



## **Sargasso (Sargassum)**



Vortex Energy Group LLC  
[www.VortexEnergyGroup.com](http://www.VortexEnergyGroup.com)

# Sargassum

An innovative solution  
for a menacing invasion



## *About our team*



**We are proud to offer more than a century of combined skill and expertise in business management, chemistry, advanced technology, and related fields.**

**We have developed an extremely efficient system for destroying a variety of waste materials, with a small footprint, and capable of producing significant volumes of clean energy without putting any harmful emissions into the atmosphere.**

**One important feature is our processing capacity. Depending on the model of vortex system, up to 8 tons per hour can be processed, or more than 190 tons per day can be destroyed in a single unit.**

**From the beginning, our goal was to create a technology so advanced in thermodynamics that it would be highly efficient, environmentally safe, and economically feasible for a true waste to energy process.**

Although it was first discovered in the early 1970s, the Sargasso Sea has been for the most part, a minor inconvenience. But, in 2011, and again in 2015 and for each year since, the sargassum has been invading the shorelines of virtually every beach in the Caribbean. Now a massive blob is taking aim at Florida.

This menacing invasion has been creating ecological and financial problems at an alarmingly increasing rate. The problem has grown to a level that Barbados declared a State of Emergency in June of 2018 and it continues.



***Sargassum is creating a natural disaster***



# ***Current solutions are falling short***

From recent discussions with various officials and involved parties, it appears that no true solution has been offered that will properly collect and then dispose of this menacing seaweed.

Some efforts have proven successful for removing the sargassum from the beaches and shorelines, but have failed when attempting to fully destroy or dispose of the material.

Other efforts have failed from the very beginning of the attempts to prevent the seaweed from gathering and mounding on the beaches.



***As reported on Sunday, Sept. 2, 2018 a project in Cancun that cost the government 11 million pesos (\$577,000 USD), failed in less than a week. The total government expenditure for all tests has reached a staggering 240 million pesos (\$12.6 million USD), with no resulting solution.***

## ***The devastating impact is felt throughout the region***

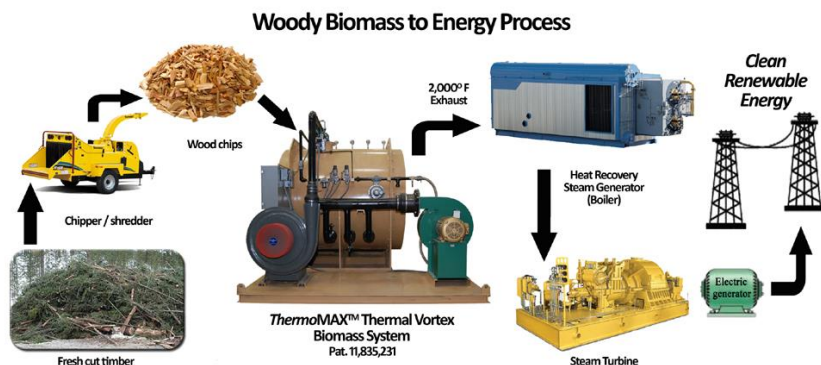
From the beaches of South Florida, to Galveston, Texas in the Gulf Coast, to the Riviera Maya, and south to Belize, and to Jamaica, Antigua, and Barbados, plus many other small islands, beaches, and shorelines throughout the region... sargassum has had a dramatic and damaging impact ecologically, and financially.

Hotel and resort owners, as well as local governments, are forced to spend tremendous amounts of money to battle this invasion from this now fast spreading menace.

This natural disaster isn't just hurting the more popular destinations, but has actually hit hard with smaller islands, communities, and countries that may not have the financial resources to handle this problem.



As part of our solution, we are also announcing the creation of a consortium of government agencies, private companies, and local residents to ensure everyone in the region will have the opportunity to participate in the process to eliminate this menace.



## ***Our solution***

Sargassum is very similar in its chemical makeup to many other types of agricultural waste materials, such as sugar cane, corn crop residues, and even woody biomass.

For this reason, we are proposing the use of a biomass thermal waste destruction method, that in turn can be combined with energy recovery systems to produce significant volumes of clean, renewable energy.

This is the oldest, most efficient, and lowest cost method of eliminating waste, and producing renewable energy.



