



2018

BVI Electricity Corporation

Resiliency Plan

Road Town, Tortola







North Sound, Virgin Gorda





Parquita Bay Storm Shelter



Jost Van Dyke



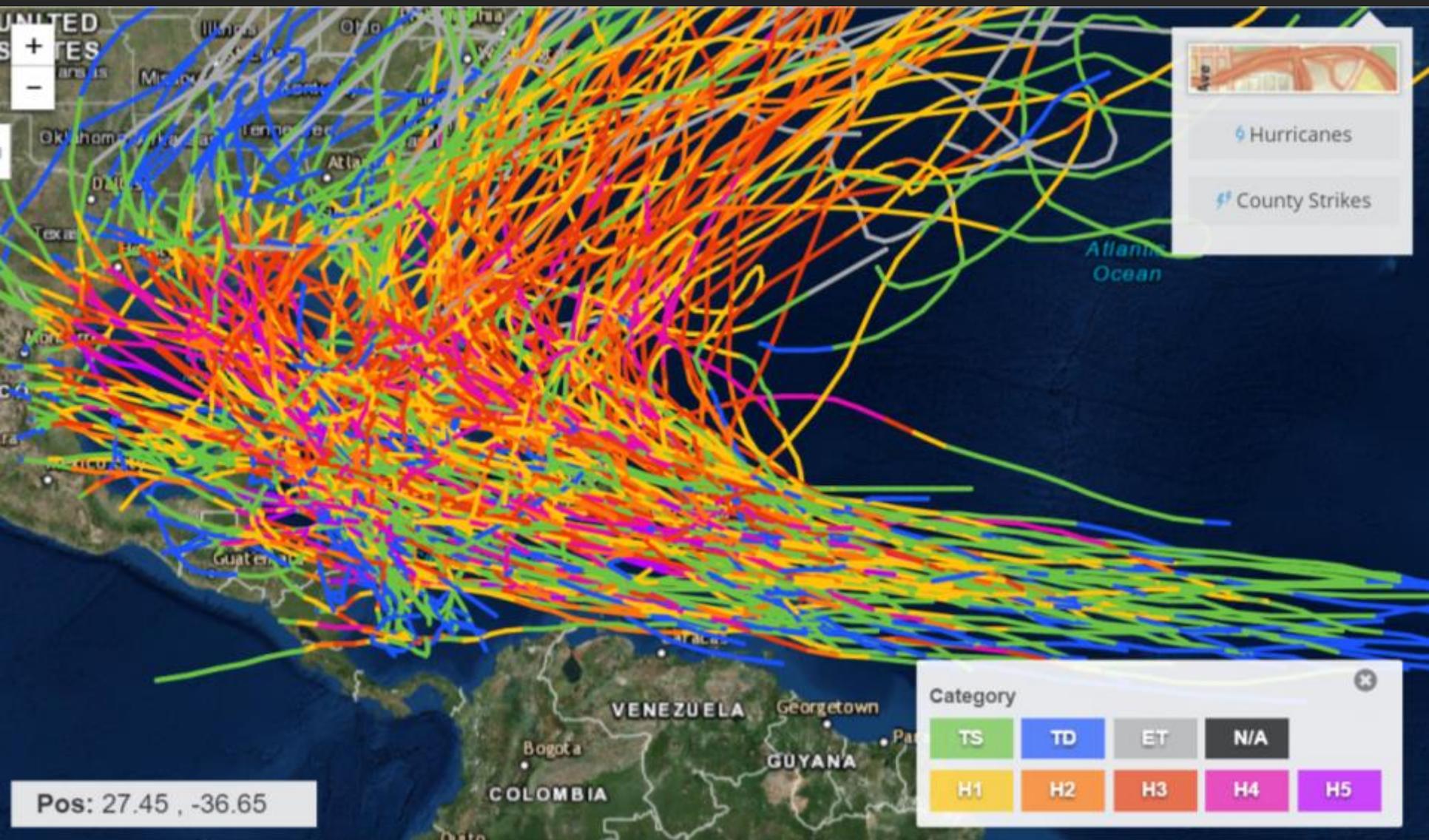
Christian Wheatley

Jost Van Dyke

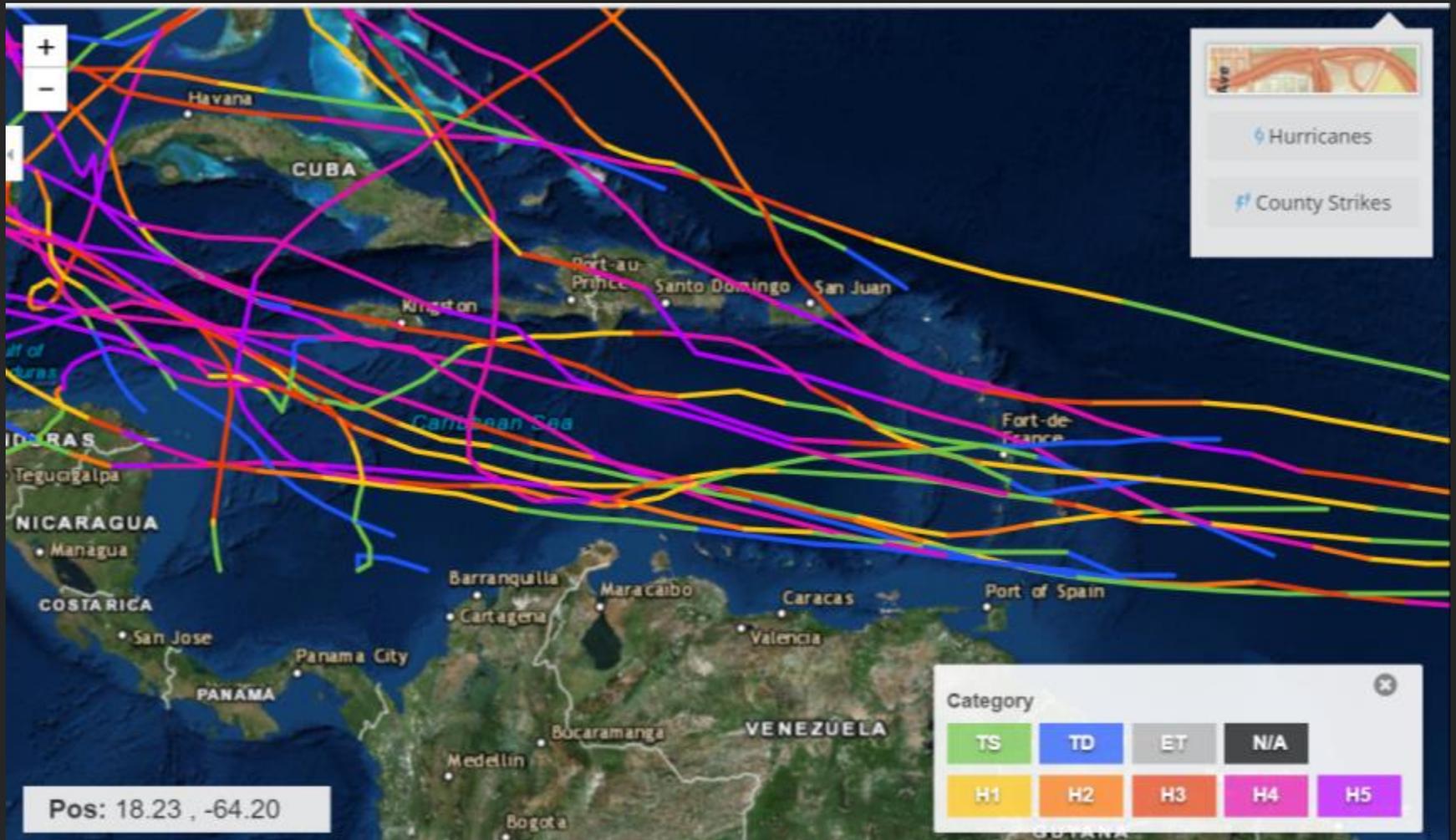


She will be back.

