





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

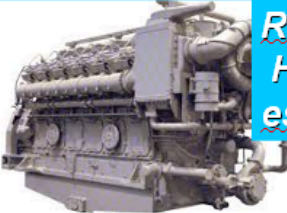
Energy & Propulsion Paradigm Shift ~

Laguna Lake & 100 Navy Ship Retrofit Pre- IPO Equity Investment Summary~


Redstar's upcoming IPO with the **National Power Corp (Napocor)**, which own most of the power plants in Philippines features top power plant engineers, Navy nuclear designers, builders and chemists in "Dream Team"; and, features revolutionary mobile 32 MW thermal battery at 1500°C that gives 300+ MWh per charge and retrofits thermal power plants without GHG called Red Sun. www.redstaregg.com

RED SUN Energy Systems


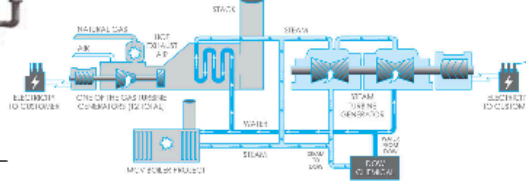

Runs all gensets for electric HVAC plus walkways, escalators & baggage systems




Thermal




Thermal

Thermal



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



Laguna Lake Phase 1 - Waste to Energy biomass pyrolysis: The **Dept of Ecology and Natural Resources (DENR)** pays Redstar \$2.4 MM USD through contract for cleaning of 250 kt Lake Laguna water hyacinth and catalytically pyrolyzing it.

- Running a 75 MW plant that expands to 150 MW in 14 months to make \$46 million USD/year. Ammonia production to be added.
- Proprietary trade secret cerium oxide metal group \$3/kg catalyst produces 7x's more syngas per ton from any biomass vs. platinum and ruthenium @ \$12,500 per oz.

- Pyrolysis reactors make 13 tons syngas/day per reactor on 700 tons hyacinth-½ energy of coal.
- 9 reactors running 150 MW
- Waste plastic collected and pyrolyzed and formulated: 10% plastic oil; 10% cold pressed hyacinth oil; plus upcycled coal fines slurry 80% to make diesel synfuel using proprietary **Romix** implosion cavitation system making 10 ton/hr '**Ohm Oil**' emulsion fuel for \$175/ton, & replaces \$690/ton diesel.
- **Ohm Oil** energy density on par with biodiesel and runs diesel generators and boilers.
- Using **Puri-Stat** to thicken and gravity filter 3.5 MMGal/day for 2,000 tons of algae to pelletize per day without electricity.

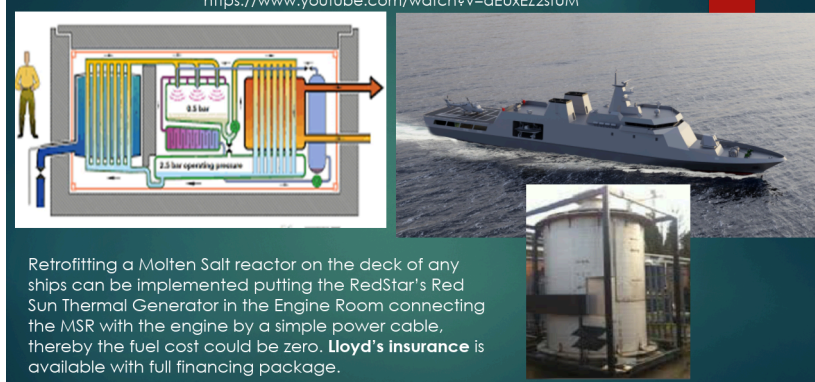
Lloyd's Syndicate insurance backing investment and wrapping performance and contracts and cover investment risks.

