



VanNatta Worldwide Ltd.  
An Indiana non-profit  
A division of Vortex Energy Group LLC

# ***“ENERGY FOR LIFE”***

**Resilience,  
Security, &  
Sustainability**

**Together  
we can make  
it happen!**



RESEARCH AND EDUCATION DIVISION

***“ENERGY FOR LIFE”***

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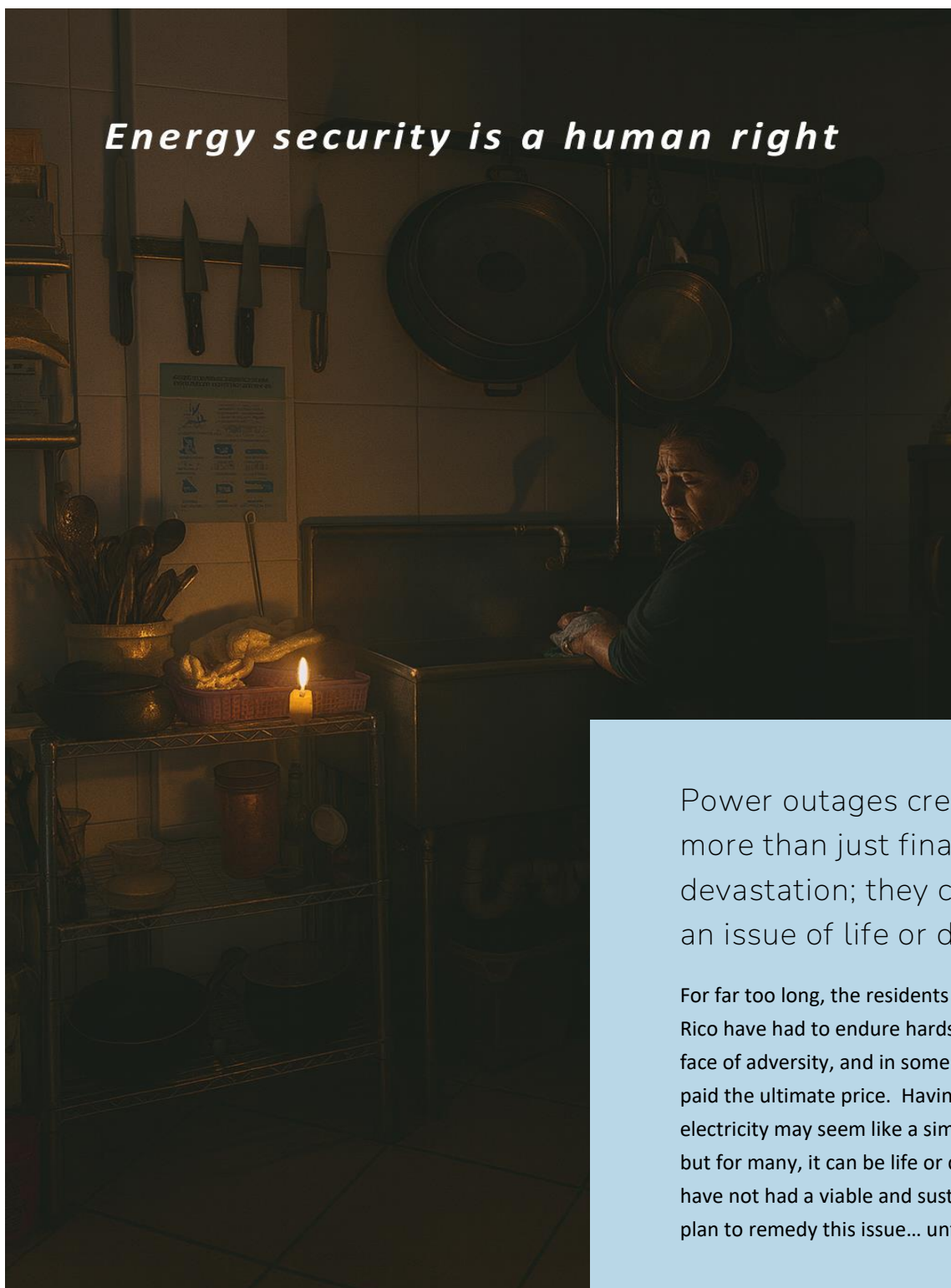
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# Table of Contents

