# EGG Algae to H2 Power Plants

-RED SUN Hydrogen Revolution

-EGG Algae to H2

5c/kWh Charging

98% eff. Induction Charging

***RED SUN* Hybrid Thermoelectric Ships & Yachts & Trains**

## RED SUN PANAMA

**Algae Collection in Mexico with 150 MW Power Generation in Colon Panama**

Www.originclear.com/ Www.max-mesh.com/

www.Fibonaccimotors.com/

Www.inductotherm.com

**H2 Power Recharge 32 MW RED SUN**

~Collect Sargassum From Cancun Mexico,

~Dry & Pyrolyze with Cancun EGG Algae~

to H2 System to charge Thermal Batteries

~Transport 1759 mi with InterAmericano 42hr

32 MW RED SUN Thermal Batteries,

Colon Panama

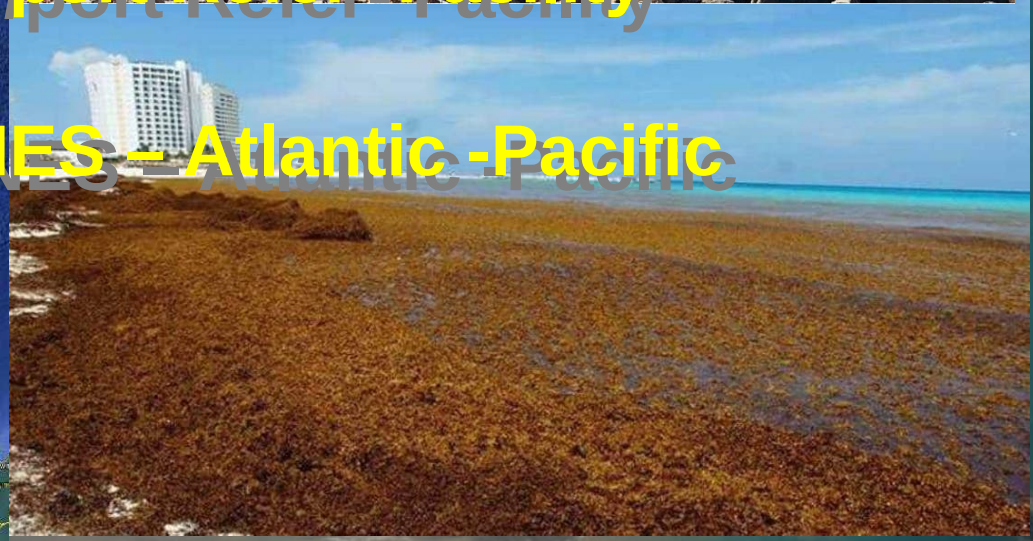
~run 150 MW RED SUN Power Plant

~350,000 MT of ice/year

~Refrigerated Transport

~Colon 4,000 m² train/port Refer- Facility





~PANAMA RED SUN LINES – Atlantic -Pacific

Primary Goal~150 MW in Colon +Train system
Refer & Ice + Hybrid Elec Train to transport
RED SUN thermal batteries & Cargo

Mag Gas Plasma ~ 200~700 bar

# RED SUN RAIL LINES ~

~47 miles from Atlantic to Pacific
for cargo (for off-loading ships at Panama Canal)
~350,000 tons Ice/year
~Refrigerated Transport
~1759 mi to Cancun from Colon