- Red Sun charges batteries thru 8 proprietary Redstar electric and direct heat systems for 4 to 7 cents per kWh and selling for 15 c/kWh on DOE & **Navy 20yr PPA**
- Gives \$80m equity on power plant

Pending JVs with **Dept of Ecology and Natural Resources, DOE** and **National Power Corp** and planned IPO with **National Power Corp** build the balance and generate dozens of PPAs of over \$30 bn in combined revenue as the 11th Official Philippines utility co. Redstar's post- IPO stock valuation on 250 million shares at between \$15 and \$25 USD per share gives valuation of \$6.25 bn. Selling 20% shares to investors returns \$1.25 bn in 3 years on investment, plus \$9.2 m/year elec. revenue

- Redstar is the 1st new utility Co in 49 years!
- **Napocor** \$100+ bn balance sheet gives Redstar JV credit and fundability for bond offerings.
- **Napocor** has hundreds of diesel gensets for Red Sun to plug in to replace unaffordable diesel.
- Efficiency Contracts will be offered on **PNR** train stations.

<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.

Laguna Lake Capex 150MW+10 batteries

\$80 m Capex on building 150 MW Laguna Lake power plant and two ship prototypes, with income selling electricity on long- term **contracts** to Navy and DOE. With expected post IPO valuation of \$6.25 bn USD with several Napocor and DOE service contracts or PPAs.

DENR & DOE Contracts-PPAs;

- 1.) \$2.4 million for removing and pyrolyzing 250 kt hyacinth;
- 2.) 2nd contract for 940 km2 lake cleaning at \$2.1 bn USD;
- 3.) **DOE** electric PPA at 15c/kWh for 20 years.

Red Sun Cryo Nitrogen Specs:

Red Sun diesel diesel retrofits uniquely feature heated cryo nitrogen that expands 1500 x's vs gas at 432 x's.



Red Sun Ship Retrofits- \$150 /MWh

Red Sun's mobile 32 MW - 360 MWh (26 tonnes) thermal battery replaces burning coal heat with high density 1500- 2000 Wh/kg energy storage battery that charges 98% efficiently with EMF induction crucibles and feature 50 year lifetime- equivalent to **"1984 Apple Computer"**, with new operating **"Intel chip"** system being solid state molten nickel phase change metal core that gives millions of cycles and modelled after the Earth- Sun charging.

- Red Sun holds 7 x's to 10 x's kWh/kg vs. Li-ion in 1/25th m3.
- Runs all industrial 1000°C to 1500°C processes, which is 80% of world- wide energy business.
- Produces zero GHG
- Tracked by satellite & cell with built-in Max-Tech phone network
- Maxtech satellite network in ea battery works in tunnels + subway to monitor. www.max-mesh.com


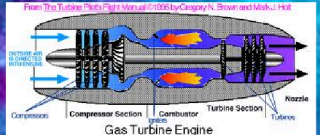
New approach to Turbines

ICE
REFER
RED SUN
Renewable
Energy

The RED SUN battery is the first mobile thermal battery modelled after the earth, that uses a molten nickel iron core at 1700 °C centigrade to run diesels and turbines better than Energy fuel with higher efficiency and lower noise and vibration and produces no carbon, soot or GHG. Furthermore, it is charged by induction like the sun charges the earth at 98% efficiency and can run power plants large and small, giving a whole new way to run ships, trains and transportation. It is scalable to large 500 MW TO 1000 MW powerplants and can last 40 years or more with millions of cycles. It has a 10 year warranty from Thyssenkrupp and is insured by Lloyds Syndicate.

RED SUN runs turbines with pure heat at 1100°C to 2200°C on Low pressure 1-2 Atmospheres

Turbines operate cleanly on RED SUN & last 50% longer!

Non-Combustion Brayton Cycle

Patented non combustion brayton cycle turbine runs on pure heat of the RED SUN Thermal battery. Zero emissions, zero carbon, zero greenhouse gases and 65% efficiency.

Red Sun Paradigm Shift For Transport:

Red Sun first mover to mobilise city and Navy- fleet- sized batteries of several GW by truck, ship or train and changes the whole energy and transport equation; and, increasing radius by order of magnitude.