# ***Benefits and Value of this solution***

This solution offers many benefits:

- Prevents odors and stench from decay and rotting seaweed and marine life
- Quickly destroys the sargassum, without need for drying and decomposition
- Eliminates the use of a landfill that will foul up the air, and allow for contamination of ground water
- Capable of integrating with energy recovery equipment to produce significant volumes of clean, renewable energy
- Can also process other types of waste materials, including municipal solid waste, commercial waste, medical waste, even scrap tires
- Creates a significant and sustainable revenue stream



**syn·er·gy** /'sinərjē/ *noun*

***the interaction or cooperation of two or more organizations, substances, or other agents to produce a combined effect greater than the sum of their separate effects.***

**Anything can be accomplished more successfully if approaching it as a team. Our solution will be the most effective method of fully destroying this menace, while allowing for a sustainable means of generating revenue from the energy generated.**

**It's a real possibility to have sargassum-free beaches, more tourists, and an abundance of clean, renewable energy.**



***Let us help you save your Paradise!***

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**Proposed structure  
for the establishment of a  
consortium to address  
the wide-spread impact  
of sargassum in the  
Caribbean and Gulf Coast**

**by  
Jim VanNatta  
Vortex Energy Group LLC**





# Why a consortium?

In every aspect of our existence, it has been proven that teamwork provides the most successful results and outcomes. We firmly believe that by putting a group together that is made up of a variety of people, companies, governmental agencies, and other organizations, we will be able to take advantage of the latest technologies, ideas, services, and resources.

**con·sor·ti·um** /kən'sôrSH(ē)əm/ *noun*

1. an association, typically of several business companies, agencies, individuals, or groups.  
*synonyms:* association, alliance, coalition, union, league, guild, syndicate, federation, confederation, confederacy, conglomerate, cooperative, combine, partnership, affiliation, organization; club, society, congress

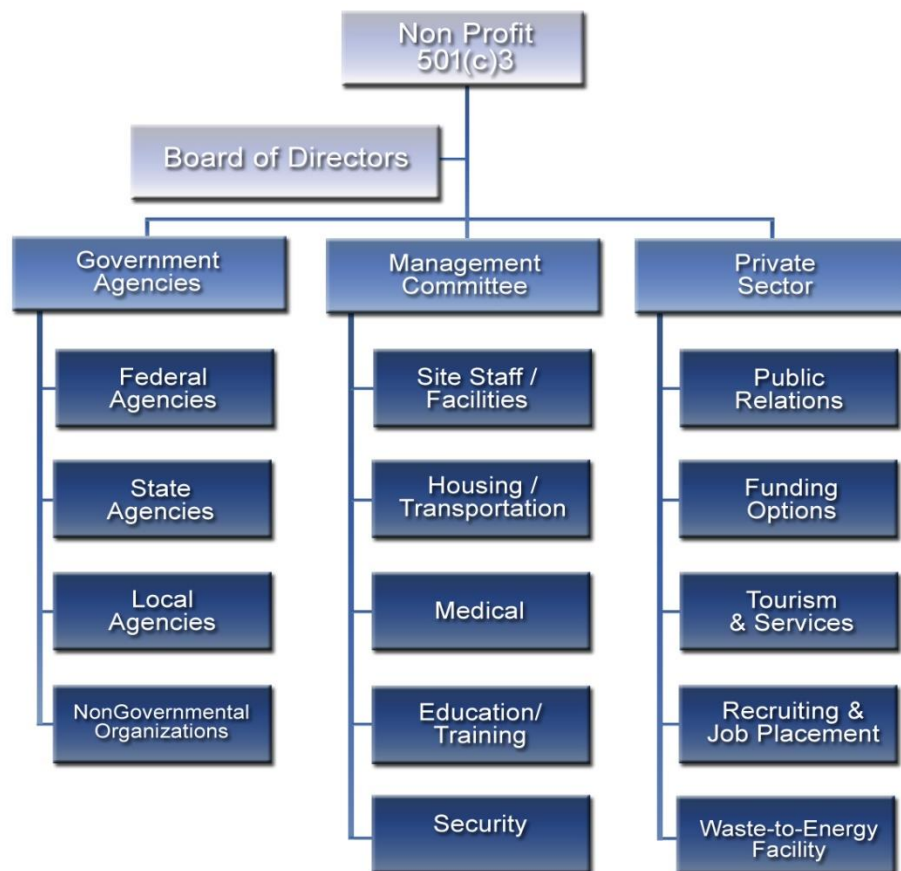
## ***So, what exactly is the purpose of a consortium?***

We have all seen recently how focusing on one aspect of an overall problem will result in failure. With the failed attempt in Playa del Carmen, Playa Caribe, and other coastal areas in Quintana Roo, to put up barriers that supposedly would prevent the sargassum from reaching the shores, we are aware of the immediate need to find a solution. The problem that is presented now, is the potential distrust for any company that comes in and offers a new “solution.” That is why we feel it is imperative to create an organization, partnership, or a team, that would be able to provide the best solution in the shortest timeframe, and at the lowest cost. Working together and taking advantage of a variety of resources as well as subject-matter experts, will offer an advantage long term.