Caribbean Basin Hurricanes Cat III, IV, V 1842 - 2016



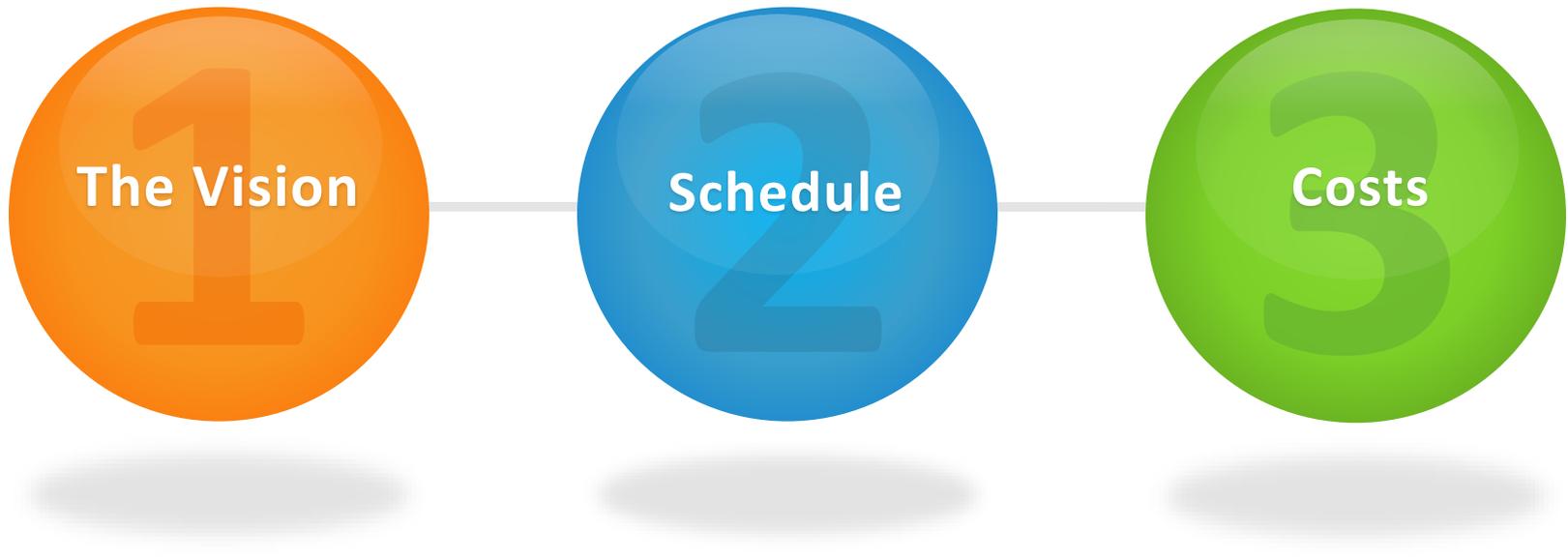
Caribbean Basin Hurricanes Cat V : 1842 - 2016



To continue as a growing
and thriving economy and
society, we must be ready,
we must be strong...

We must be **resilient** to
withstand nature's next
attack.

The Resiliency Plan BVIEC



Electricity – The “life blood” of our economy

Some utilities are more equal than others



Vision of the Resiliency Plan

Leverage innovation. Learn from experiences. Envision a brighter future.

The Commercial and Financial District

After Hurricane Irma critical services in the Wickhams Cay and Road Town area were restored within hours or days of the HWS Power Station Starting up.



- Peeble's Hospital and Road Town Clinic
- Multipurpose Center Shelter
- Faith Baptist Church Shelter
- Banks
- Tortola Pier Park
- Insurance Companies
- Several trust companies law and accounting firms
- Bobby's Supermarket
- Several Restaurants
- Government House
- Central Admin Complex
- Marias and Village Cay Hotels
- Sonny Todman Laundry
- Mellow Moods and Virgin Queen
- Pharmacies

Resiliency Plan Vision



To ensure that power can be rapidly restored to Critical National Infrastructure and KEY services in various communities **SPREAD OUT** throughout the Territory.