Network of Trains & Ships

Connect to RED SUN FERRY LINES

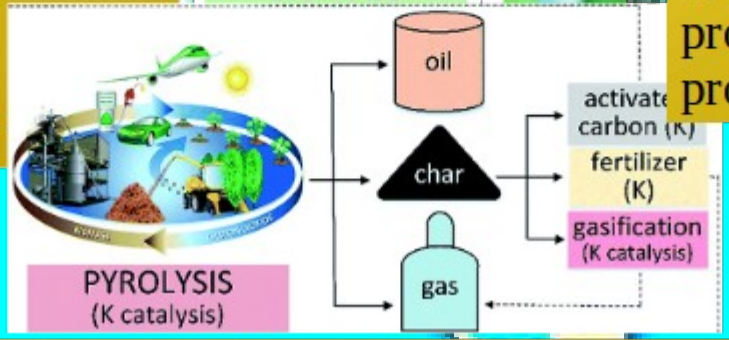


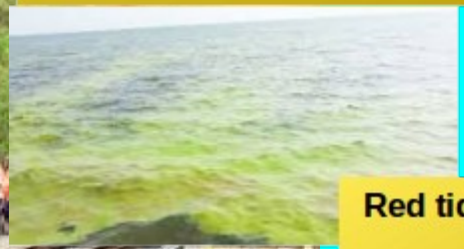
# EGG Algae to H2 Pyrolysis Plants ~18 Tons H2/day = 420.000 Mwh/year ~ 5 ha site with RED SUN kilns

**EGG Algae -To Hydrogen Systems 18 tons H2/day works with Native or Lab Algae**

In steam gasification of algal biomass, the use of catalysts enhanced both tar degradation and hydrogen production via water-shift reaction. In catalytic gasification, tar removal efficiency varied from 80 to 100%. + catalytic activity of catalysts was in the order Fe2O3–CeO2 > RM > ARM in terms of H2 production. The H2 yield of seaweeds was


higher than that of microalgae. Different amounts of inorganics between seaweeds and microalgae resulted in the different gas yields. The results obtained in this study could indicate that steam gasification of algae for hydrogen production is promising.



**Red tides can be filtered/collected/thickened/dried and Pyrolyzed to H2 Safely removing them.**

**EGG Algae -To Hydrogen Systems 18 tons H2/day works with Brown & Red Algae - Sargassum, Native blue green or Lab-grown Algae Fuel**

**Above -For most business owners and Kep residents, the strange color of the sea was not the main problem. The algae bloom sucked the oxygen out of water, causing hundreds of fish to die and wash ashore in Kep. "What affected us most was the smell," said Mr. Weenink. "It was a mixture of dead fish and rotten seaweed."**

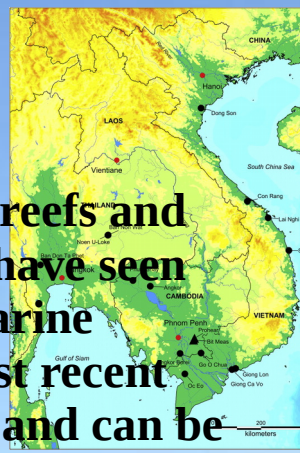
## EGG Algae~H2 System 18 tons H2 per day prod 420,000 MWh/year



**Featuring Proprietary Puri-Stat Collection & H2 catalyst that Regenerates 1000's of times!**


**Right - Sargassum Sea Weed Invasion of Mexico & Caribbean Turned to H2 by High Temperature 2 stage Catalytic Pyrolysis**

# EGG Algae -To Hydrogen Systems 18 tons H2/day works with Brown & Red Algae - Sargassum, Native blue green or Lab grown Algae Fuel




We have just seen a total collapse of the close inshore areas (200m-300m from the shoreline) in Kep Province, An Algae bloom created a green tide killing all the marine life within its reaches and turning the whole of Kep's mainland coastline into a foul smelling mess of green death for a period of around 3 days.

So we would like to put it out there for Local and National Authorities our honest opinion based on good scientific evidence, and utilising previous studies and accepted theories of why this happens and why this happened now here in Kep, considering natural climate related factors such as temperature are not abnormal for this time of year. The Species of Zoo Plankton involved is Noctiluca_scintillans and a good source of information on other Algae blooms can be found here harmful algae blooms . With the number of harmful algal blooms around the world increasing in frequency and size over the last 40 years, especially in regions with large increases in coastal populations and over fishing, we feel that the human factors/stressors should be carefully studied and addressed

Over the past three years we have research Kep's reefs and Seagrass beds, and as recorded in our reports we have seen serious declines in health of almost all of Kep's marine habitats due to numerous human factors. Our most recent Zoning report covers many aspects related to this and can be found here 31-stage-1-draft-zoning-plan-for-kep.

