BABYLON and the NEW ENERGY ERA

DOCUMENT 1 THE RING CITY - BABYLON

DOCUMENT 2 THE VARNEY ENERGY TRANSCRIPTS

THE RING CITY - BABYLON

From: J Varney
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Tel : 416-274-7279
To: **The Leaders of the G8 Nations [and their ministries]**
Copies to: **The Media Corporations**

This concept by J.Varney - dated July 5th. 2013
Note: This concept involves new energy sources and that energy topic is covered in much detail in a further transmission to you and is entitled:
"The Varney Energy Transcripts"
In order to eliminate urban sprawl and to avoid the use of personal transportation from all areas of the "**Ring City**", we can, by integrating all residences, schools ,colleges, universities, hospitals, medical centers, shopping malls, fitness centers, sports fields, sports stadiums, entertainment centers, museums, galleries, into that city ring [of some 7 miles diameter], create a magnificent city structure that is fully serviced and provides a vibrant and enriched lifestyle for everyone.
A city **"mote"** will completely surround the metropolis, providing treed banks for strolling and picnicing and with an ample width of 600', will allow recreational boating amongst many small islands located in the mote.
The city will have it's own **"air-space port"** situated within 10 miles of the city ring and will also have a substantial **"sea port"** located on the shoreline providing both **cruise ship** terminals and **global fast ferry** terminals.
Within the city ring [with an inner diameter of 6 miles and an outer diameter of about 6.8 miles] and between the inner and outer residential ring towers, there will be a continuous belts of land escaped gardens and recreational park with a total area of about 5 sq.miles. The approximate population of the city [with each of the ring tower residences having some 80 floors and a total compliment of apartments [of various sizes] of about 1,600,000] would be about 3,000,000.
A central park [a wilderness area with many lakes, waterfalls, rapids, streams and trails for hiking and biking] with a diameter of 6 miles, would provide a further city parkland of some 28 sq. miles for the enjoyment of the residents.

The ring city would be provided with a **subway system** [operating 24 hours a day] running under the massive circular structure and a separate subway link serving the airport [and linking with national electric rail and bus services], that would be free for all residents so that every part of the many and varied facilities would be minutes away for any resident.
A four level visitors car and coach park [electric vehicles only] would be provided adjacent to the outer perimeter of the outer circle tower and will accommodate all daily visitors travelling by car at

a reasonable daily charge. Within this car and coach park belt will be electric car rentals so that city residents may use car transport when travelling beyond the city.

A huge **Farming Belt** [6 miles wide] with an outer diameter of 18.7 miles, would be serviced with an access road web to enable workers from the city to travel to and from their place of work in electric buses [again at no cost to the worker].

Produce from the farm facilities [harvested year-round] would be delivered daily to the city in compact electric trucks that would [via special access lanes] reach the many fruit and vegetable stores in the many malls.

The farming would consist of **open and enclosed facilities** growing a wide range of fruit and vegetables using hydroponic and organic processes and would develop their product quantities to match the appetites ot the city residents.
A limited amount of **industrial businesses** can be located beyond the farming belt providing they have no polluting effluent.
All **land and structures** will be owned by the **city government** and will be leased to businesses and residents based an appropriate number of years to suit clients preference but in no case for less than a two year lease.

All jobs [including city government, political and office staff [including all business executives], all professionals needed by the city together with all skilled and unskilled labor and service staff] would be awarded exclusively to city residents. Conversely all applicant residents [who are of working age and available for employment] would require a job offer [and acceptance] prior to securing an appropriate residence in the city.

All residences [in high-rise towers] will be leased on two to five year terms depending on preference of renter and monthly rent will include power, heating, air conditioning, cable [tv and internet] and use of city transit systems for all persons in household. All furniture will be included with the apartment and all mattresses and upholstery will be renewed and apartment cleaned and repaired prior to new tenants moving in [this will avoid disruptive moving operations.
Facilities for education will be first class and students attending college or university may take the financial advantage of living in their home [in the city ring towers]. Special **student residences** will be available at reasonable cost for those unable or not wishing to live at their family home. Students from outside the city [whilst attending college or university] may rent a student residence.
Electrical Power for the city will be provided from two sources each of which is clean [non-combustion] energy. The first source will be from wind turbines and solar panel arrays [all mounted on the ring tower roofs] with sufficient capacity to provide up to 30% of city demand [at suitable wind and light conditions] and an average year round contribution of 20%. The second source of electric power will be from a combination of **cold and hot fusion direct electrical conversion**