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Welcome Letters	Page 05
About Us	Page 07
Campaign Background	Page 09
Personal Stories	Page 10
Description of Crises	Page 11
Pictorial Stories	Page 12
Solutions	Page 13
Solutions Expanded	Page 14
Benefits	Page 15
Our Team	Page 17
Government Contacts	Page 19
Call to Action	Page 21
What is the Cost of Delay?	Page 22
Thank You!	Page 23

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*Energy security is a human right*

Power outages create more than just financial devastation; they can be an issue of life or death.

For far too long, the residents of Puerto Rico have had to endure hardships in the face of adversity, and in some cases, paid the ultimate price. Having electricity may seem like a simple thing, but for many, it can be life or death. We have not had a viable and sustainable plan to remedy this issue... until now.

# Welcome Letters

Some may look at what we are doing, and think of it as a task, as a business activity. That's because when disaster strikes, restoring the community becomes a financial issue. But for us, we look at this as being a responsibility to help others in need. We have heard so many stories from folks on the island, and I can guarantee that anybody hearing these stories would feel the same way.

While we recognize that it is indeed something that costs tremendous amounts of money, what we have struggled with is why can't we fix it so that it doesn't happen again? Unfortunately, in most cases, officials are limited by funding, and fall back to whatever they can do, often only being nothing more than a bandaid. We are honored to be able to offer a solution that not only fixes the problem, but also ensures that it doesn't happen again.

The following pages will describe the crises that the people of the Commonwealth of Puerto Rico, and how they are made many times worse with the onslaught of powerful hurricanes. We will also try our best to give a clear and direct picture of not only the devastation of the island following a storm, but on a continual basis with severe issues with the current power grid.

**Jim VanNatta**  
Founder / CEO  
VanNatta Worldwide Ltd

It is such an honor to be a part of something that will have a profound impact on the people of the island of Puerto Rico. Working with this team has also been a pleasure, because to a person, this is much more than another project. We are going to be making a real difference in people's lives. We will offer energy security, lower energy costs, jobs, removal of and destruction of not only the sargassum, but with landfill waste as well.

Our first activity will be to secure the coastal areas by having a solution that will eliminate the sargassum in an environmentally friendly process. As part of our first deployment, we will also eliminate landfill wastes, with the same environmental protection as the sargassum. And of course, the other great benefit will be clean, renewable, and sustainable energy.

It makes sense to do things right the first time. When the power grid can be modernized and hardened, over time, it will show to be the most prudent financial decision. No more throwing away money to fix it temporarily. Only being patched up following destruction by storms, as well as being antiquated and unprotected, the entire grid system needs to be completely revamped.

**Eduardo Montemayor**  
Co-Founder / COO  
VanNatta Worldwide Ltd

Fundraising Proposal

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# About Us

As with so many other projects and activities, what we do isn't about us. But this page is! VanNatta Worldwide Ltd, an Indiana non-profit company, is a division of Vortex Energy Group LLC. We believe strongly in the idea of Teamwork, in all aspects of what we do. Having a team to bounce ideas off of has gotten us to this incredible place right now. We are proud to be associated with Dr. Luciano Castillo, a renowned ***Kenninger Professor of Renewable Energy and Power Systems***. Working with Dr. Castillo's team has opened up so many new activities for everybody. Our part of this project is the waste-to-energy (WtE) facilities, which will be taking the waste materials from landfills and also from the sargassum that has invaded the island, and processing it with an extremely environmentally friendly manner, to produce clean, renewable, sustainable energy, while at the same time offering a new level of energy security.