So here is a summery of those human factors/causes, impacts and stressors that we strongly believe have led to this current event and need to be addressed urgently.

This natural blooming event happens more than once per year in Kep and usually has no negative effects, it is actually a good natural food source and natural part of the food chain that is usually beneficial to the Eco system, but as the Eco system here is close to collapse due to overfishing, excessive illegal bottom trawling and electrified fishing gear this one had a very negative impact and turned into the classic green sludge bloom that is a danger to both people and marine life

These trawling boats also kills huge swathes of Zoo Plankton along with every thing else in their path, this can not continue as this is one of the main factors in the recent collapse..

# EGG Algae~H2 System

disturbed by many factors that I shall list below.

1. lack of predators juvenile fish and other marine life which usually consume these blooms which have happened. A very good article on trophic cascading and the link between over fishing, destructive fishing and Algae Blooms can be found here Trophic Cascading and Algae Blooms and you can also read this scientific study on overfishing and its link to Algae Blooms here Over Fishing Linked To Algae Blooms.

Seagrass Destroyed by TrawlersDead Seagrass After Trawling

2. Excessive nutrients in the water due to large amounts of decomposing Seagrass caused by illegal trawling in the Seagrass areas.

Decaying seagrass fuels increasing algal blooms. This can cause a complete regime shift from seagrass to algal dominance. Accumulating evidence also suggests that overfishing of top predators (large predatory fish) could indirectly increase algal growth by reducing grazing control performed by mesograzers, such as crustaceans and gastropods, through a trophic cascade.


1) Hydro-jector vacuumes algae onto barge

Illegal Trawlers

3. Bottom trawling - dragging nets across the sea floor to scoop up fish - stirs up the sediment lying on the seabed, displaces or harms some marine species, causes pollutants to mix into plankton and move into the food chain and creates harmful algae blooms or oxygen-deficient dead zones. References here Trawling is Destroying Our Oceans

4. When alive this plankton creates a normal amount of ammonia whilst feeding on phytoplankton, as this natural and non harmful bloom reached Kep it encountered many trawling boats running electric currents through the water column, this electricity killed it in large numbers, resulting in the pasty green sludge washing up in turn the mass deaths caused a spike in ammonia resulting in the marine life deaths

5. Water temperature, but this is a normal occurrence that within a healthy ecosystem would not result in the current situation.

We believe the largest contributing factor is excessive nutrient from decomposing Seagrass of which there has been days recently when it's a meter deep washing up on surrounding beaches, and the large number of electric trawlers working in the areas between the islands and the mainland.

