utilities model. The CCRIF Public Utilities loss model reported wind speeds greater than 39 mph (62.7 km/h) for The Grenada Electricity Services Ltd. (GRENLEC) due to Beryl.

The final run of the CCRIF Public Utilities loss model produced losses for GRENLEC, which were above the Attachment Point of GRENLEC's policy and therefore a payout of US\$9,323,275.99 is due.

## 2 INTRODUCTION

On 29 June at 0300UTC, the US National Hurricane Center (NHC) reported that a tropical storm formed in the central tropical Atlantic Ocean, and it was named Beryl. Its centre was sited near latitude 9.3° North, longitude 43.6° West, about 1110 mi (1800 km) ESE of Barbados. The system proceeded with estimated forward velocity of 18 mph (30 km/h) towards the west, along the southern periphery of a strong subtropical ridge. The minimum central pressure was 1006 mb and the maximum sustained winds were estimated at 40 mph (65 km/h).

In the next 18 hours, the tropical storm rapidly intensified due to the low wind shear, the high moisture content and the warm surface temperature over the tropical Atlantic, and on 29 June at 2100UTC, the NHC reported that it became a hurricane. At this time, the centre of Beryl was located near latitude 10.1° North, longitude 49.3° West, about 720 mi (1,110 km) ESE of Barbados. It proceeded westward with increased forward velocity (22 mph, 35km/h). The favorable environmental conditions continued to support the rapid intensification of the hurricane, and few hours later, on 30 June at 0300UTC, it presented a small closed eyewall at the surface and maximum sustained winds estimated at 85 mph (140 km/h).

In the next 12 hours, Hurricane Beryl continued to strengthen rapidly and on 30 June at 1530UTC, the NHC reported that it had evolved into a Category 4 hurricane. The maximum sustained winds were estimated at 130 mph (215 km/h) and the minimum central pressure dropped to 962 mb. At this time, Beryl was getting closer to the Windward Islands, as its centre was sited near latitude

---

10.8° North, longitude 54.9° West, about 350 mi (565 km) ESE of Barbados.

During the final hours of 30 June and the first hours of 1 July, Beryl continued to move closer to the Windward Islands, with almost unchanged intensity and forward velocity. Despite the environmental conditions that were still supportive for the intensification of the hurricane, an eyewall replacement cycle hindered the further strengthening of the system. Indeed, a new outer eye formed outside the small inner core, weakening the latter and gradually becoming dominant. For this reason, when Beryl started to affect the Windward Islands with tropical-storm force winds, on 1 July at 0600 UTC, it had weakened to a Category 3 hurricane, with maximum sustained winds estimated at 120 mph (195 km/h). At this time, Beryl's centre was located near latitude 11.5° North, longitude 59.1° West, about 110 mi (175 km) SSE of Barbados. Hurricane-force winds extended outward up to 30 miles (45 km) from Beryl's centre and tropical-storm-force winds extended outward up to 115miles (185 km).

Barbados was the first country among the Windward Islands to be affected by Beryl's winds. At 0900UTC, tropical-storm-force winds started to also affect Trinidad and Tobago, Grenada and Saint Vincent and the Grenadines (Figure 1a). During the next three hours, the eye replacement completed its cycle and at 1200UTC Hurricane Beryl strengthened again, becoming a Category 4 hurricane again (Figures 2 and 3). At this time, the hurricane's centre was located near latitude 12° North, longitude 60.5° West, about 70 mi (125 km) E of Grenada and about 90 mi (165 km) SSE of Saint Vincent and the Grenadines (Figures 2 and 3). Tropical-storm-force winds continued to affect Barbados, Tobago, Grenada, and Saint Vincent and the Grenadines, while also beginning to affect Saint Lucia (Figure 1b). Hurricane-force winds started to affect Carriacou (Grenada) at 1400UTC, when the hurricane centre was about 25mi (40 km) SE of the island. One hour later, at 1500UTC, Beryl made landfall on Carriacou, with maximum sustained winds estimated at 150 mph (240 km/h), Figure 1c. At this time the main island of Grenada also began to experience hurricane-force winds. Until 1600UTC, life-threatening winds were experienced on Carriacou and Grenada, due to the eyewall passing over or very close to these islands. At its closest, the centre of Beryl passed 30 mi (50 km) NNE of Grenada.