Key loads include: water plants and distribution pumps, supermarkets, petrol stations, radio stations, clinics, air and sea ports, police stations and other key government services, funeral homes, communication towers, sewerage stations, hotels, schools, hardware suppliers, and entry points into remote or vulnerable communities



Resiliency Plan Schedule

The journey of a thousand miles begins with one single step

Map of the BVI



15 Point Plan

Phase 1A:

 **Undergrounding 12,000 feet of 34.5 KV Transmission Line from Sleepy Hill to Bar Bay**
Enables immediate power delivery to East End and Virgin Gorda

 **New Paraquita Bay Substation**
Facilitates immediate power delivery to the Territory's Largest Single Water Plant

New Dedicated Underground 13.2 KV EE Feeder-9,000 feet from ESHS to CTL
House of Assembly, Elmore Soutt High School, RT Police Station, Althea Scatliffe Primary School, Magistrate's Court, Red Cross HQ, Treasure Isle Hotel, The Moorings, Road Town Wholesale, Financial Services Complex, Delta Petroleum Service Station, One Mart, Port Purcell, Fisheries Complex, ZBVI, Public Works Department, Shell Depot, Skelton Quarry, Clarence Thomas Ltd. Receive near immediate power delivery.

 **Burt Point Sewerage Plant**
Police Marine Base, RODUS Commercial Building, Ellen Skelton Commercial Building, Road Reef Plaza, the new Prospect Reef Development and Fort Burt Hotel.

 **Underground 13.2 KV Feeder, 7,700 feet from Paraquita Bay to Bar Bay**
HLSCC, Renewable Energy or Farming Project in Paraquita Bay, Hodge's Creek Marina, BAR BAY Water Plant

15 Point Plan

Phase 1B:

-  **New Underground Feeder, 9,500 feet from Long Swamp to T.B.L. Int. Airport**
Brackwell Laundromat, RITE BREEZE Supermarket, 2 Marinas and Airport
-  **Undergrounding portions of the Catholic Church and Fischers Cove 13.2 KV Feeders on Virgin Gorda 33,000 feet from Fischers Cove to Gun Creek**
St. Thomas Bay Port, Speedy's Corner, Olde Yard Village, Handsome Bay Water Plant, Road Town Wholesale, Bucks Supermarket, Bregado Flax Educational Center Submarine Cable from Fishcers Cove to Gun Creek
-  **18,000 feet of new 34.5 KV Transmission Line from Pockwood Pond to Cappaons Bay**
Facilitates rapid power delivery to the Western Side of Tortola and Jost Van Dyke
-  **New Cappaons Bay Substation**
Facilitates rapid power delivery to the Western Side of Tortola and Jost Van Dyke

15 Point Plan

Phase 2:

-  **New Dedicated Underground 13.2 KV Feeder, 1500 feet to Elite Superette** *Connecting EE Police Station, LJD VI Block, FINE FOOD Supermarket and Elite*
-  **Undergrounding portions of the Pockwood Pond West Feeder Mainline** *Connections to West End Police Station, Big Ben's Grocery and Gas, Frenchman's Cay, West End Ferry Terminal with entrance points into Long Bay, Apple Bay, Carrot Bay*
-  **Undergrounding portions of the LB West End Feeder (Approximately 23,000 feet)** *Connecting Chalwell Repeater Stations and Cane Garden Bay key loads.*
-  **Undergrounding the Spare Road Town Feeder Mainline (13,000 feet)** *Entrance Points into Lower Estate, Huntums Ghut, Horse Path, Purcell Est., Fort Hill*
-  **Undergrounding portion of the LB Ridge Feeder Mainline (Approx. 17,000 feet)** *Entrance points into Fahie Hill, Long Trench, Manchester, Belle Vue, Hope Hill.*