# Filtering the Water- Proprietary

## EGG Puri-Stat - *turns algae into bricks easily!*

**2. PURI-STAT to thicken into bricks for drying**

Filtering–Thickenin
Clarification–
Addendum
Additions–

3.5 MM gallons/day

98% energy efficienc

works by gravity–

Works in combination

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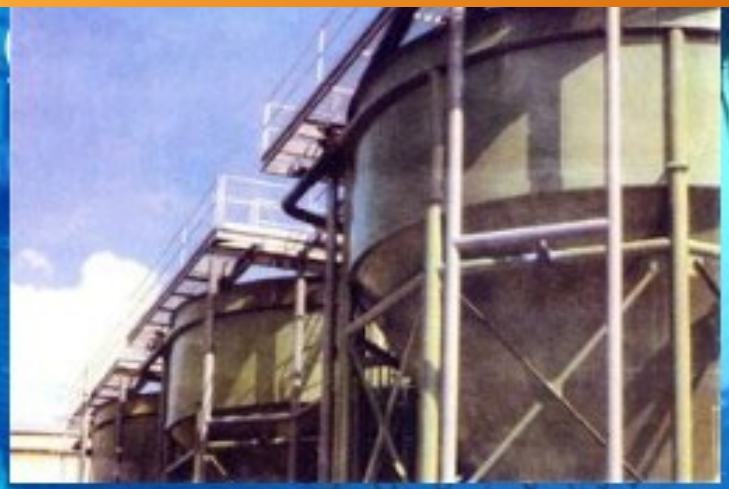
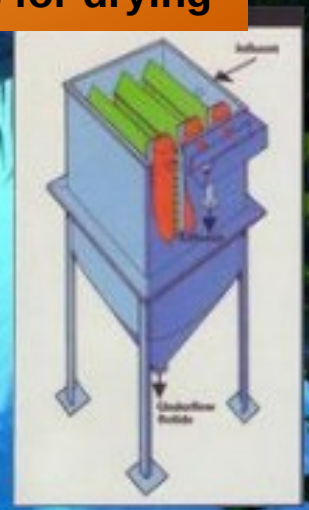
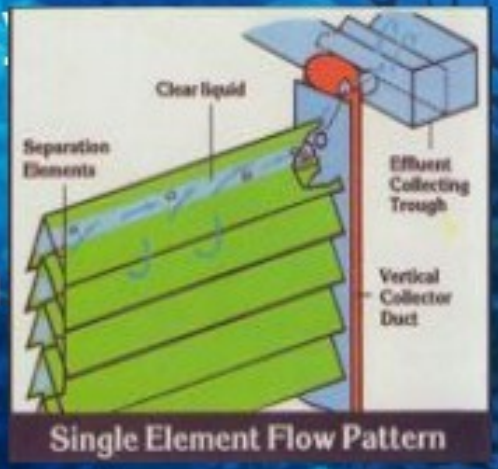
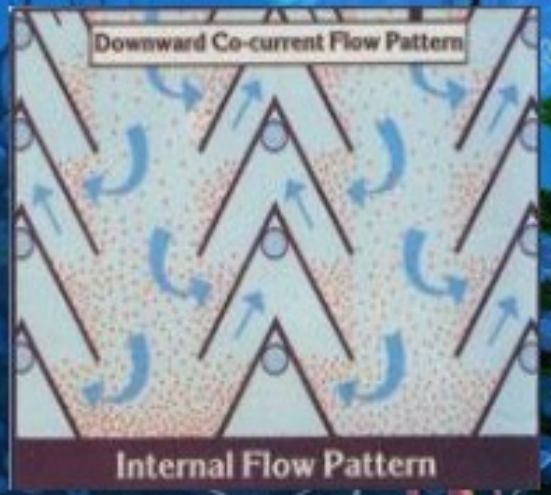