- Mobile batteries enable collecting wasted energy from renewable energy at night and transforming its intermittent energy into dispatchable baseload power.
- **Microsoft & Apple AI data centres** are going nuclear.

- Red Sun utilises successful heated cryo nitrogen to run trains and ship diesel and retrofit the rail injector systems on all diesels cleanly with order of magnitude less cost; and; turbines on heat.
- Increasing torque 3.5 x's vs gas!
- Two Red Sun 32 MW batteries and GE diesel electric retrofit at \$5 m to give 720MWh and 1400 km radius vs GE \$48 m battery electric locomotive giving less than 110 km radius + very heavy.
- Redstar wireless train systems and stations backed by **Sec'y of DOTr, Mr Bautista** for **PNR**, as removing catenary system saves over \$1 bn USD on **Laguna's Bicol Freight Express** build-out, plus saves over 50% of operating expenses, plus repurposing old diesels/diesel electric locomotives at half-price and running clean!

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

AC Traction System Inverters

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

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

Vs. Mag Power Wireless Electric Train Retrofits

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

Operations and Costs:

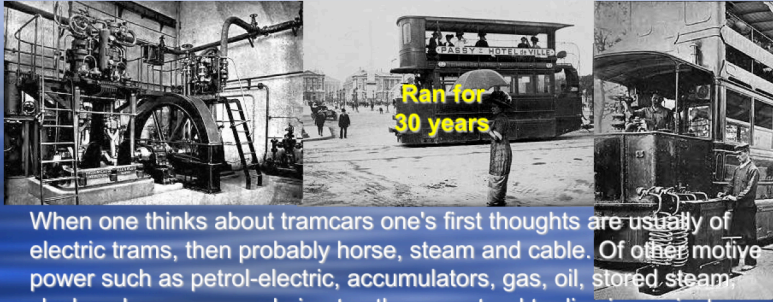
- **LCOE:** Red Sun mobile charges with nuclear at \$40/MWh; biomass at **LCOE 7.7c/kWh**, backs-up energy for 1 year, with net to client at **120/MWh**, + 20x's less LCOE of H2 at \$2400/MWh, which is being proposed for maritime and steel industries now.
- Red Sun + cryo nitrogen replaces expensive, but not- so- clean fuels methanol, methane, and ammonia, with 2x's to 4x's the kWh per litre: Red Sun cryo- nitrogen = **20 kWh/L** vs methanol at **5.5 kWh/L** & **LCOE \$790/MWh**.
- The **National Power Corp** wants a jv for Red Sun to plug into their hundreds of diesel gensets.

Red Sun Patents:

- The main Red Sun patent is a molten metal phase change thermal battery and the second patent is: **"Non- Combustion Brayton Cycle"**, for better, cleaner, more economic new Red Sun era vs. all fossil fuelled sys.
- Red Sun forever replaces expensive transmission lines transforming roads and sea into energy corridors & back- up 1yr.