Phase 3:

15 Point Plan

Diversification of power generation sources

- *Greater inclusion of renewables, including distributed generation and storage.*
- *Potential Interconnection of Anegada and RE plants there via a submarine cable connected to the Main Grid at a location to be determined on Virgin Gorda*
- *Construction of a new Power Station on a second site. Currently all power supplied to the main grid is supplied from one location at Pockwood Pond Tortola. As the load grows and further base load generation is required, BVIEC plans to construct a new facility at a separate location which would utilize a cleaner burning fuel such as LNG or LPG.*



***See Appendix for list of All
Key Loads to be supplied***





Resiliency Plan Cost

Just imagine the cost of doing nothing. 



COSTS

The cost of the works would be:-

- Cutting roads and digging trenches
- Purchasing, laying and fitting cable ducts
- Purchasing and installing 34.5kV & 13.2KV cables
- Purchase and installation of cable joints and terminations
- Purchase and installation of pad mounted transformers and switchgear
- Properly refilling trenches
- Re-instating roads, drains, sidewalks, etc.
- Public relations / advertising
- Professional services (Advisory Consultants, Surveyors for Mapping Services)



BVIEC Resiliency Plan

Costs

Phase 1A: \$11.9M

Phase 1B: \$19.7M

Phase 2: \$22.2M

Phase 3: \$25.0M

TOTAL: \$78.8M

Phase 1A

1	Undergrounding 12,000 feet of 34.5 KV Transmission Line from Sleepy Hill to Bar Bay Enables immediate power delivery to East End and Virgin Gorda	\$3,000,000
2	New Paraquita Bay Substation Facilitates immediate power delivery to the Territory's Largest Single Water Plant	\$4,000,000
3	New Dedicated Underground 13.2 KV EE Feeder-9,000 feet from ESHS to CTL Supplying - House of Assembly, Elmore Soutt High School, RT Police Station, Althea Scatliffe Primary School, Magistrate's Court, Red Cross Headquarters, Treasure Isle Hotel, The Moorings, Road Town Wholesale, Financial Services Complex, Delta Petroleum Service Station, One Mart, Port Purcell, Fisheries Complex, ZBVI, Public Works Department, Shell Depot, Skelton Quarry, Clarence Thomas Ltd.)	\$2,362,500
5	New Dedicated Underground 13.2 KV Feeder, 7,700 feet from Paraquita Bay to Bar Bay (Connecting HLSCC, Renewable Energy or Farming Project in Paraquita Bay, Hodge's Creek Marina, BAR BAY Water Plant)	\$2,333,333
4	Burt Point Sewerage Plant Also connecting Police Marine Base, RODUS Commercial Building, Ellen Skelton Commercial Building, Road Reef Plaza, the new Prospect Reef Development and Fort Burt Hotel.	\$250,000

Phase 1B

6	New Dedicated Underground 13.2 KV Feeder, 9,500 feet, from Long Swamp to T.B. Lettsome Int. Airport (Connecting Brackwell Laundromat, RITE BREEZE Supermarket, 2 Marinas and Airport)	\$2,770,833
7	Undergrounding portions of the Catholic Church and Fischers Cove 13.2 KV Feeders on Virgin Gorda 33,000 feet from Fischers Cove to Gun Creek to Include (St. Thomas Bay Port, Speedy's Corner, Olde Yard Village, Handsome Bay Water Plant, Road Town Wholesale, Bucks Supermarket, Bregado Flax Educational Center (Submarine Cable from Fishcers Cove to Gun Creek may be a more favorable option)	\$8,677,083
8	18,000 feet of new 34.5 KV Transmission Line from Pockwood Pond to Cappaons Bay	\$4,250,000
9	New Cappaons Bay Substation	\$4,000,000

