

50 MW Salt Battery – 150 Wh. per Kilogram

Lithium Battery – 270 Wh. Per Kilogram

RedStar's Red Sun Thermal Battery Generator 2000 – Wh Hours per Kilogram with Steam Generator

18 Cubic Meter, 26 Tons - Transportable by truck ship and other locomotives in 20 foot Container

**Redstar Energime Green**

**Group AHR 5.2 MW & 2 Opra 2.6 MW Hydrogen turbine Cogen Together 48% eff./**

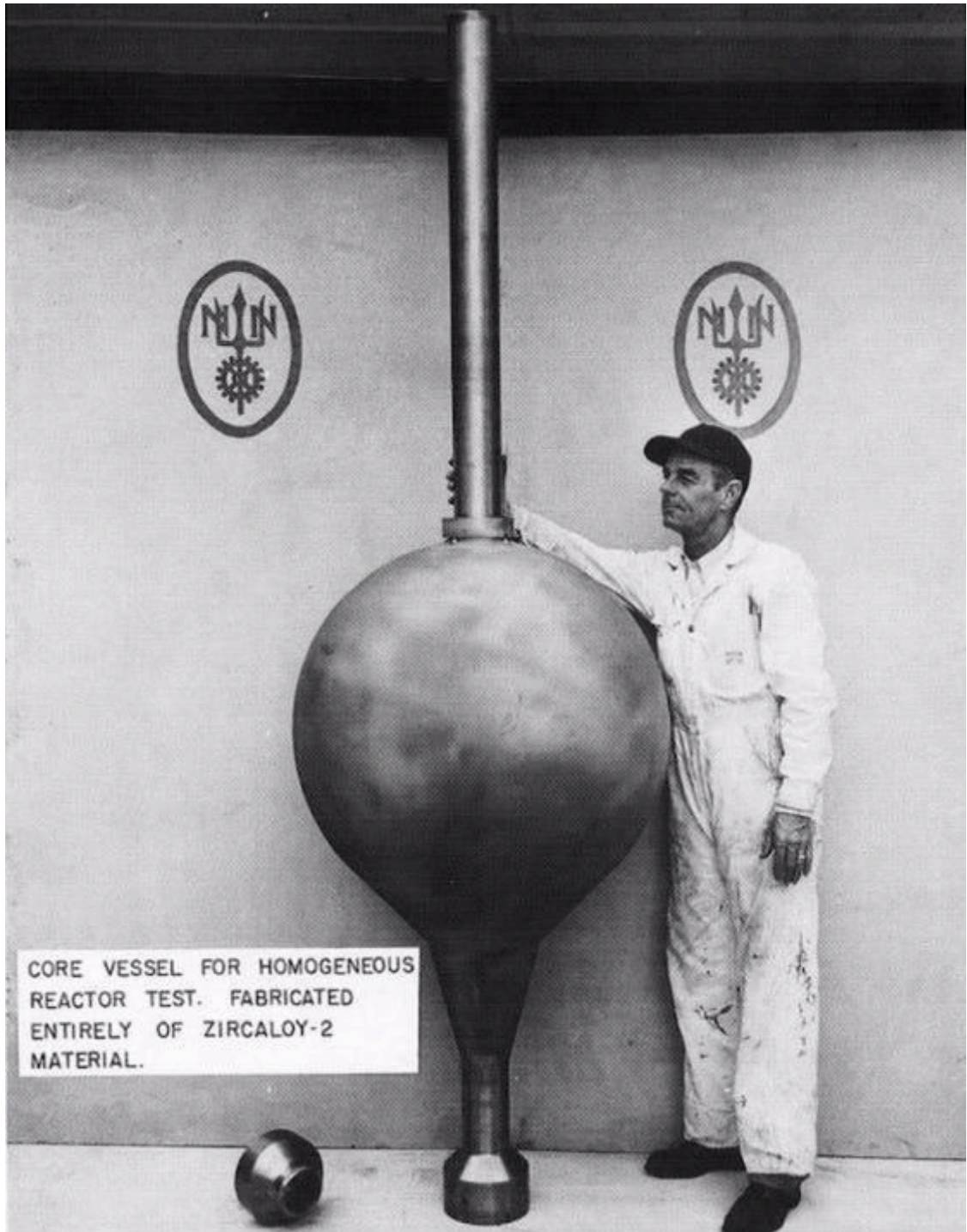


**65% Duel Steam Cycle**

**REDSTAR** patented Ni- Fe alloy phase change mobile thermal batteries running diesels and 2.6 MW turbines and has perfected and develops patented zero emission thermal **Non- Combustion Brayton Cycle** turbines- running directly by 1800°C mobile thermal battery systems hold 120,000 kWh per charge in 7 ton battery 5.5 m3; and; replaces fuel with carbon fiber pipe and geat exchanger at 1400°C in combustion chamber run engines with fuelless non- intermittent baseload power and have successfully tested at:

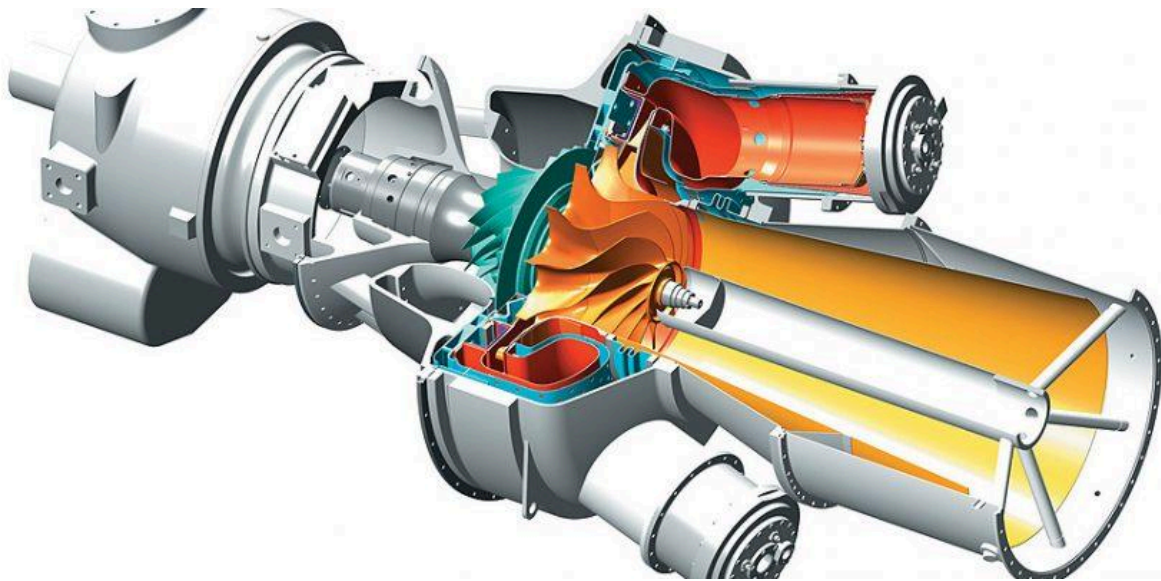
- **Rolls Royce, Pratt & Whitney 2.5 MW**
- **MAN, CUMMINS WARTSILA, SULZER, VW, PORSCHE BIXTER 275 HP, KAWASAKI, ISUZU, SIEMENS & GE**
- hydrogen engine tech as co- creators of Mazda hydrogen ceramic Rx -8, and 1500°C battery to Turbine combustion chamber heat exchanger *Heatex* heat pipe manufactures and services state-of-the-art gas hydrogen engine Rx-8. Plus,turbine systems, and is headquartered in Metro Manila. Our advanced hydrogen and 1800°C thermal battery runs all turbine technology at higher 1400°C and gets 20% more efficiency snd 50 % longer turbine life with pure heat driven patented **Non -Combustion Brayton Cycle**, with insurance by **Llyod's Syndicate**.

- New 720 kW to 1.3 MW



**4 x (\$2 M) Aqueous Homogenous Reactors = 5.2 MW**

<https://youtube.com/watch?v=wFNEa8-vdjM&feature=shared>



**OPRA OP16 Hydrogen Gas Turbine** into a masterpiece of technology allowing us to serve global markets with clean, distributed energy solutions. Setting the standard in terms of availability, reliability and low maintenance costs, OPRA OP16 Gas Turbines allow for very cost-effective 'always-on' generation of electricity and heat. Thanks to its unique combustion technology, OPRA OP16 Gas Turbines can even turn dirty fuel gas that would otherwise be flared, vented, or simply wasted into green power and clean exhaust gas. We are convinced that our gas turbine systems will continue to be a structural component of tomorrow's green energy landscape, and drive the world's energy transition.