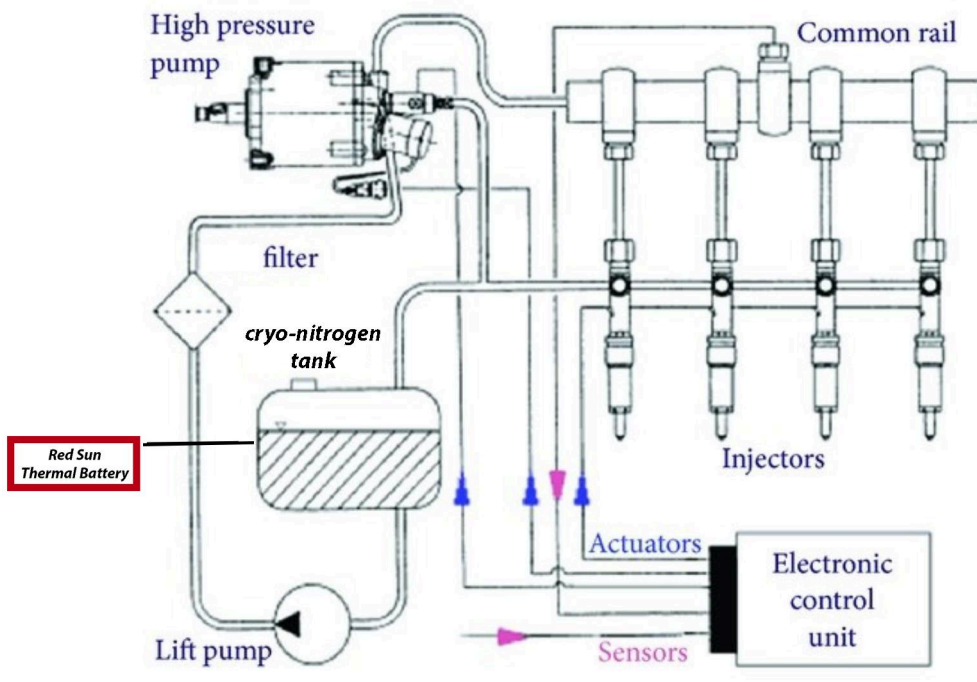
Below- heated cryo nitrogen ran trains world-wide for 60+ years from 1841 to 1930's heating with coal boillettes to 200°C

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.

Below Schematic shows Red Sun injecting heated cryo nitrogen into diesel rail system



Schematic of the common-rail injection system.

Navy JV proposal - Navy JV with 50 - 150 MW MSR power plant charging.

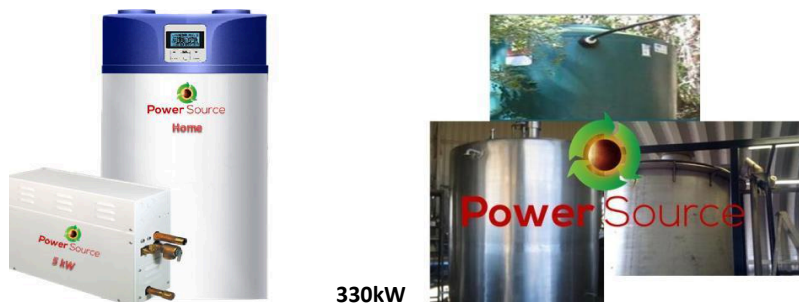
Redstar is first-mover in the trillion dollar breakthrough industry combining Red Sun with Small Modular Reactors or Molten Salt Reactors for ship propulsion and power starting with 100 Navy ships.

- Maersk is leading nuclear ship revolution that are perfect solution; with Red Sun thermal batteries to retrofit with 4th gen MSRs while cleaning-up the Maritime industry.
- With nuclear propulsion LCOE of \$40/MWh, Red Sun has a 12 year head-start on retrofitting and running diesels and turbines directly, while **Maersk** has to build custom \$8 mln USD engines plus all new systems, leaving Red Sun a majority of retro marine market.

- IMO emissions restrictions and requirements eliminating diesel and bunker C by 2030.
- Red Sun has been tested successfully with **Cummins, Man, Wartsila, GE, Siemens, VW, Porsche, Volvo, Isuzu, Rolls Royce, Pratt & Whitney, and Sulzer + many steam turbines.**
- Currently the Navy spends \$190k USD per two day patrol per ship burning through 40 m3 diesel/day. Ditto **Coast Guard** 150m ships.