Phase 2

10	New Dedicated Underground 13.2 KV Feeder, 1500 feet from Long Swamp to Elite Superette (Connecting EE Police Station, LJD VI Block, FINE FOOD Supermarket and Elite Superette)	\$525,000
13	Undergrounding portions of the LB West End Feeder (Approximately 23,000 feet) from to supply Chalwell Repeater Stations and Cane Garden Bay key loads.	\$6,473,071
14	Undergrounding the Spare Road Town Feeder Mainline (13,000 feet)	\$3,575,000
15	Undergrounding a portion of the LB Ridge Feeder Mainline (Approximately 17,000 feet) with entrance points into Fahie Hill, Long Trench, Manchester, Belle Vue, Hope Hill.	\$4,675,000

Phase 3

	Diversification of power generation sources Greater inclusion of renewables, Potential Interconnection of Anegada via submarine cables Construction of a new Power Station	Priv. Funded Priv. Funded \$25,000,000
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Estate Planning

Executing this resiliency plan gives us a fighting chance at maintaining our vibrant and thriving society when the next monster storm comes.

In addition to what we leave in our wills to our children, grandchildren and further descendants, we must leave a legacy of preparedness.

We must never forget this experience.



How much time
do we have?

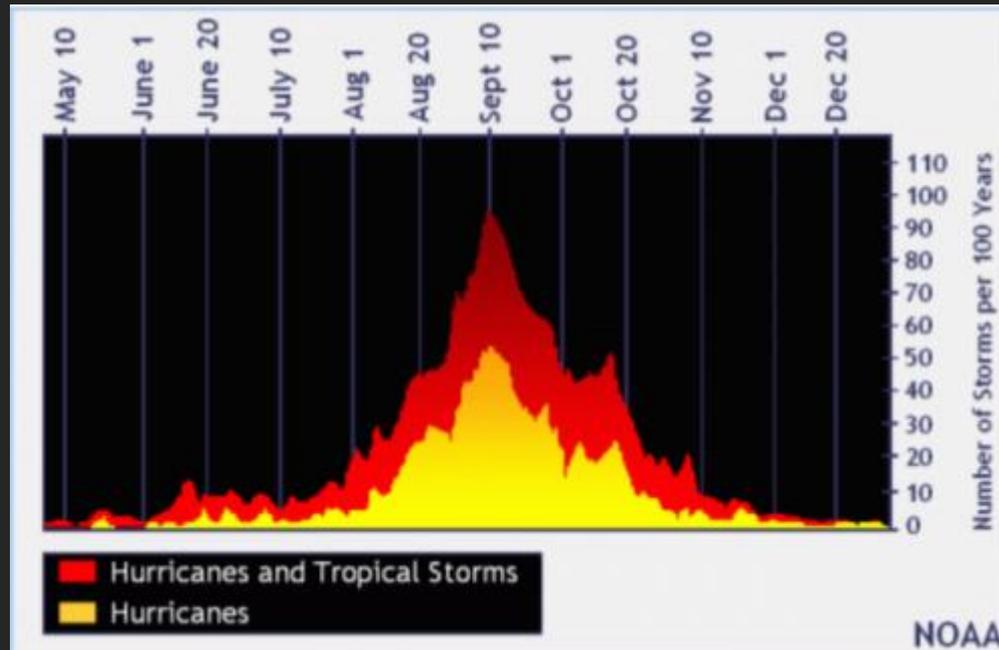
We can ill afford to be lulled into a false sense of security