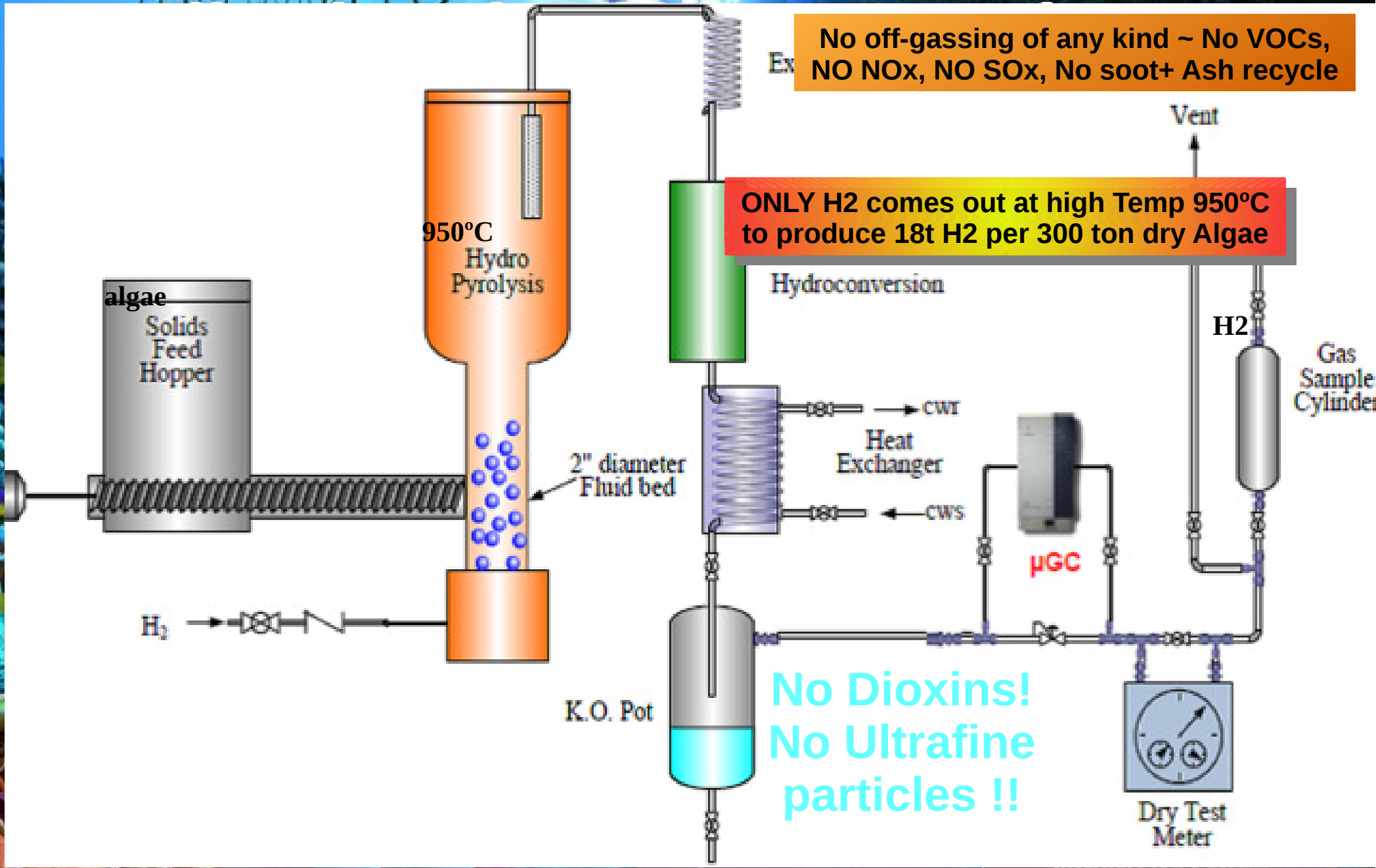


Single Element Flow Pattern



Internal Flow Pattern

**3) Algae Bricks are dried in sun and final drying in RED SUN 1000ºC kilns & Ovens**




www.originclear.com

4) Pelletized dry algae fed in high Temp. 950ºC 2-stage Fast Pyrolysis to make H2

# H2 & MAG POWER Electric Tram ~ Catenary System

**No Wires or Catenary System Needed ~ H2 & MAG GAS Charging onboard +thermal batteries = 1400 km range-save $18m/mile**

- **H2 & MAG POWER Tram runs without fuel**
  - –HEALTHY
  - –ENERGY-EFFICIENT
  - –SAFE
  - –LOW-COST – ULR
  - –ECONOMICAL
  - –FLEXIBLE – ULR
  - –ATTRACTIVE
  - –PASSENGER-FRIENDLY
  - –PEDESTRIAN-FRIENDLY
  - –VERSATILE
  - –PUBLIC FUNDING
  - –H2 & MAG POWER brings the HYDROGEN ECONOMY to Thailand to enable transport!

**H2 & MAG POWER Gas Re-charging & gensets**

**3.2 ~ 32 MW Thermal Battery enables Hydrogen**

**Charging with 98% efficiency**

*MAG POWER* Thermal Energy Storage to power industry with Compressed Air & Steam Power Plants 9,600 BTUs/kWh at 63% Efficiency

# RED SUN Hydrogen Charging Systems:

## H2 stored as heat in 32 MW Thermal Battery

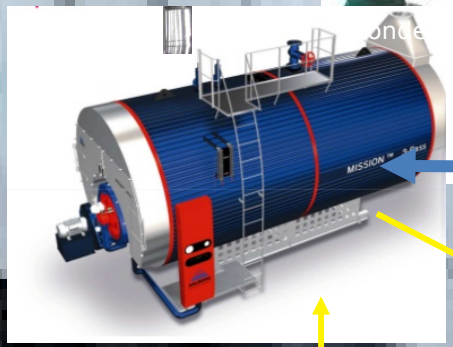
*Electrical Induction Charger (Power from the Grid)*