We are proposing a group that will be made up of governmental agencies at the various levels, non-governmental organizations (NGOs), and of course the private sector. We can establish the protocols that would ensure every nation, state, community, and all those impacted by this invading menace, would have a voice in how to proceed. Naturally, this consortium will require a structure to include management and appropriate personnel that would be able to help lead the group into the right direction. That is where the Management Committee would come into the picture. This Committee would be made up of representatives from the various participating groups, and would be overseen by a Board of Directors, pulled from the top-level participants and founders. Since we are recommending that this consortium be established similar to a non-profit organization or foundation, there would be no need to have concerns from any one group or individual overstepping their authority to take advantage of the efforts of the program.

## **VALUE AND BENEFIT OF A CONSORTIUM:**

- Volume in numbers (for potential purchasing benefits)
- Inclusive nature ensures a wide-ranging set of ideas, backgrounds, and resources
- Ability to offer assistance and activities to smaller islands, nations, or locales
- Chance to spread the benefits of the solution throughout the region quicker
- Ensures that no group will do too much, or that any group in need of assistance will be left out



## The Process

Since the sargassum is very similar in its chemical makeup of other waste materials, namely agricultural wastes and residues such as corn crops, sugar cane, and even woody biomass, this material can easily be included along with other waste materials, or depending on the potential volume, stand alone as a fuel source. In research, we have found articles from a few years ago, in which it was suggested that this sargassum could undergo several stages of washing, drying, and compacting.

With our overall proposed strategy, none of that would be necessary. The following is a detailed description of the process, from collection to destruction. As you will see, this is a very straightforward approach, and offers an uncomplicated method for managing the sargassum.

### ***Collection:***

The first step in the process is of course, collection or harvesting of the sargassum seaweed. Many attempts have been made to find ways to prevent it from reaching the shoreline, but that may only have limited success if the collection process occurs further away from the shoreline. Whether it's collected offshore, or directly from the beaches, it will need to be removed to a location for disposal.



The photos show one of the methods, which may be the most efficient for long term operations. Once the initial volume of sargassum is collected, the beaches could be raked each day as needed, making the collection more manageable. Some areas will not be smooth, sandy beaches, but could be rocky shorelines, that will have to have other methods for removal. This again is one of the advantages of the consortium, in that a variety of technologies and services are made available.

### ***Transportation:***

Naturally, the sargassum that is collected from the beaches, or further away from shore, will need to be transported to a location for disposal. From our research, we have discovered proposals to use landfills, which unfortunately will become large, foul-smelling compost heaps, as the sargassum continues to decay, along with the remains of entangled marine life, as well as turtle eggs (turtles find the sargassum a nice nesting place). As with any decaying or composting mound of organic material, these landfills will not only fill the air with the stench, but over time will contaminate the ground water, which could have



an impact on neighboring communities. We are proposing that this material be transported to a facility to process and destroy it in an eco-friendly method.

***Disposal:***

The disposal process will occur in a few short steps –

1. We will do a pre-sort, to ensure that glass, metals, and other materials are removed. The thermal vortex system we will propose, can easily handle this non-combustible material through a cyclone separator as part of the process, but we would prefer to remove anything that has no thermal value prior to insertion into the chamber.
2. In a similar process as is done with landfill reclamation, portions of the conveyor system will act like a “shaker” and remove any of the dirt or sand that is still clinging to the sargassum. This also ensures a more efficient combustion process, and the sand can be collected and easily returned to the beach.
3. The material would go through a quick drying process, while it is en route to the vortex chamber. Our technology can take up to a 49% moisture content, but we suggest attempting to dry the sargassum for more efficient results. Depending on the exact composition of the sargassum material, a small shredding device may be included to reduce the size of the material.
4. The sargassum enters the chamber, where it will be entrained in the 90 mph vortex, burning in full suspension at 2,000° F, with no harmful emissions entering the atmosphere.

This system will destroy 99.998% of the combustible material, leaving no ash residue behind, or having any fly ash enter the atmosphere. The byproduct of this technology is super-heated exhaust, which can be used in conjunction with energy recovery equipment to generate clean, renewable energy.