## ***Opra Values***

### **Excellence**

We focus on delivering world-class quality and reliability. Aiming for First-Time-Right, excellence is a key part of our company culture enabling us to consistently meet our customers' requirements.

### **Customer Focus**

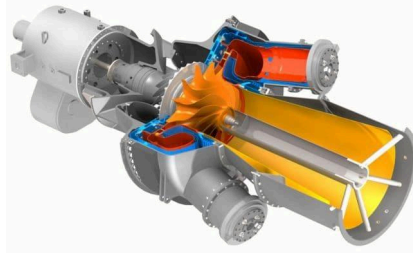
Our customers come first. We strive to establish open communication and flexible service. This supports us in building long-lasting and trusting relationships with our customers.

### **Pride and ownership**

Passionate leadership and initiative with positive attitude yield the required accountability. We encourage initiative and are proud to take responsibility and leadership in our work.

### **Team Spirit**

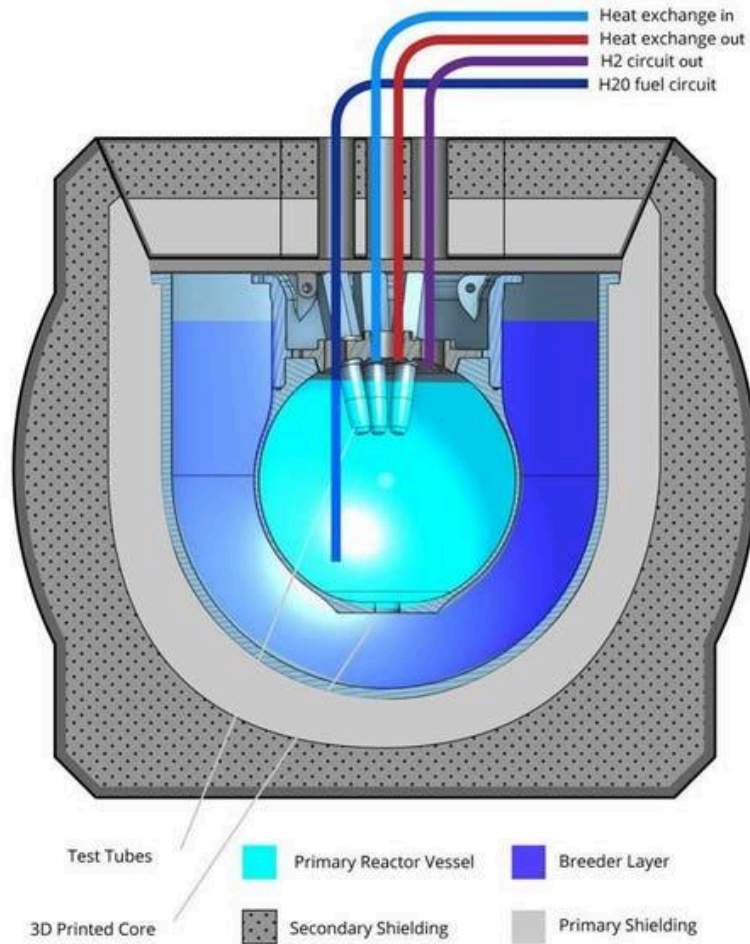
Together we are better. We work as one team with a common goal of satisfying our customer's needs. Maintaining a positive and collaborative attitude contributes to our stimulating work environment.



**Innovation** : We create solutions for today's and tomorrow's energy demands. Designing beyond imagination, creativity and thinking outside the box empowers our employees to deliver world-class technology.

**[Aqueous Homogeneous Reactor - AHR](#)**





+

### Red Sun Mobile Thermal Battery

<https://www.youtube.com/watch?v=dEUxEZ2sfUM>

Retrofitting a Molten Salt reactor on the deck of any ships can be implemented putting the RedStar's Red Sun Thermal Generator in the Engine Room connecting the MSR with the engine by a simple power cable, thereby the fuel cost could be zero. Lloyd's insurance is available with full financing package.

Detailed description: This block contains a composite image. On the left is a schematic diagram of a Molten Salt Reactor (MSR) system with a person for scale. The diagram shows a primary loop at 0.5 bar and a secondary loop at 2.5 bar operating pressure. In the center is a photograph of a grey naval ship at sea. On the right is a photograph of a white cylindrical thermal battery unit with various pipes and a control panel.