Hurricane Beryl then moved away from the southern Windward Islands, proceeding west-northwestwards at almost 20 mph (31km/h), towards the central Caribbean Sea. Tropical-storm-force winds ceased over Saint Lucia at 1800UTC, but continued to affect Saint Vincent and the Grenadines and Grenada until 2100UTC (Figure 1d).

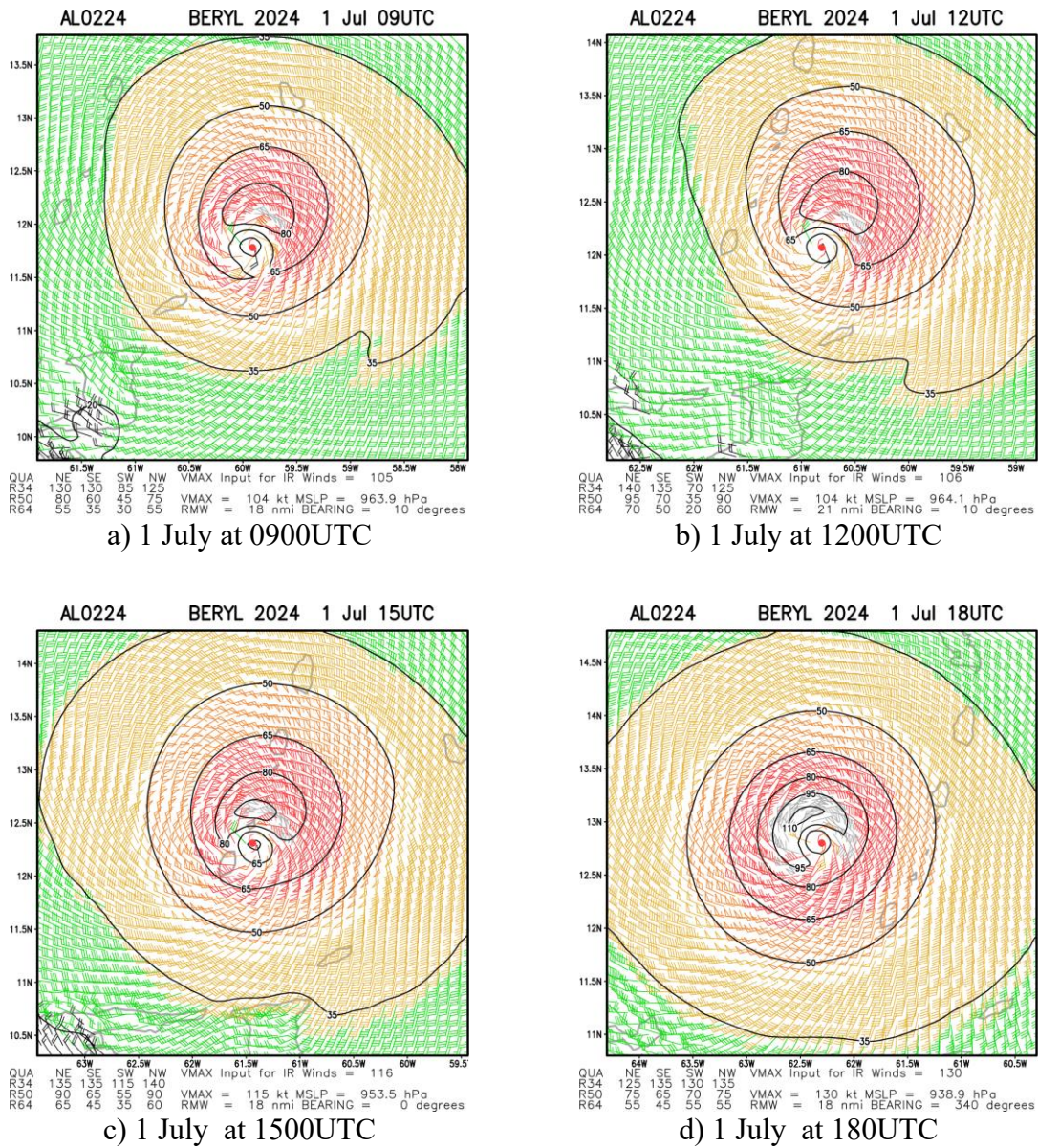
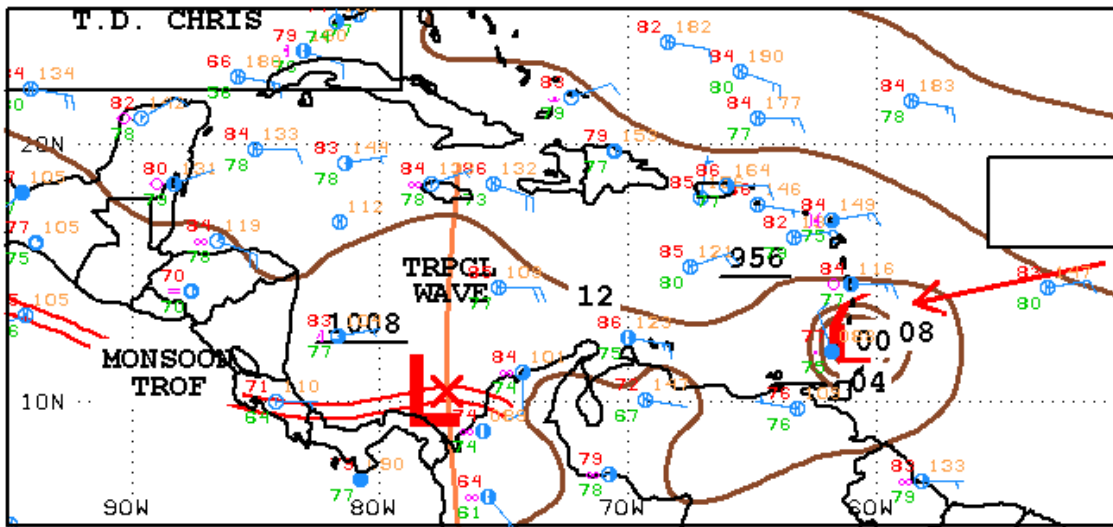