Direct Condensing Low Pressure Turbine Generator

Stage 2

Cooling Tower

Steam Generator

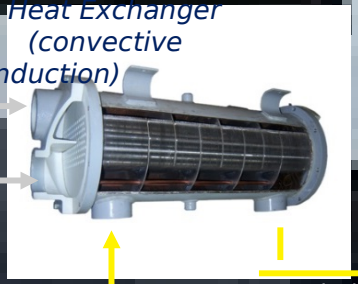


Cooling Water Pump

Condensor Pump

* *High temperature* *Induction* (1700-1800 oC)

* *Heat Exchanger (convective induction)*

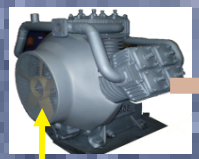


*Phase Changing Metal Thermal Energy Accumulator (Phase Changing Copper & Nickel Alloys)*

Super Heated Air Compressor at 1100 oC

Compressed Air

Mechanical Link



Stage 1

Air Accumulators

# RED SUN & MAG GAS H2 Platform


## 1400 km Range Per Charge – 64 MW on Budd Car

# 32 MW RED SUN 29t transferred 1759 mi~42hr via Interamericana Cancun to Colon Panama

X~Cancun
Pyrolysis
Units Charge
Batteries


Sargassum route
Sargassum seaweed makes a long journey from its origin to Florida's shores, but once it hits the Gulf Stream, it's a quick trip up the coast.
1. Large slicks of seaweed leave the Sargasso Sea heading south.
2. The Sargassum enters into the Gulf of Mexico through the Yucatan Strait
3. Sargassum can travel straight, hitting Texas, go right toward Florida or get caught in an eddy.
4. Once into the Gulf Stream, the seaweed can travel quickly up the north coast. East winds will push it onto Florida beaches.
Atlantic Ocean
SARGASSO SEA
GA
TX
FL
Houston
New Orleans
West Palm Beach
Miami
Brownsville
THE BAHAMAS
CUBA
HAITI
DOM. REP.
P.R.
JAM.
Gulf of Mexico
Yucatan Strait
Tampico
Mexico City
MEXICO
BELIZE
GUAT.
HOND.
NIC.
Caribbean Sea
Pacific Ocean
VENEZUELA


H2 Power Plants
Hydrogen Economy
RED SUN 32 MW Thermal Battery
Natural gas pipeline
Hydrogen pipeline
Blended gas pipeline
Residential gas customers
Hydrogen production
Underground storage
CO2 pipeline
Industrial gas customers
Electrolyser
RED SUN
TOP DOWN ENERGY
H2 Power Plants ~ 5 cents per kWh Charging
GAS - Bus, Ferry & Train Lines

## Engineering Team

Dan Winter – Chief Electrical Eng.
Www.fractalfield.com Www.theimploder.com
Paul Harris- Electrical Engineer
Mert Pekrul – Chief Mech Engineer
Engine/turbine Manufacturing chief
Www.fibonaccimotors.com
Dr Jack Wong – Prof. Civil Engineer
Mark Rohrbough – Electronics Eng.
Dr Andrejs Zagars – Prof. of Chem/
Elizabeth Donavan – Chemical Engineer
Jay Dubinsky – Mgr Engineer/Pres.

## Administration

Jay Dubinsky –Pres/Mgr Eng
Dan Winter - Chief Elec Eng
Jack Wong – Civil Eng
Chem Eng~ Andrejs Zagars – /QC
Marketing~ Dr Peter Degano
Lawyer~ Alex Pauron

# RED SUN + H2 Power

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Www.theraphi.net www.theimploder.com www.max-mesh.com
www.eneergime.com


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**RED SUN Non-Combustion Brayton Cycle & Diesel Retrofits ¬ 20 to 1,000 MW Power Plants Ship & Stationary Power Plants & Bus, Yacht, Train Retrofit All Turbine Power Systems**