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STATEMENT BEFORE THE U.S. SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES

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Good afternoon Madam Chairman Murkowski, Ranking Member Cantwell, and members of the Committee on Energy and Natural Resources. By way of introduction, I am Julio A. Rhymer, Sr., Executive Director / CEO of the Virgin Islands Water and Power Authority (“WAPA” or “Authority”). I thank you for the invitation to appear before this august body and provide an overview of the Authority and the challenges which confront us in the aftermath of two major hurricanes which left devastating effects in their wake.

In short, the U.S. Virgin Islands experienced the brunt of two major hurricanes in a two-week period in September. On September 6, Hurricane Irma, with sustained winds of 185 miles per hour, passed within ten miles of the north coasts of St. Thomas & St. John, and Hurricane Maria, on September 19, hugged the southern coastline of St. Croix as it tracked across the Caribbean. These storms left considerable damage in their path, damage on scales not witnessed since Hurricane Marilyn in 1995 and Hurricane Hugo in 1989.

Before discussing the direct effect the hurricanes have had on WAPA, allow me to provide an overview of how the Authority operates. Like so many of our Caribbean counterparts, the Virgin Islands has no conventional energy resources to meet its power needs. While U.S. mainland utilities can connect to grids across America to purchase power from other utilities, power companies such as WAPA do not enjoy the luxury of grid interconnection. The three major islands—St. Thomas, St. John, and St. Croix—are separated by water and face a greater challenge given the depth of the ocean floor. These factors make interconnection via submarine cables both financially and technically challenging.

For the bulk of its 53-year history, WAPA has maximized the benefit of market conditions and utilized oil-fueled generating units to produce electricity. Given the separation by water, duplicate generation, transmission and distribution systems are required on St. Thomas and St. Croix. St. Thomas provides power via submarine cables to nearby St. John, Water Island, and Hassel Island. St. Croix is located more than 40 miles to the south of St. Thomas, and they are not interconnected due primarily due to the depth of the ocean floor.

In recent years, as oil markets became less stable resulting in fluctuating oil prices, WAPA began a process of diversifying its 100% dependency on fuel oil. In fact,

WAPA made a public commitment to reduce its reliance on fuel oil by 60% by the year 2025. The Authority has had some success with this diversification strategy. In recent years, we have implemented up to 15 megawatts of net metering, and through public private partnerships have added more than eight megawatts of solar power to the electric grid through solar facilities on St. Thomas and St. Croix.

Prior to Hurricane Irma, 20% of WAPA's generation capacity was derived from renewables. WAPA has also partnered with the VITOL Group, a multinational energy and commodity trading company, to construct and operate liquefied petroleum gas (LPG) terminals, supply LPG, and manage the conversion of our oil-fueled generating units. As of today, several of WAPA's generating units on both St. Thomas and on St. Croix are tri-fuel capable. They can be fueled by lower cost LPG, natural gas, or fuel oil.

Capitalizing on the final results of both a management audit and an integrated resource plan, and prior to the hurricanes, WAPA had mapped out a generation strategy to replace all oil-fired generators with smaller, more efficient, and reliable generating units. In March, we entered into a contract with Wartsila North America to provide new generation units for the Authority. We expect these units to be on island, and in operation, by mid-2018. They were originally expected in the first quarter of next year but the project was delayed by the September storms. WAPA is reviewing options to bring additional generators on line, which will be dual-fueled, on both St. Thomas and St. Croix. To bridge the transition, the Authority has entered into a contract with APR Energy of Texas to lease temporary generating units to maintain peak demand for our customers. I will now, for a few moments, discuss the direct and indirect impacts of the September hurricanes on the V.I. Water and Power Authority.

By far, the most extensive damage was experienced by the transmission and distribution system and the overall electrical grid. The two power plants, in Estate Richmond on St. Croix and at Krum Bay on St. Thomas, fared well. The transmission and distribution system suffered damage at the hands of Hurricane Irma on the order of 80% on St. Thomas and 90% on St. John, with the two outlying islands, Hassel Island and Water Island, each suffering about 90% damage to their electrical infrastructure. Hurricane Maria rendered about 60% damage to St. Croix's system. Today, WAPA is engaged in a major restoration effort on all islands. We are in the process of rebuilding transmission feeders and primary circuits, all before we can completely restore commercial and residential customers. Our commitment is to rebuild and to reenergize about 90% of all geographical locations by the end of December.