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## Our Vision

**“To build a Puerto Rico where resilience is universal — where every home, business, and community has reliable, affordable, and sustainable energy that safeguards dignity, strengthens opportunity, and protects the environment for generations to come, even in the face of the strongest storms.”**

## Our Mission

**“We transform waste into opportunity by delivering advanced Waste-to-Energy solutions that reduce costs, create jobs, and secure energy independence. Through resilient infrastructure and strong partnerships, we empower communities to thrive in the face of storms, safeguard health and safety, and ensure that resilience is not a privilege, but a right.”**



**PROUDLY IN PARTNERSHIP WITH:**



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# Campaign Background

Although we had already begun to get involved with the garbage/landfill crisis in Puerto Rico, and we knew that 13 of the 29 landfills on the island were at or over capacity, we didn't fully appreciate the full crisis until we began working with Dr. Castillo and his team, who have been active in finding solutions to not only the landfill crisis, but with the sargassum crisis as well. In fact, the government of Puerto Rico declared a State of Emergency a few months ago, related to sargassum. While both of those are very serious by themselves, add the horrific devastation that impacts the island from the hurricanes that pound the Eastern side of the island. With those storms, the other major crisis follows as the already crumbling power grid becomes severely damaged, causing power outages across much of the island.

Dr. Castillo immediately recognized how our innovative technology would solve a lot of problems. As we met with people on the island, from all socio-economic backgrounds, it became more clear to us that this is a crisis of epic proportions. A major portion of the overall program being offered is our waste-to-energy (WtE) system that can destroy waste materials, including landfill waste (municipal solid waste – MSW) and sargassum, and produce clean, renewable, and sustainable electricity. We are also proposing to house the WtE facility in a building that can withstand a Category 5 hurricane, as well as strengthening, hardening, and undergrounding the power transmission lines.



"We will never be able to reduce the damage done from an intense hurricane, but we can prevent the harmful impact of extended power outages. This is the concept of doing it right the first time."

"After Maria hit the island, we were without power for over two months, and my daughter needed her insulin to be refrigerated. After a few days, we could no longer find ice."

**80%**

This number reflects the total population of Puerto Rico that falls into the category of low-to-moderate income level, or LMI. This is an official designation used by the United States government

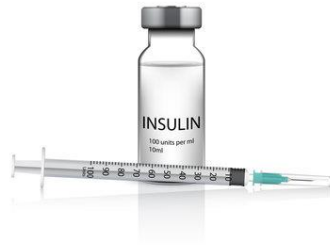
**2,975**

This is the low end of the estimates of excess lives lost due to the power outage (not the storm itself) following Hurricane Maria in 2017. Some estimates show it could be as high as 4,645 deaths.

**\$10B**

This number is the cost to repair the damaged grid infrastructure, out of a total of more than \$90 billion in damage to the island following Hurricane Maria in 2017.

# Personal Stories



**“After Maria hit the island, we were without power for over two months, and my daughter needed her insulin to be refrigerated. After a few days, we could no longer find ice.”**

**Gerardo C., University Professor**



**“We had to move my father to a basement of a building that had a generator, because he needed life support until our power was restored.”**

**José R., taxi driver**



**“I lost my job at a beach resort because of the sargazo. Nobody could figure out what to do with it. I have friends that work in other resorts, and I found out that 7 hotels and resorts closed down for good.”**

**Helen B., housekeeper**



**“My home is about 2 miles from a large landfill, and the smell is awful. Even though it’s over the limit, people still bring trash there. And our water has a horrible taste too.”**

**Cleria M., nurse**

# Description of Crises

Puerto Rico residents face serious crises, and have never been offered a truly sustainable solution. *Until now!*



1

## Old, dilapidated grid network

Something that has plagued the residents of Puerto Rico for far too long is the declining condition of the island’s electricity generation, transmission, and distribution system. This issue is made many times worse with the damage done with a high powered hurricane. Extended outages are a serious human crisis, which can be solved with the right program. We are excited to be able to offer solutions that can make extended power outages a thing of the past.

2

## Garbage and landfills at or over capacity

For almost as long as the fragile and vulnerable grid system problems, islanders have been experiencing a building crisis with garbage and landfills over capacity or close to that level. 13 of the island’s 29 landfills are considered to be at or over capacity. Without a proper solution, this crisis will continue to cause economic and health issues.

3

## Sargassum invasion causing major issues

At an ever-growing rate, sargassum, the nasty brown seaweed, continues to wreck havoc on not only the beaches, but the waters surrounding the island. With no real solution, sargassum creates health, ecological, and financial crises. A recent report showed that 7 resorts along Puerto Rico’s beaches had to close due to no sustainable means of eliminating the menace.