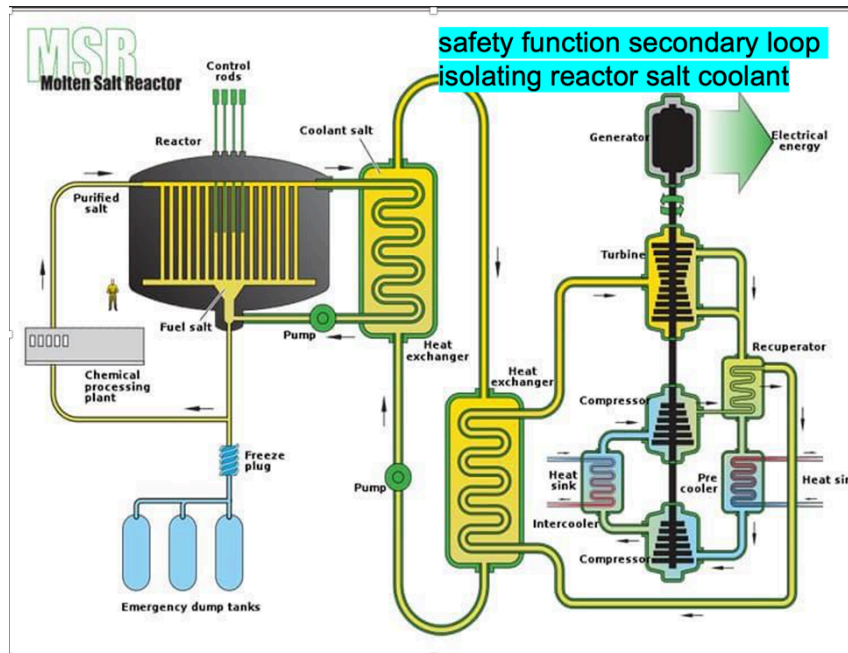
MSR builders:

- **Team: Copenhagen Atomics and Terrestrial Energy** - together with Redstar's top Navy nuclear instructors and designer- builders with 150 combined years of experience with top US fluorine nuclear chemist **Stephen Boyd.**
- The reactors would run large 300 kV EMF induction crucibles to charge 32 MW Red Sun batteries small enough to fit in engine room & sell electricity and propulsion at 15 c/kWh to net 8 c/kWh.
- Red Sun is a patented molten nickel alloy inside a steel and refractory casing designed by **Thyssenkrupp.**
- 10 x's more energy dense than sodium batteries, and lasting 50 years vs 6 years for Li- ion or Na+ bat
- Transforming roads and sea-lanes into energy corridors.
- Lasting millions of cycles, 50 years +
- 1st mobile 100 MW class battery enabling energy arbitrage, which is charging the battery at night from all renewable sources including hydro, wind and geothermal, and delivering in the day to net 8 to 9 c/kWh.
- 7x's energy density over Li batteries.
- Red Sun negates the need for underwater cables that cost \$6 m per km, successfully transporting batteries between islands by ships.
- A Fleet of 20 x 32 MW batteries gives **6+ GWh per day to run any big city, fleet of ships or trains,** and will enable a secure and versatile energy system paying the hydroelectric and other renewable companies to buy at night discount rate of 3 c/kWh.
- Medium 6 ton batteries at 11 MW and only 6 m3 give 120 MWh.
- Smaller 0.725 MWh truck, bus and home or business small batteries are trademarked under **Powersource:**



Fourth Generation Advanced Thorium & Uranium Nuclear Power Plants

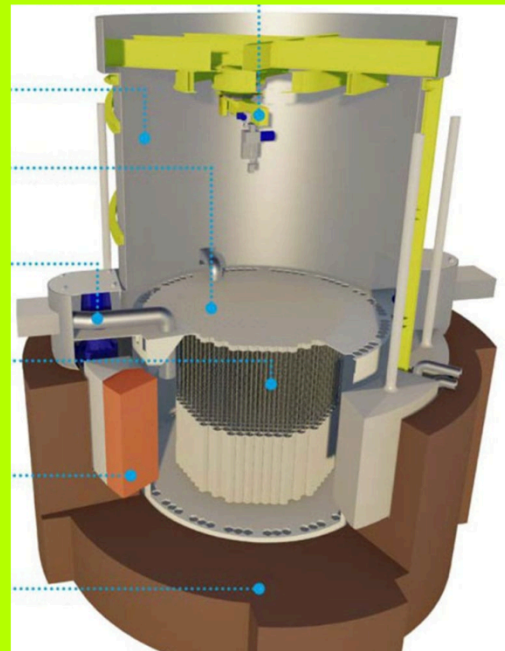
- There is a trillion dollar industry sea change for nuclear power in shipping as **Maersk** is going all in on nuclear power to run their ships at \$40 to \$60 per MWh vs diesel at \$430/MWh, methanol at \$1200/ MWh and hydrogen at \$2400/MWh.
- The second nuclear renaissance is with AI server farms as **Microsoft** and **Apple** & others are contracting with dispatchable, clean nuclear.
- **Efficiency advantage** as patented Red Sun battery raises operation temp. from 700°C to 1500°C to run turbine cogens at 65% efficiency vs. nuclear steam turbines at 35% to 40%.
- **Below** Thorium Molten Salt Reactor