Atlantic Hurricanes 1966 - 2009

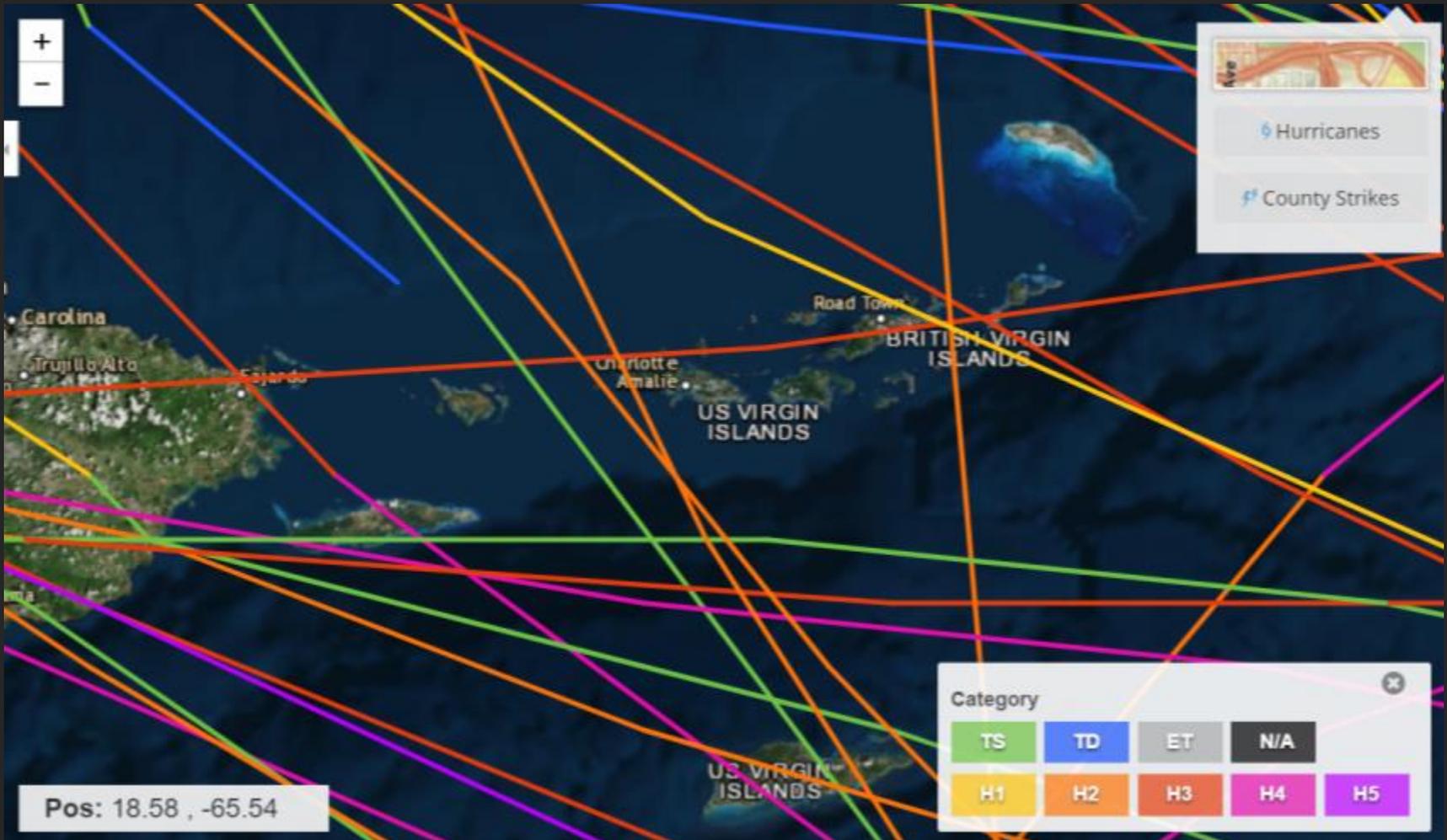
Table 1. Progress of the average Atlantic season (1966-2009). Date upon which the following number of events would normally have occurred.

Number	Named systems	Hurricanes	Category 3 or greater
1	July 9	Aug 10	Sep 4
2	Aug 1	Aug 28	Oct 3
3	Aug 13	Sep 9	-
4	Aug 23	Sep 21	-
5	Aug 31	Oct 7	-
6	Sep 8	Nov 23	-
7	Sep 16	-	-
8	Sep 24	-	-
9	Oct 4	-	-
10	Oct 19	-	-
11	Nov 23	-	-

Atlantic Hurricanes 1966 - 2009



Caribbean Basin Hurricanes 1842 - 2016





Be resilient.