### Two OP216 Turbines = 5.2 MW

Destinus Energy (formerly OPRA) was founded by Jan and Hiroko Mowill in 1991. Jan Mowill had previously led the gas turbine division at a major Norwegian industrial conglomerate where he developed and commercialized the world's first radial gas turbine engine for industrial applications in 1964. Upon the establishment of OPRA (Optimal Radial Turbine), Jan and his team worked tirelessly to develop and engineer the OPRA

OP16 Gas Turbine. By 1994 the original ultra low-emission combustor was already developed and patented as a result of successful testing. By 2003 the low-emission can combustion development had started. After a successful demonstration of the OPRA OP16 in RuhrGas (Dorsten, Germany), OPRA sold its first commercialized OPRA OP16 Gas Turbine Package in 2005. Destinus Energy continues to drive the world's energy transition with over 140 gas turbine generator sets world-wide, accumulating over 2 million operating hours. Since August 2017, Opra opened a new state-of-the-art headquarter facility in Hengelo (NL) to further strengthen and increase production and testing capacity following recent growth in business, paving the way to becoming the leading provider of clean gas turbines for distributed energy solutions.



**Passenger Transport and Freight Train** simultaneously in one rail is economically and socially viable system

**Multi-Modal Transport Operator**

The Powerful REDSUN thermal battery retrofit coupled with cryo-nitrogen turbine booster engine Multimodal transport is an efficient alternative to all-road transport, with the aim of reducing its infamous carbon footprint and the skyrocketing price of fuel. By encouraging the use of transport modes that are more responsible, this contributes to the reduction of CO2 emissions by the logistics sector.

## New Markets reached by Transforming roads & rail into power corridors

**PowerSource 3.2 MW - 1.6 tons**

**Red Sun Mobile**

**Portable Thermal batteries allow offsite fill-up within 6 hours to deliver 40MW**

Battery in containers provide base power- 40 MW RED SUN Brayton Cycle systems or Power Source 3.2 MW Batteries. Plugs in Power Tower wind & solar offsite to deliver!

GE Transportation is to develop a battery version of its AC-motored Evolution Series locomotives with 2 400 kWh of onboard energy storage and an energy management system. The prototype is to be tested on BNSF freight trains between Stockton and Barstow, working in multiple with diesel locomotives, and is predicted to reduce the train's total fuel consumption by 'at least 10% to 15%'. 'This project will give us tremendous insight into the capabilities of battery power and the best operational methods of leveraging the technology,' which is expected to cost around \$45 million for this locomotive!

**Battery-Electric Locomotive**

**Vs. Mag Power Wireless Electric Train Retrofits**

Massive power generation capabilities up to **2400 kWhrs**

Huge fuel savings of at least **10-15%**

**Vs. RED SUN 32 MW Thermal Battery = 65,000 kWh**

**RED SUN BE Elec Retrofit**

Fuel savings of 94% - 64 MW - weighs 60 tons = 130MWh on Budd car-110 tons

Range of 1400 km to 2100 km- Electric Locomotive Retrofit - \$1.6 mln+ Bat cost

Charge-up with Mag Gas cost 1c/kWh = \$650 USD - 4-6 hr+onboard Recharge

Onboard Charge-up 2x's while running: Induction + MAG GAS genset charger

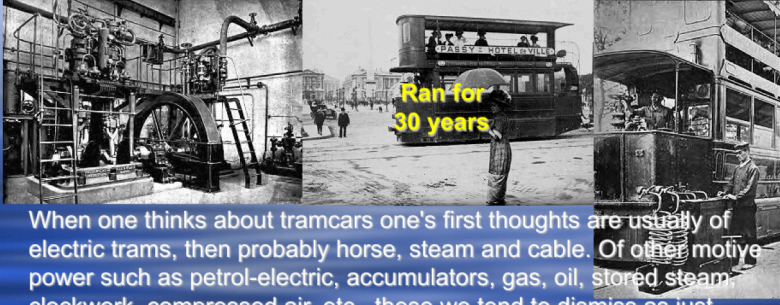
## Red Sun's Advanced Combustion Technology

**DIESEL** retrofits of Red Sun thermal battery for all Diesel rail and GE Diesel Electric Locomotives systems with high band 950°C pure heat paired with cryo nitrogen gives 3.5



