

Helios 7 Energy Systems uk

- Good morning and welcome to the future investment section of the Rushlight show and awards 2019.
- I am John Jackson of Helios 7 Energy systems uk ,inventor of the sequential combustion system and environmental thinker.
- Presenting a more thermally efficient electrical power generation system.

A thought about Biofuels

- Yesterday I had a Tuna , mayo , sweet corn sandwich , it said on the packet it contained 1873KJ , how many sandwiches per hour would you need to fuel a 500MW , electrical output to grid power station ?
- No respiring organism exists without the co existence of photosynthetic organisms, we are utterly reliant on the success and abundance of photosynthetic life.

Future investment section Rushlight show ,at the Royal Institution London 30th
January 2019 by John Jackson **Helios 7 Energy systems uk** 

- Today's presentation is the first time the technology has been presented in public and is intended for an investment/engineering consortium to build a new type thermally efficient power station which is part of a more environmentally responsible energy system.
- The design will require a rail served site and should be around 1000MW output to the electricity grid at around £50-75 per MW , also including a 84 tonne/hr cement plant and an LNG plant.
- Estimated cost at £4-6bn



X Ray image of our star the Sun

3,800,000,000,000,000,000,000 KJ /sec

430,000,000,000,000,000,000 KJ/Hour falls on Earth



This is the J.W.Turk 600MW power plant in Arkansa USA

Marvel of modern power engineering using ultra super critical steam of 600ocC and 3500 psi steam pressure ,parameters combusting 350,000 kg per hour of PRB coal and exhausting 450,000 kg of CO2 per hour , around 36-40% conversion of solid fuel to electrical energy.

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- The power stations are an oxygen /fuel combustion system , termed sequential combustion , designed to give higher thermal efficiencies than current technology to enable a greater electrical output per kg of fuel.
- A variety of fuels can be combusted , and the high temperatures of oxygen /fuel combustion are used to thermally decompose ,smoke ,ash, char ,complex toxic molecules into simple molecules.

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- Sequential combustion power stations as a full system are composed of 4 basic interconnected units operating in a continuous dynamic A,B,C and D , gaining thermal efficiencies through complete combustion with Oxygen /Fuel combustion and heat recovery .

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- Component A : an oxygen/fuel combustion unit powering electrical generation, preferred as steam turbine
- Component B : receiving the exhaust from component A, then undergoing combustion again using an oxygen/fuel, preferably using CH₄ to subject the exhaust from component A to temperatures of over 2000°C, to thermally decompose any ash, char or vapours to simple molecules mostly of CO₂ and H₂O and to produce electricity for electrolysis, to produce Oxygen and Hydrogen gases from water.
- Component C to recover heat the exhaust from component B (combined exhaust from A and B) and transfer it to Oxygen gas used in the combustion process and also to transfer heat into the fuel, thereby recovering previously lost heat back into the controlled combustion process.

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- Component D takes the exhaust from the heat recovery section (component C) , which ideally will be CO₂ and H₂O and cool it ,to remove the water , the CO₂ then being combined with the Hydrogen in a Sabatier reaction , to produce CH₄ (Methane) and H₂O ,which can then be liquefied, recovered heat being used to reduce the fuel used and gain improved thermal efficiency in overall heat and energy use.

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- 1) A 500MW electrical output to grid ,150,000 lt of LNG/hour.
- 2) A 500MW electrical output to grid ,100,000 lt of LNG/hour and 10,000 lt of Ammonia per hour.
- 3) A gas fired 500MW electrical output to grid making 100,000lt of LNG per hour and 200m³ of H₂O to water an arid land area to grow food or biofuel crops.
- 4) A 500MW electrical output to grid ,producing 84 tonnes of cement and 150,000 lt an hour of LNG ,with no direct CO₂ emissions to atmosphere, for electricity or cement production.
- 5) A 500MW electrical output to grid , making 150,000 lt of LNG an hour and 400kg of material for use as plasterboard ,per hour
- 6) A 500MW electrical output to grid , combusting sewage waste producing around 100,000lt hour of LNG and 300m³ of H₂O an hour.

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- Thank you for your time and I shall be attending the Rushlight show for the rest of the day and try and answer any questions you may have.
- Many Thanks John Jackson
- Mob: **07511 044421**