# Pictorial Stories

As the old saying goes: "A picture is worth a thousand words."  
Here's a few thousand words worth.

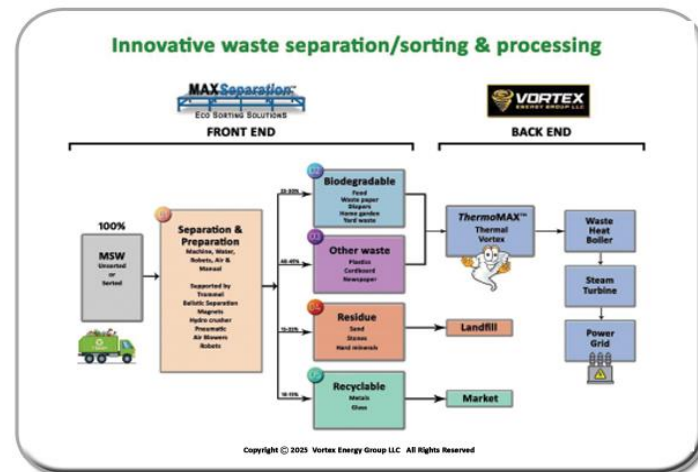
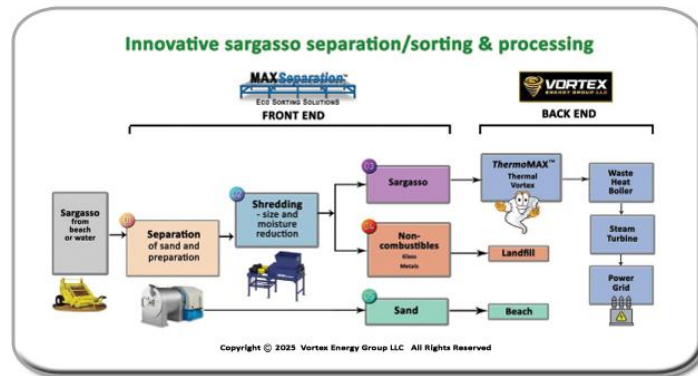


# Solution

Although there are several other parts to the entire project, we are focusing on the waste-to-energy (WtE) portion.

The top image shows the proprietary process that includes collecting sargasso from the beach, then separation, and on to the shredding process. The sargasso is introduced into the **ThermoMAX™** unit, where it is fully destroyed. The rocks and similar material would go to a landfill, and the sand returned to the beach. The super-heated exhaust goes into a waste heat boiler, producing the steam that now goes to a steam turbine, and clean electricity is generated.

The process for municipal solid waste, or MSW, is very similar. The waste material is separated into what will be destroyed, sent to a landfill, and what will be recycled. This process is used in landfills, and ensures the most environmentally safe method of producing clean, renewable, and sustainable energy.



## First step: Building

One of the first steps needed is to house the power generation (WtE) equipment in a building that can withstand a Category 5 hurricane. Currently, even when a hurricane passes a couple of hundred miles away from Puerto Rico (Just like the recent Hurricane Erin, 200 miles north of San Juan), hundreds of thousands of islanders lost power.



## Second step: Hardening

In addition to hardening the WtE facility's building, transmission poles need to be rebuilt as steel structures (even as towers), and transmission lines need to be installed underground. Puerto Rico currently has a very small percentage of lines underground.



## Third step: Microgrids

Technically, Puerto Rico is made up of a few microgrids (the use of microgrids is also called "islanding"), but without proper protection of the generation source and the power lines, microgrids are useless. New technologies need to be installed.