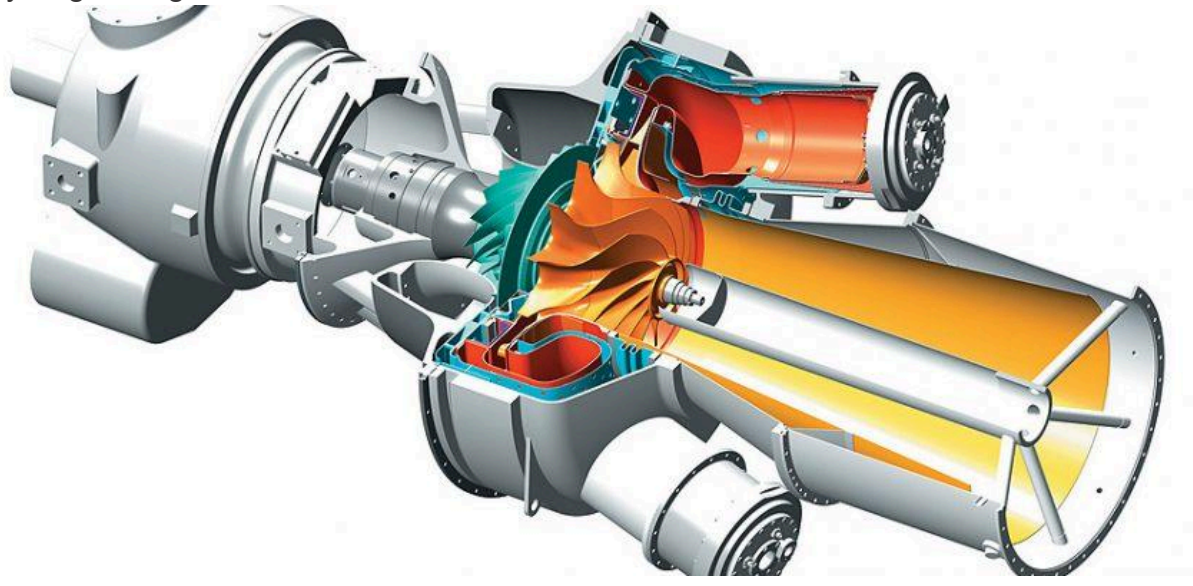
x's times the torque of normal diesel with cryo N2's heroic **1,440 x's expansion** at **200°C** vs gas at 432 expansion at 550°C!! Historically, nitrogen powered coal heated trains from 1842 to 1930s in Americas, half of Europe, switzerland, africa and Britton. SEE- BELOW

### Compressed Air Trams/Buses



When one thinks about tramcars one's first thoughts are usually of electric trams, then probably horse, steam and cable. Of other motive power such as petrol-electric, accumulators, gas, oil, stored steam, clockwork, compressed air, etc., these we tend to dismiss as just experiments which lasted a few months at best. In the last case, compressed air trams, although we would be correct as far as the UK is concerned, we would be quite wrong if we look at France. There were six French cities and towns using compressed air, with Paris and Nantes having over 250 of these cars, which ran for more than 30 years. **RED SUN LINES** sets out to put the record straight and to give details of this perfected tramway system, the Compressed Air Tram.

Available today to make existing operations more climate-friendly, like electricity generation from flare gases in the oil & gas sector or from a wide range of waste gases in the industry, it can also burn the zero CO2 emission fuels of the future, like green hydrogen or green methanol.



### OPRA's Advanced Combustion

December 5, 2017

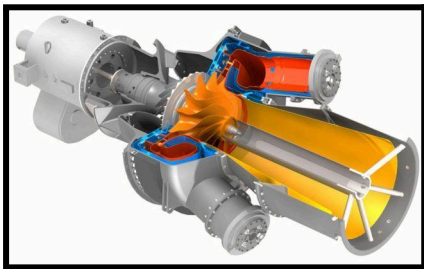
# OPRA Turbines bought by Chinese gas firm

Dec 5, 2017

By [TMI Staff & Contributors](#)

OPRA Turbines B.V., a manufacturer of gas turbines and provider of gas turbine driven power solutions, has announced that since August 2017 OPRA Turbine shares have been fully acquired by the Dalian Energas Group. Jan and Hiroko Mowill who founded OPRA in 1991 retired from the company at the end of the summer this year.

OPRA Turbines



OP 16 gas turbine[/caption]

OPRA Turbines develops, manufactures, markets and maintains generator sets in the 2 MW power range using the OP16 series of radial gas turbines.