WAPA's efforts to recover, rebuild, and restore are augmented by approximately 700 off-island linemen. The linemen crews are provided by both contractors and mutual aid companies.

The arduous task of rebuilding transmission and distribution systems on all islands is further complicated by challenges of mobilizing materials and equipment necessary for the restoration effort. Because of our unique geographical location, surrounded by water, WAPA cannot truck materials and supplies to the islands. Air

travel cannot readily supply the large quantity of inventory and equipment needed. We continue to barge and ship all vehicles, equipment, supplies, and material inventory to the Territory via cargo shipping. These materials and supplies are also competing for space with private businesses and individuals that are shipping supplies to the islands.

The hurricane's effect on the Authority's finances is another direct impact that must be noted. With monthly revenues that have been dramatically reduced from \$26 million to just over \$2 million, the Authority is struggling to cover its day to day operational costs. The extraordinary costs of restoration, with a price tag that can easily top \$300 million, will be a financial hurdle that WAPA will need federal assistance to overcome. We are grateful to the U.S. Congress and to President Donald Trump for quickly enacting legislation that will provide assistance to the United States Virgin Islands. Just as equally concerning as the day-to-day operational costs and the cost of restoration are the costs associated with pre-storm obligations: debt service, operation and maintenance of the power plants, insurance, contractual arrangements, and previously enacted financing agreements. To address these expenses, the Authority has sought a Community Disaster Loan through the Government of the Virgin Islands.

The most glaring takeaway from the experience of Hurricanes Irma and Maria is the need to not only rebuild our transmission and distribution systems, but to factor in more resiliency; in other words, harden the system to minimize the effect of catastrophic windstorms such as major hurricanes. To that end, WAPA is beginning to replace traditional wooden poles with composite poles on various key transmission feeders on all islands. The composite poles have a proven track record of withstanding sustained wind speeds of up to 200 miles per hour. We have identified a need for approximately 4,300 composite poles for major primary electrical circuits for the St. Thomas-St. John district, and approximately 5,900 composite poles on St. Croix. The Authority is also aiming to relocate key aerial facilities underground. Utilizing past FEMA hazard mitigation grant funding, WAPA has already placed limited portions of its distribution system underground. Service to critical infrastructure such as hospitals, airports, and 75% of the business districts are underground. In the aftermath of last month's storms, they were among the first facilities to be restored. Our focus now is to underground facilities that service key seaports and shipping companies, to be in a position to restore inbound cargo traffic to the islands upon the opening of the shipping channels by the Coast Guard following a hurricane or tropical storm.

WAPA is also exploring the benefits of electric micro grids, a move toward hardening of the electrical grid which is also vulnerable in windstorms. We have the first micro grid on the drawing board for implementation on St. Croix. Each micro grid would be a localized group of energy sources that would work both in lockstep with WAPA's generating facilities but independently as a source of power. In the event of a major electrical service interruption, for example, the micro grid would function as a small generating facility to produce electricity on its own power.

WAPA is working to develop the initial micro grid in conjunction with the Virgin Islands Port Authority at St. Croix's Henry E. Rohlsen Airport. This particular micro grid would be energized with four megawatts of solar power and two megawatts of battery

storage. Depending on available funding, WAPA will seek to develop additional micro grids at strategic locations across the Territory.

Additionally, WAPA continues to pursue funding to liquidate a ten-year obligation it has with the previously mentioned VITOL Group. Eliminating that obligation would not only allow the Authority to manage the day to day operations of the LPG terminals, but also allow more financial flexibility given the austere resources of the Authority.

Madam Chairman, I once again thank you and your colleagues for this opportunity to appear before the U.S. Senate Committee on Energy and Natural Resources to provide a brief overview of the Virgin Islands Water and Power Authority and the challenges we now face in the aftermath of these catastrophic hurricanes.