# Solution Expanded

The hardening, undergrounding, and strengthening of Puerto Rico's grid system can be done for a lower initial or up-front cost when comparing how much it costs to do repairs that only end up being a band aid process

*Designers achieve ASCE 7-22 for wind speeds (Risk Cat IV) with impact/debris protection and flood design per ASCE 24 / IBC 2024. This is sometimes referred to as "Category 5 Hurricane-Proof."*



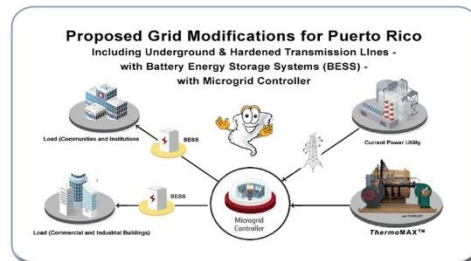
*Strengthening and hardening is done in different ways, but not new for the island. Some undergrounding has been done, but cost overruns, poor design, and poor installation has rendered much of the current power lines to degrade long before their projected life timeline.*



*Replacing fragile wooden poles with iron or steel will ensure transmission security. Steel towers should also be used along other measures to strengthen those grid components.*



*The brains behind a successful overall grid system is the use of microgrids. Another term for microgrids is islanding that means no power going off the island, or coming into the island. Battery storage systems (BESS) are used throughout the grid network for fully ensuring constant energy availability.*



# Benefits

This is obviously our favorite part! Implementing just one overall solution will offer a wide range of benefits to the residents of the island. In the past, a lot of promises have been made, and virtually all of those have failed.

These solutions will be managed by individuals, non-profit corporations, as well as NGOs (non-governmental organizations), and similar groups. Electricity can still be transmitted through existing power utilities, but the bulk of the management will be in the hands of people or groups that have only one thing in mind: providing the most affordable, clean, sustainable energy.



## 1 Energy Security

One of the benefits that offers a wide array of other benefits, is energy security. It all starts with energy security, providing: Availability, Affordability, Accessibility, Reliability, and Sustainability. It can also provide additional national security.

## 2 Eco-Friendly

If having affordable power and reliable transmission means that it would negatively impact the environment, it would not be a true benefit. Using state of the art mitigation measures, ensures that all of the energy generated will be truly clean... i.e. GREEN!

## 3 Year-Round Jobs

Puerto Rico has an unemployment rate of 5.6%, higher than the U.S. average of 4.3%, and a participation rate of 45.1% compared to the U.S. with 62.3%. Having new jobs available that are well paid and have good benefits will be greatly welcomed.

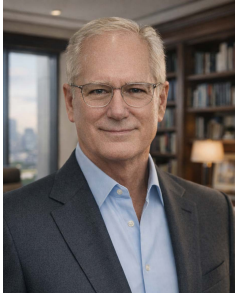
## 4 Reduce Costs

This is one benefit that has multiple levels. First of all, with 80% of the island being low-to-moderate income level, cutting electric bills is crucial. Lower costs also mean that more people will be able to use more appliances such as air conditioners.

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# Our Team



**Jim VanNatta**  
**Founder / CEO**

Jim founded Vortex Energy Group LLC and VanNatta Worldwide Ltd. (non-profit) to offer the accessibility to low-cost, clean, renewable energy. His experience includes more than 45 years sales and sales management. He is a technical and marketing writer, with a patent for the vortex technology, and currently working on two other patent applications for desalination and carbon capture systems.



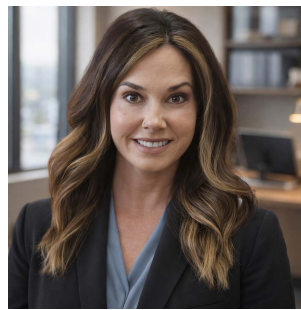
**Eduardo Montemayor**  
**Co-Founder / COO**

Eduardo has had over 40 years of experience working as Sales Manager, Operations Manager, and is the liaison between vendors, contractors, and production staff. He also has extensive experience in overseeing budgets, operations strategies, and coordination between departments. Eduardo is also involved with the design team for patent applications for desalination and carbon capture systems.



**Jacquie Gray**  
**Chief Security Officer**

Jacquie has had extensive experience in corporate security, executive protection, and other areas, following her time in the United States Air Force. She also does advance work, as well as coordinating meetings at customer sites. Jacquie also handles the activities for out-of-town guests. She is on the Logistics Team and works closely with Operations.



**Nellie Schuman**  
**Chief of Staff**

Nellie brings many years of experience in managing, planning, scheduling, and works with the CSO for advance work. She is also the Team Coordinator, and manages the day-to-day activities, and assists remote activity as needed. Nellie handles customer service needs, as well as being an executive assistant. She also oversees project activity and resource management.