### ***Op 16 gas turbine technology,***

the OP16 gas turbine is a compact, efficient and reliable industrial gas turbine designed for supplying power generation applications to both the Oil and Gas and Industrial markets.

The OP16 generator sets can be provided in a variety of configurations to meet customer specific requirements. The engineering design, component selection and maintenance accessibility of the generator sets enhance high reliability and long product life. The generator sets can be provided with low emission and dual / multifuel capabilities.

The generator sets can be installed as single or multiple units effectively covering installation requirements from 2 MW to 10 MW

Dalian Energas Group headquartered in Dalian, China is a leading company operating on a global level providing gas systems solutions. The Group includes, amongst others, Dalian Energas Gas System Co.Ltd., Dalian Energas New Energy Development Co.Ltd, Calorifer Engineering AG (Switzerland), RMG Messtechnik GmbH(Germany) and OPRA Turbines B.V. The Group is fully committed to the gas equipment manufacturing industry, gas turbine industry, energy storage product



industry, distributed energy operations, natural gas energy operations and other core business.

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## Propulsion, Combustion Advancements



### ***OPRA Quality***

Opra Data Sheets:

<https://pdf.directindustry.com/pdf/opra-turbines/op16-datasheet-metric/38704-643648.html>

management at Destinus Energy

The high availability of our gas turbines and their low operating costs are important reasons why our customers choose Destinus Energy solutions. At Destinus, this is what we call 'QUALITY'.

From sales to service, Destinus Energy company processes are aimed at achieving high-quality targets. Our knowledgeable and experienced employees work as a team to excel in customer satisfaction, taking responsibility for our results and showing pride in applying the innovative technologies we have developed.

#### **OPRA Sales and project management**

Clear and realistic agreements, open communication and well-planned project implementation are key factors to manage customer expectations and achieve high customer satisfaction.

#### **OPRA Assembly facilities**

Destinus Energy turbines are 'made in Holland'. Our modern and well-equipped turbine assembly and test facilities are based in Hengelo, The Netherlands. Here we can assure that our turbines meet the highest quality standards.

#### **OPRA Test facilities**

Destinus Energy state-of-the-art and sophisticated OPRA OP16 gas turbine and generator package test facilities enable the verification of specifications for customer projects as well as the feasibility of our in-house designed technical innovations.

### Research and development

Our in-house R&D processes enable us to be leading in providing solutions involving gas turbine design, including combustion, flow-path, rotary parts and controls design.

### Quality control

Destinus Energy quality control processes confirm the proper results of assembly processes and the proper characteristics of parts and materials used. Our trained and experienced inspectors, climate-controlled measuring room and calibration processes make sure that our inspections are accurate.

### Service

Destinus Energy service processes are aimed at keeping unscheduled maintenance to a minimum. Remote monitoring of our customer's operational turbines is connected to predictive maintenance routines. Assistance by our service engineers is available 24/7. A user-friendly support request system is applied for quick and solution-oriented communication.

### Quality

## Quality Management

We inspire ourselves by practicing the quality management principles of ISO 9001, such as risk-based thinking, setting challenging goals, controlling our processes, closing PDCA improvement loops, exercising creative leadership, being context-aware and putting all our activities at the service of our customer's interests. **OPRA's Advanced Combustion Technology**



Note: The DNV certifications are type approvals for specific products and allow Destinus Energy to install and use these products in different field applications like onshore, offshore, and marine.



**720 kW Aqueous Homogeneous Reactor** Featuring special patent pending Fluorine Chrystal - non metallic- non- corroding 100 year reactor to put out 22 L H<sub>2</sub>/ minute STP. Makes 2 gm - 10 gm Am<sup>241</sup>, Po<sup>211</sup>.

## High Efficiency ~ Tesla Turbine ~ Implosions

**340 kW-1MWe**

**Frank Germaino Inventor**

**RED SUN**

**Distant plants can be connected**

**Velocity (m/s)**

**Efficiencies**

Efficiency (%)	Engine Type
25	Gas Turbine
35	Gas Turbine
45	Gas Turbine
55	Gas Turbine
65	Gas Turbine
75	Gas Turbine
85	Gas Turbine
95	Gas Turbine
100	Gas Turbine