Figure 1 Multi-platform satellite based tropical cyclone surface wind analysis estimated on 1 July, 2024 at different times as indicated by the labels. Contouring indicates wind intensity at 20 kn (23 mph, 37 km/h), at 35 kn (40 mph, 65 km/h), 50 kn (57mph, 93 km/h), 65 kn (75 mph, 120 km/h), 80 kn (92 mph, 148 km/h), 95 kn (109 mph, 176 km/h), 110 kn (127mph, 204 km/h), Source: NOAA, National Environmental Satellite, Data and Information Service<sup>1</sup>

<sup>1</sup> RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: [https://rammb-data.cira.colostate.edu/tc\\_realtime/storm.asp?storm\\_identifier=al022024](https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al022024)



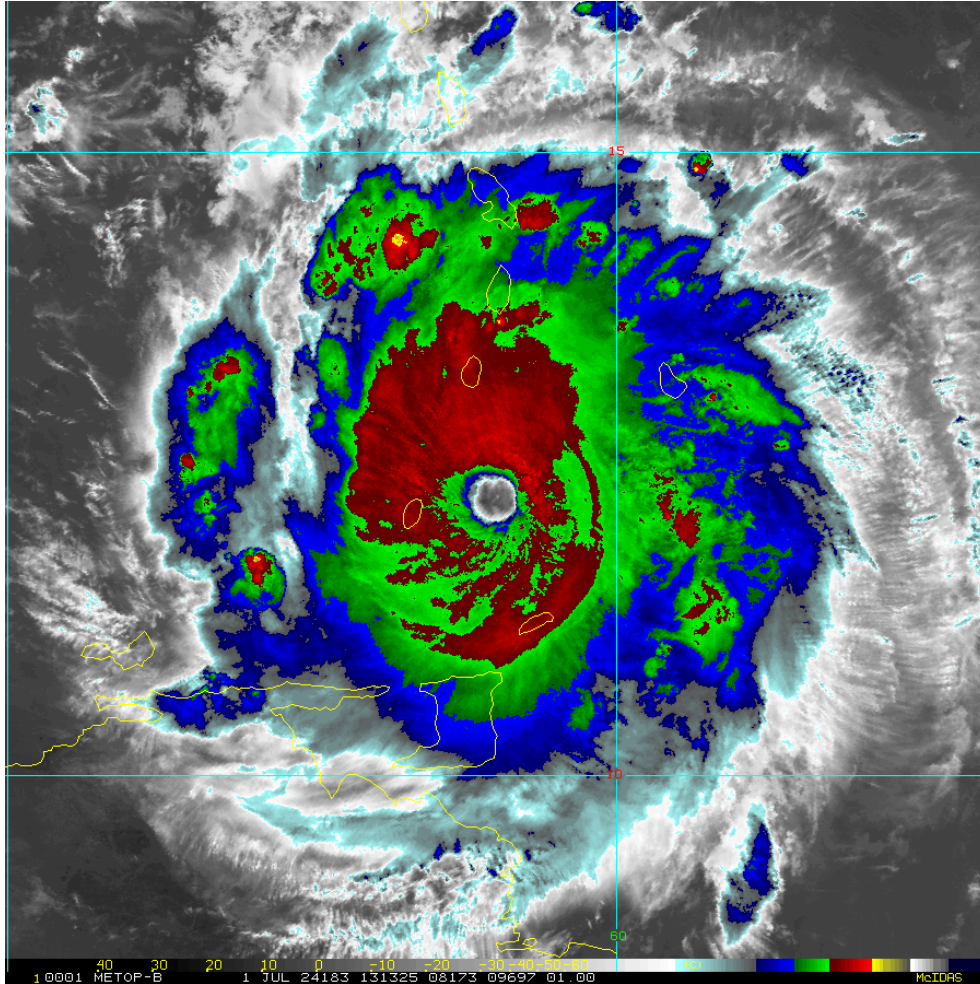
12Z CARIBBEAN SURFACE ANALYSIS  
ISSUED:  
Mon Jul 1 16:38:19 UTC 2024

NATIONAL HURRICANE CENTER  
MIAMI, FLORIDA  
BY TAFB ANALYST: PC  
COLLABORATING CENTERS: NHC OPC

01 July at 1200UTC

Figure 2 Surface analysis over the Caribbean area on 1 July 2024 at 1200UTC. Source: US National Hurricane Center<sup>2</sup>

2 National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 1 July 2024, available at: [https://www.nhc.noaa.gov/tafb/CAR\\_12Z.gif](https://www.nhc.noaa.gov/tafb/CAR_12Z.gif)



01 July at 1330UTC

Figure 3 Satellite imagery on 1 July, 2024 at 1330UTC from the thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between  $-50^{\circ}\text{C}$  and  $-70^{\circ}\text{C}$ ), while the red/yellow colours represent very high-altitude clouds (top cloud lower than  $-70^{\circ}\text{C}$ ). High altitude clouds indicate strong convection associated with intense precipitation. Source: NOAA, National Environmental Satellite, Data and Information Service<sup>3</sup>.