## **Funding**

Funding for this program will come from several sources, but not limited to:

- Private donations to the non-profit that are tax deductible (based on applicable international finance law)
- Crowdfunding programs, such as setting up a GoFundMe page
- Grants from government agencies, and from private sources
- Establishment of a “Tourist Tax” on all tourists entering any of the included areas
- Fund raising

There is also a unique feature to our proposal... the ability to recoup any initial costs, and to create a sustainable and ongoing revenue stream by processing the collected sargassum and turning it into clean, renewable energy. No other solution, offered or attempted, offers the sizable potential to gain a revenue from the eradication of this menacing seaweed.

## COLLECTING AND PROCESSING SARGASSO



**Barber 600HD™**

**NOTE:** The Barber Surf Rake series of products are the most efficient method of removing sargasso from the beach.



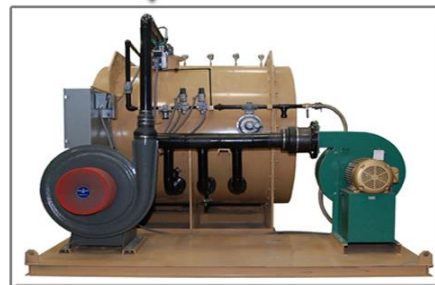
**Industrial Centrifuge**

**NOTE:** A simple process of spinning the sargasso in a large drum will separate the sand from the sargasso, and be returned to the beach.



**SSI DualShear m55™**

**NOTE:** Using a shredder will remove most moisture, and reduce the volume of the sargasso by as much as 89%.



**ThermoMAX3™**

**NOTE:** This vortex technology can destroy the sargasso, and when energy recovery systems are added, can produce clean, renewable energy.

## Summary

The invasion of the sargassum seaweed has been increasing year after year since it first became an issue in 2011, and then again in 2015. While the past few years have seen milder than expected volumes of sargassum reaching shores, it is still a major issue to collect and then properly destroy the seaweed. In early March of 2023, there was breaking news that a massive bloom (also known as a "blob") of the brown seaweed was headed for the shores of Florida. This blob is said to be nearly 5,000 miles wide, almost twice as wide as the United States. In past years there have been many attempts to stop it from reaching the shore, but those efforts have failed. In all of this, there has been an increasing distrust from the so-called experts, and the solutions they have attempted. These failures have come at a very high cost, that may not have a chance to ever be recouped, and is money down the drain.

Our suggestion of creating a broad-based consortium, made up of representatives from various governmental agencies, non-governmental organizations, and the private sector, is being done in the hopes that by having a teamwork approach to this issue, a true and sustainable solution will arise.

For our part, and armed with the knowledge that the expenditure for the failed resolutions to date will never be paid back, we are offering for our system, to buy back the unit if it fails to perform exactly as we are promising. Our technology is not very complicated, and with sargassum being similar in chemical makeup as agricultural waste, and even woody biomass, it should be obvious how destroying this material at such high temperatures, and with an extremely high level of turbulence, would be relatively simple.

We believe that in combining forces with others who are able to offer beneficial resources and services, the sargassum issue will become nothing more than a simple daily maintenance process, with an opportunity to turn this invading menace into a source of revenue.

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Countries impacted by sargassum (sargasso) include numerous Caribbean nations, parts of the Gulf of Mexico, and the eastern coast of the United States. Notably affected countries include:

1. **Mexico** - Particularly the Riviera Maya, including Cancun, Playa del Carmen, and Tulum.
2. **United States** - Especially Florida.
3. **Dominican Republic**
4. **Puerto Rico**
5. **Barbados**
6. **Belize**
7. **Jamaica**
8. **Trinidad and Tobago**
9. **Antigua and Barbuda**
10. **St. Kitts and Nevis**
11. **St. Lucia**
12. **St. Vincent and the Grenadines**
13. **Grenada**
14. **Martinique**
15. **Guadeloupe**
16. **Haiti**
17. **Cuba**

These regions face severe environmental, economic, and health challenges due to the sargassum influx, affecting tourism, fishing, and coastal ecosystems.

For further details and updates on sargassum monitoring, you can visit several websites involved in monitoring and providing information on sargassum:

- **Sargassum Monitoring:** [sargassummonitoring.com](http://sargassummonitoring.com)
- **Caribbean Coastal Ocean Observing System (CARICOOS):** [caricoos.org](http://caricoos.org)
- **Sargassum Watch System (SAWS)** by the University of South Florida: [optics.marine.usf.edu](http://optics.marine.usf.edu)
- **NOAA CoastWatch:** [cwcgom.aoml.noaa.gov](http://cwcgom.aoml.noaa.gov)
- **FAO's Climate Change Adaptation in the Eastern Caribbean Fisheries Sector Project (CC4FISH):** [fao.org](http://fao.org)

These platforms offer detailed maps, forecasts, and other resources to help manage and mitigate the impact of sargassum in affected areas.