processes and this plant will be housed in below ground facilities adjacent to the inner perimeter of the inner circle tower. This arrangement will thus avoid any power distribution grids above ground.
Water Supply [potable/drinking water] will be supplied from **water treatment facilities located at adjacent lakeshore or sea coast.** A suitably sized treated water duct will deliver the water to the inner perimeter of the **ring city** from the nearest available and adequate source [desalination plant at the coast, will be required if only sea water is available].
As water is such a scarce commodity it must be re-used via reprocessing with small treatment plants destributed around the inner perimeter of the ring city [below ground] such that all building drains and land storm sewers can be collected and re-used for non-potable applications. This together with the high density of residences will ensure that water consumption per person is only a small fraction of that of modern sprawling cities.
Sewage from the city complex will be delivered [underground] to the perimeter of the inner circle tower where pumping stations will deliver it to the **sewage treatment plant located adjacent to lakeshore or sea coast.**
The **man-made lakes** in central park are arranged such that the inner lakes are about 200 ft higher than city ground level and the outer [lower] lakes are about 20 ft. higher than city ground level such that water may cascade down to the lower lakes via ,water-falls. rapids and streams and then water returned via pumping stations [with make-up water as necessary] to the upper lakes.

A POSITIVE PROGRESSION OF A SOCIAL COMMUNITY [avoiding the charge of being a utopia]

This **ring city of Babylon** represents an experiment in a democratic modern and environmentally friendly community that explores urgent and necessary adjustments in lifestyle, fitness, quality of health and quality of life, by integrating all elements of the community into a **tolerant and inclusive** society where all businesses and individuals pay appropriate taxes with the introduction of a **simple tax code** where tax avoidance is difficult and easily detected and where fraud will be severely punished with heavy financial penalties and ejection of that individual or business, from the community.
The gap between minimum wage and maximum allowed income [as salary] will be reduced to a ratio of 40 to 1. Any corporate executive or other employee cannot receive any other benefit from business other than salary which specifically excludes company shares, bonuses or pensions. Income as dividends from held shares, or interest from savings accounts or bonds and money from inheritance are of course allowed but will be taxed at a higher rate [if gross income exceeds 40 to 1 ratio].
The following is the **proposed tax code :-**
Personal income tax :-
The first $25,000 [as annual minimum wage @2,000 hrs.] is tax exempt
Annual income above $25,000 and up to $1,000,000 is taxed @ 33%
Annual income exceeding $1,000,000 will be taxed @ 50%

Business Taxation :-

The gross annual income of businesses operating within the city limits, from sales and/or services to be taxed @ 15%

Rental [as annual lease payment to City for land and premises] to be 10% of gross income from sales and/or services.

Healthcare :-

In this modern city there will be a universal healthcare system funded [through taxation] and operated by city government. The following features will be prominent in this experimental system :-

-No **for-profit entity** will function in or be a component of this healthcare system.

-The **prescription of drugs** will not be the usual first response following the diagnosis .

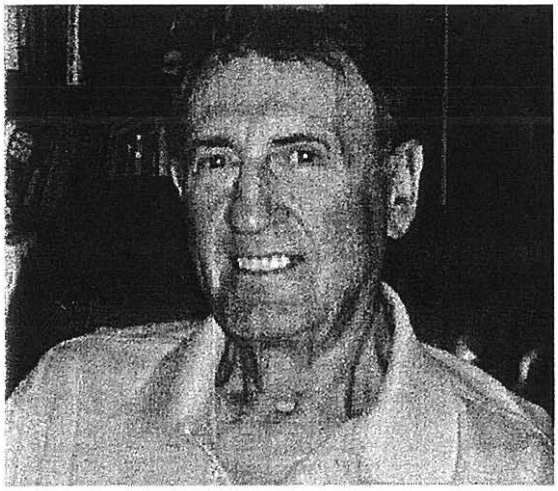
-The diagnosis will lead to a patient/doctor discussion of diet, exercise, substance abuse, lifestyle and stress management.

-Where possible medically qualified personal should provide needed patient care in their home.

-If patient is seriously ill or incapacitated then patient should receive a doctor visit and diagnosis in their home and subsequently, if necessary, receive services of homecare [where possible] in preference to a stay in hospital.

The concentration of residences within a circle structure with continuous free subway transit serving the entire resident population, makes doctor visits and subsequent home car [as necessary] an obvious option.