Above – MSRs can operate without operators and feature 4 Passive shut- off & fuel dump in case of emergency and are walk-away safe!

- Molten salt reactors use molten fluoride salts as primary coolant at low pressure. This itself is not a radical departure when the fuel is solid and fixed. But; extending the concept to dissolving the fissile and fertile fuel in the salt certainly represents a leap in lateral thinking relative to nearly every reactor operated so far. However, the concept is not new, and removes expensive preprocessing & cracking of solid fuel coating & low efficiency.
- The main MSR concept is to have the fuel dissolved in the coolant as fuel salt, and reprocess that online, burning 99% efficiently vs 0.7% norm

- The cost of the electricity with the MSR is only 3 cents/kWh.
- Almost every mine in the Philippines has Thorium as byproduct and therefore no fuel needs to be imported and no waste exported.
- The MSR is extremely safe because the fuel is imbedded in the Thorium salt and will not dissociate. The experimental Thorium breather reactors have a combined running time of 400 years including 10 years at Oak Ridge National Laboratory in Tennessee. <https://www.ornl.gov/>
- The cost of building a MSR is only US \$ 1000 per installed kW
- MSRs are clean solution for all industrial processes including refining, metallurgy, desal, nitrogen production and electricity.



Laguna Lake Project:

The project starts with 3 contracts including a \$2.4 MM contract for drinking reservoir clearing of 250 kt water hyacinth to catalytically pyrolyze it in 9 reactors to run a 75 MW plant that expands to 150 MW in 14 months to produce ¥46 m/yr revenue.

Investment Proposal:

Equity investment of \$80 million for 20% in RedStar Corp. and half ownership of the 150 MW **Laguna Lake** power plant and 10% of the \$ 6.25 bn **Napocor- Redstar IPO**, paying back over \$1.25 bn in three years, including \$40 m equity in Redstar Laguna Lake power plant. The 150 MW plant will power **Laguna Lake Train Station Terminal for the 1600 km Bicol Express Freight** that **ADB** is financing for \$3.5 bn.

Filtering the Water- Proprietary
EGG Puri-Stat

Filtering-
Clarification-
Addendum Additions-
Mixing -
aeration -

3.5 MM gallons/day

98% energy eff-
works by gravity-

Single Element Flow Pattern

Internal Flow Pattern

Above- Redstar's proprietary 3.5 MMgal/day Puri-Stat is algae harvest breakthrough for filtering algae out of water down to 2µm with 99% gravity

- Along with building \$80 MM in equity, pending JVs with **Dept of Ecology and Natural Resources, DOE** and **National Power Corp**; and planned IPO with **National Power Corp**.
- **Redstar Proprietary Romix Syngas System** uses coal fines & waste plastic to make diesel:
 - https://drive.google.com/file/d/0B4P9cFXgSr4-bGdmMGJpTTdsb3c/view?usp=drivesdk&resourcekey=0-Y2qxvfWRirh-h2iXqx_uBA

Laguna Lake Pending Contracts:

Three contracts are granted but pending paid in capital requirements of P\$250 m.