**Energy Storage for 1000 hr**


**Tesla Implosion Physics**

All Redstar Red Sun installations are wrapped and comprehensively covered by **Lloyd's Insurance**, including




coverage in all Philippine and Thailand contracts, PPAs and municipal contracts, including **Navy, Dept of Ecology & Natural Resources and Philippine National Railroad, and promoted by Sec'y of Transportation Mr Bautista.**


# RED SUN Energy Systems




**40 MWp  
RED SUN**




**Thermal**




**Thermal**



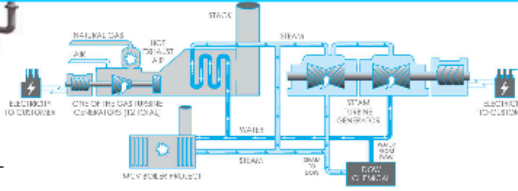
**Thermal**



**GE LM 2500  
jet turbine**



**Run jet turbines & diesels  
to run terminal 2 ancillary  
services plus industrial center**



**Runs all gensets for electric HVAC plus walkways, escalators & baggage systems**

6

**MW Powersource** - 7 ton , 5.5m3, 120 MWh per charge, 3 hour recharge; with 4 AHR puts out 88 Liters per hour STP; this runs recharging + 2 x Opra 16's

2 x Opra Op16 = 5.2 MW; 65% x 5200 kW x 8500 hr/ year = 3,447 MWh/ yr v \$120/ MWh = \$415,000 USD/ year. As side benefit, The Red Sun battery is a beautiful legal metal commodity bank, based on evergreen nickel- the most important key industrial metal in the world. With one 6 MW Powersource. The mobile battery is linked to base and other batteries by Max Tech Satellite - cell AI andybase communicates with every second and have audit screen for charging and discharging and tracking (on your home computer) [www.max-mesh.com](http://www.max-mesh.com) and can call the Red Sun operator with cell phone attached to each battery, so investors can track their investment! And Redstar cN keep track of the client billing for electricity, AC or heat and steam, which gives 1100 per day.

The payout is extraordinary: net for the investor- Lessor:

We split 50% - 50- with each lessor in the income from selling Am241 and Po 211; and they are stakeholders in selling the material at \$1500 to \$2000 peer gram. Further, we offer Lloyd's Insurance on the package



And; Lessor has first option to come in on other deals for water, electricity and HVAC

Having **Lloyd's Syndicate** means you can retrofit a power plant or train, ship or bus with a rider and cover all units. Plus power plants can be financed/ leased with Lloyd's insurance as collateral for loan including and connecting structures, real estate and business revenue streams. And enabling, desalination, HVAC and 4 ton air conditioners, with turnket hot water, energy and running large refrigeration/ ice production. The franchisee also gets an Insurance policy, trust agreement and/ or loan agreement, plus, tracking codes for linking your computer to monitor battery. And, you get agreement from Redstar Corp insurance policy covering all service agreements. The client leases the equipment and pays a discount rate of 9.5 c/ kWh for electricity and heat for 25 years. All service, personnel, maintenance and operations managed by Redstar with subcontractor Opra.



**Engineering Team Administration**

Dan Winter – Chief Electrical Eng  
Jay Dubinsky – CEO/Mgr Eng.  
[www.fractalfield.com](http://www.fractalfield.com) [www.theimploder.com](http://www.theimploder.com)

Paul Harris - Electrical Engineer  
[www.theraphi.net](http://www.theraphi.net)

Mert Pekrul – Chief Mech Engineer Dr  
Andrejs Zagars – Manf Trainer  
Composite & Engine/turbine QC/Manf chief

Dr Jack Wong – Prof. Civil Engineer  
Mark Rohrbough – Electronics Eng  
Baby McCall – Asia Marketing Eng  
Elizabeth Donovan – Chemical Engineer  
Lucas Muntz – Engineer- in-Training

City/Town Hotel Water & Power 10- to 500MW  
Replacing Fuel Featuring 98% efficient 30MW RED  
SUN Battery & Infrared Solar Thermal Dish & Trough  
– Retrofit Platforms: Stationary & Transport, water,  
heating- AC, Ice & 400 m<sup>3</sup> Cold Storage & Refer Train

[www.fibonaccimotors.com](http://www.fibonaccimotors.com) [www.energime.com](http://www.energime.com)  
[www.originclear.com](http://www.originclear.com) [www.theimploder.com](http://www.theimploder.com)  
[www.theraphi.net](http://www.theraphi.net) [www.fractalu.com](http://www.fractalu.com)

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