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# Government Contacts

We have compiled an extremely focused and extensive database of government agencies, both federal and island commonwealth. These contacts will ensure that all aspects will be addressed properly and completely. We have been getting an absolutely fantastic response from so many of these individuals, and are glad that we can further ensure that our solutions will offer the highest level of energy security to the residents of Puerto Rico.

## U.S. Government

- U.S. Department of Energy
- U.S. Department of the Interior
- U.S. Environmental Protection Agency
- National Oceanic & Atmospheric Administration
- U.S. Army Corps of Engineers

## Commonwealth

- La Fortaleza (Office of the Governor of Puerto Rico)
- Puerto Rico Public-Private Partnerships Authority
- Caribbean Coastal Ocean Observing System
- Puerto Rico Electric Power Authority
- Oficina de Gerencia de Permisos (OGPe)
- Dept of Natural & Environmental Resources
- Sea Grant Puerto Rico
- Junta de Planificación
- Bureau for Emergency Management and Disaster Administration (NEAD)
- Puerto Rico Aqueduct & Sewer Authority
- Puerto Rico Energy Bureau
- Genera PR (Generation Operator - Legacy Assets)
- LUMA Energy (Transmission & Distribution)



### *“With a Little Help from Our Friends”*

We would like to extend our thanks to the numerous agencies that have been very open and helpful, and who we know share a strong hope and desire to finally see a sustainable solution to the serious crises that have impacted the people of Puerto Rico. We look forward to being able to be a part of that solution.

VanNatta Worldwide Ltd

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# Call to action

We hope you will join us as we undertake this extremely important activity. There is an old saying that: “Time is money.” We agree, but for a different direction. Too much time will have a negative impact on the island and its residents. This already frail system has had several notable outage events:

- ☺ Puerto Rico has suffered repeated large-scale outages, including the Costa Sur substation failure (Apr 6, 2022), a New Year’s Eve island-wide blackout (Dec 31, 2024), and an island-wide blackout (Apr 16, 2025).

The grid has seen devastation from numerous hurricanes, but some stand out as extremely high damage:

- ☺ Hurricanes Maria (2017) and Fiona (2022) caused island-wide power loss and long restoration tails; Maria is linked to ~2,975 to ~4,645 excess deaths—a stark reminder that outage costs are not only economic.

We are listing this information before the financial figures, because everyone should know, or be reminded of the huge loss of life. I was asked to give a Keynote Address at a recent conference in Puerto Rico. Several attendees came up afterwards asking about the cost of the equipment to do what is necessary, namely strengthening and undergrounding the power transmission lines, as well as housing the WtE facility in a building that can withstand a Category 5 hurricane. I told them that the up front cost to do all of that, could possibly be less than the financial cost of Hurricane Maria, which as previously stated was \$10 billion. A recent report showed that the total cost of outages can reach as much as **\$1 billion per day**.

So, the question is: “What is the cost of delay, inaction, or doing the wrong thing?” Just imagine that we could reduce or eliminate any deaths because of power outages. And what price do we put on human lives, or the non-financial impacts caused by these outages? This is your call to action... This is your chance to have a major impact on the lives of so many folks in Puerto Rico.



# What is the cost of delay?

The hardening, undergrounding, and strengthening of Puerto Rico's grid system can be done for a lower initial or up-front cost when compared with how much it costs to do repairs that only end up being a band aid process. The figures are staggering, especially when the *human dimension* and *community impact* are factored in. As you can see below, the cost of outages can be as much as \$1 billion per day, and that's in addition to the billions of dollars to fix the grid infrastructure.



Outage Duration	Territory-Wide Cost Estimate
1 day	\$1 billion
14 days	\$5 billion
30 days	\$29 billion



# Thank You!

Thank you for taking the time to learn more about this extremely important issue. With the three major crises facing Puerto Rico – dilapidated grid network system, sargassum invasion, and landfill/reclamation – we have a solution that can offer lower energy costs, environmentally friendly WtE processing, and energy security. For more information on all aspects of this program, please visit <https://VanNattaWorldwide.com/> and hit the PR link in the top right corner, where you can download a variety of booklets and documents.



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