---

3 RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: [https://rammb-data.cira.colostate.edu/tc\\_realtime/storm.asp?storm\\_identifier=al022024](https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al022024)

---

### 3 CCRIF SPC MODEL OUTPUTS

Under CCRIF’s loss calculation protocol, a CCRIF System for Probabilistic Hazard Evaluation and Risk Assessment (SPHERA) report is required for any tropical cyclone affecting at least one member country with winds greater than 39 mph (62.7 km/h). A Caribbean Public Utilities (CPU) report is required for any CCRIF member country whose electric utility company has a Public Utilities policy, which meets this criterion.

Grenada was affected by Tropical Cyclone Beryl, which qualified as a Triggering Event<sup>4</sup> for GRENLEC. Figure 4 shows the wind footprint for the regions affected by Tropical Cyclone Beryl.

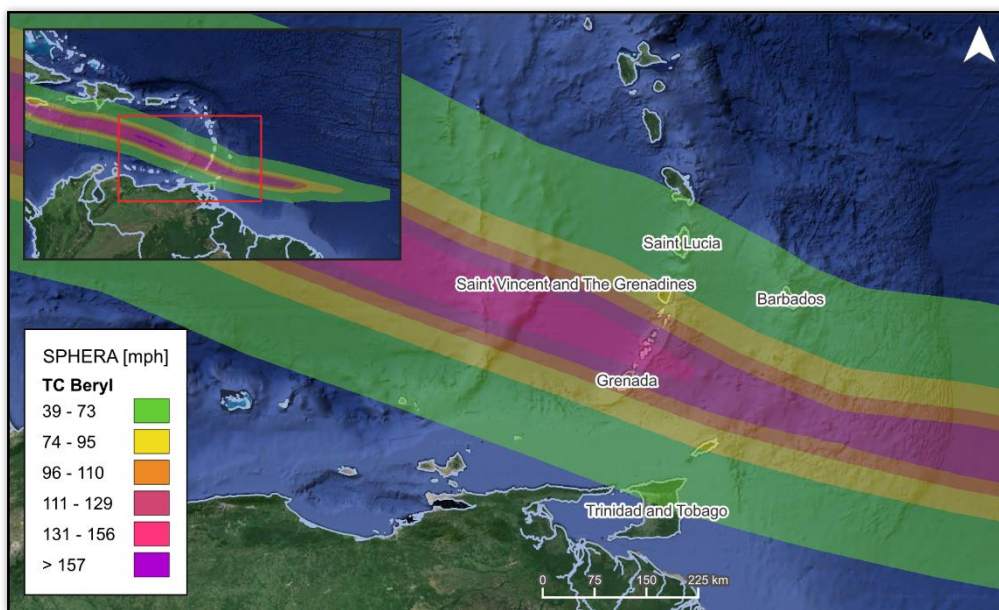


Figure 4 Map showing the wind field associated with Tropical Cyclone Beryl around the Grenada  
Source: NHC & CCRIF/SPHERA

### 4 IMPACTS

At the time of writing this report, the available information on damage to the electric utilities sector of Grenada due to Hurricane Beryl was limited.

On 30 June, the Governor-General of Grenada declared a state of emergency in the country at 7am, due to the arrival of Hurricane Beryl.

---

<sup>4</sup> Any Tropical Cyclone event which produces a modelled loss to one or more policyholder’s electric energy provider’s infrastructure, sufficiently high to trigger a payout under the CCRIF policy conditions as in force on the date of the event.

---

On 02 July, GRENLEC reported the start of service restoration following the passage of Hurricane Beryl. The electric company reported that several areas in the south were restored, and the service reached about sixty percent of customer demand. Restoration work continues<sup>5</sup>.

## **5 TRIGGER POTENTIAL**

The final runs of the CCRIF Public Utilities loss model produced losses for GRENLEC, which were above the Attachment Point of GRENLEC's policy and therefore a payout of US\$9,323,275.99 is due.

For additional information, please contact CCRIF SPC at: [pr@ccrif.org](mailto:pr@ccrif.org)

---

<sup>5</sup> GRENLEC.com: [Grenlec Begins Service Restoration Following the Passage of Hurricane Beryl – GRENLEC](#)

---