The lake clearing of the algae and heavy metals and pollutants includes over 20 proprietary water cleaning, aeration, precious metal recovery, and algae harvesting and waste to energy systems, including Redstar's **EGG Algae to Hydrogen and syngas system** and suite of waste water and algae harvesting, filtering and pyrolysis technologies that are unequalled in scope and capacity, put together after 25+ years in water purification, cleaning fracking water, and waste to energy, as well as co-founder **OriginClear**.
www.originclear.com, which cleans fracking water for oil companies.



Specs: heated cryo nitrogen expands 1500 x's vs gas at 432 x's and was used by trains of 1842 to 1930's successfully. Red Sun's mobile 32 MW gives 360 MWh per charge, weighs only 26 tonnes and just 18m3! This energy paradigm shift runs the city yet is mobile! 150 years after the successful nitrogen trains running heated cryo nitrogen for pennies per mile Red Sun runs them for the same without smoke. Plus, charges 98% efficiently with EMF induction crucibles and feature 50 year lifetime- equivalent to breakthrough "1984 Apple Computer", with new operating "Intel chip" system being solid state molten nickel alloy phase change metal core that gives Red Sun millions of cycles and highest energy density on Earth; modelled after the Earth- Sun composition and induction charging & nuclear charging..

TRANSPORT PARADIGM SHIFT:

Red Sun diesel retrofits feature the same systems that successfully ran trains- heated cryo nitrogen;

- Increases torque by 3.5 x's, with two batteries giving 1400 km radius vs **GE** bat loco at less than 100km.
- Options to run wireless train system backed by **Sec'y of DOTr, Mr Bautista** for **PNR** as removing catenary system saves over \$1 bn USD on **Laguna's Bicol Freight Express** build-out;
- Saves 50% on operating expense with no- maintenance batteries.
- Saves \$150k per mile per year on catenary and overhead wire maintenance (German prices);
- Repurposes 5 year-old diesel electric locomotives at half-price vs. new GE or Korean locos.

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

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

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

Vs. Mag Power Wireless Electric Train Retrofits

AC Traction System Inverters

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

Fuel Cost Comparisons & LCOE:

Red Sun mobile charges with biomass at **LCOE 7.7c/kWh**, (vs 43 c/ kWh for diesel) and stores power for 6 months, with net to client at **\$120/MWh**, or 10x's less LCOE than H2; replacing expensive clean fuels methanol, methane, and ammonia, with 2x's to 4x's the kWh per litre: Red Sun cryo- nitrogen = **20 KWh/L** vs methanol at **5.5 kWh/L** and **LCOE**

New Markets reached by Transforming roads & rail into power corridors



- Red Sun being mobile forever replaces expensive transmission lines in wireless operation- transforming highways, roads, rail lines and sea lanes into high energy corridors that don't leak 25% electricity in resistance heat losses, nor require \$150/mile catenary yearly maintenance And;
- Red Sun makes direct heat at 1000°C to 2000°C for all industrial processes that make-up 80% of energy market: **refining, smelting, hydrocracking, etc..**

Navy JV proposal details:

Navy JV through admiral Toribio Adaci Jr., with 50 MW Molten Salt Reactor (MSR) battery charger: This trillion dollar breakthrough marine propulsion industry is changing its approach to ship propulsion and going nuclear.

- **Maersk** is building & testing small nuclear onboard reactors for propulsion and onboard power.
- Benefits include a LCOE of \$40/MWh vs \$430/MWh for bunker C and \$1200/MWh for Methanol & \$2400/MWh H2!
- Red Sun has a 12 year head-start on retrofitting and running marine diesels and turbines directly, while **Maersk** has to build custom \$8 mln USD engines, plus all new systems, which leaves Red Sun a majority (95%) of Marine market due to upcoming emissions restrictions and requirements eliminating diesel and bunker C by 2030. Furthermore,
- Red Sun has tested successfully on **Cummins, Man, Wartsila, GE, Siemens, VW, Porsche, Volvo, Isuzu, Rolls Royce, Pratt & Whitney,** and **Sulzer + many steam turbines. And,**
- **Redstar is Nuclear Advisor to the DOE and the Office of the President.**