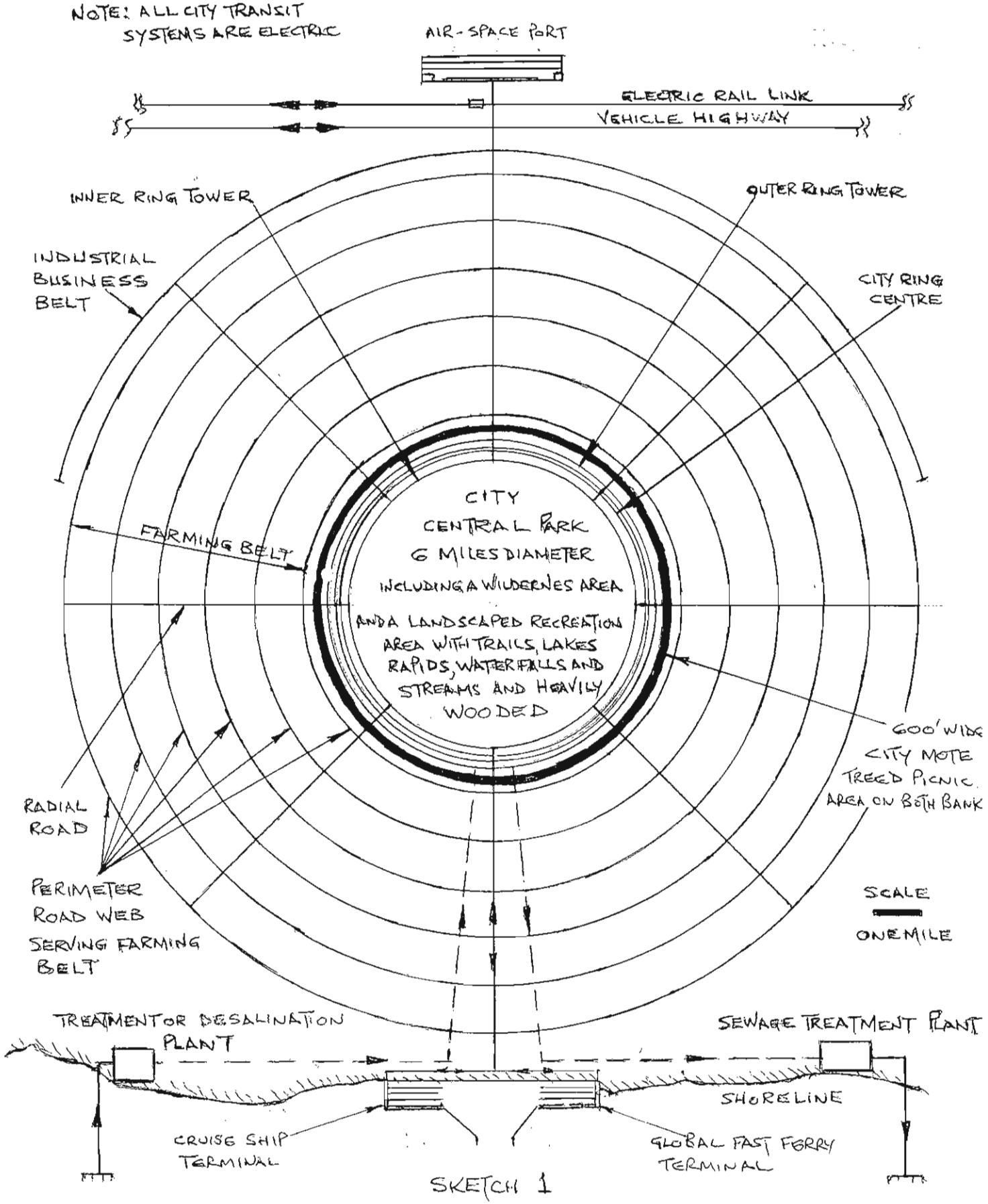
Conclusion -There are no doubt, many other aspects of life in an integrated and modern community that represent a progression in the quality and stability in that society, however the preceding is a first attempt to address the enormous [but potentially rewarding] challenge.



After studying Mechanical Engineering, **John W. Varney** migrated to Classical Atomic & Nuclear Physics at the Naval College in England. A member of Institution of Nuclear Engineers, he has designed aircraft jet engines, nuclear submarine primary systems design, steam plant design for power generation, application of gas turbines in power generation, and general consulting for industrial projects. Born 1939 in London, England, Varney is now retired and works to promote Dense Plasma Focus (DPF) fusion technology as a clean energy alternative to fossil fuels.

List of sketches

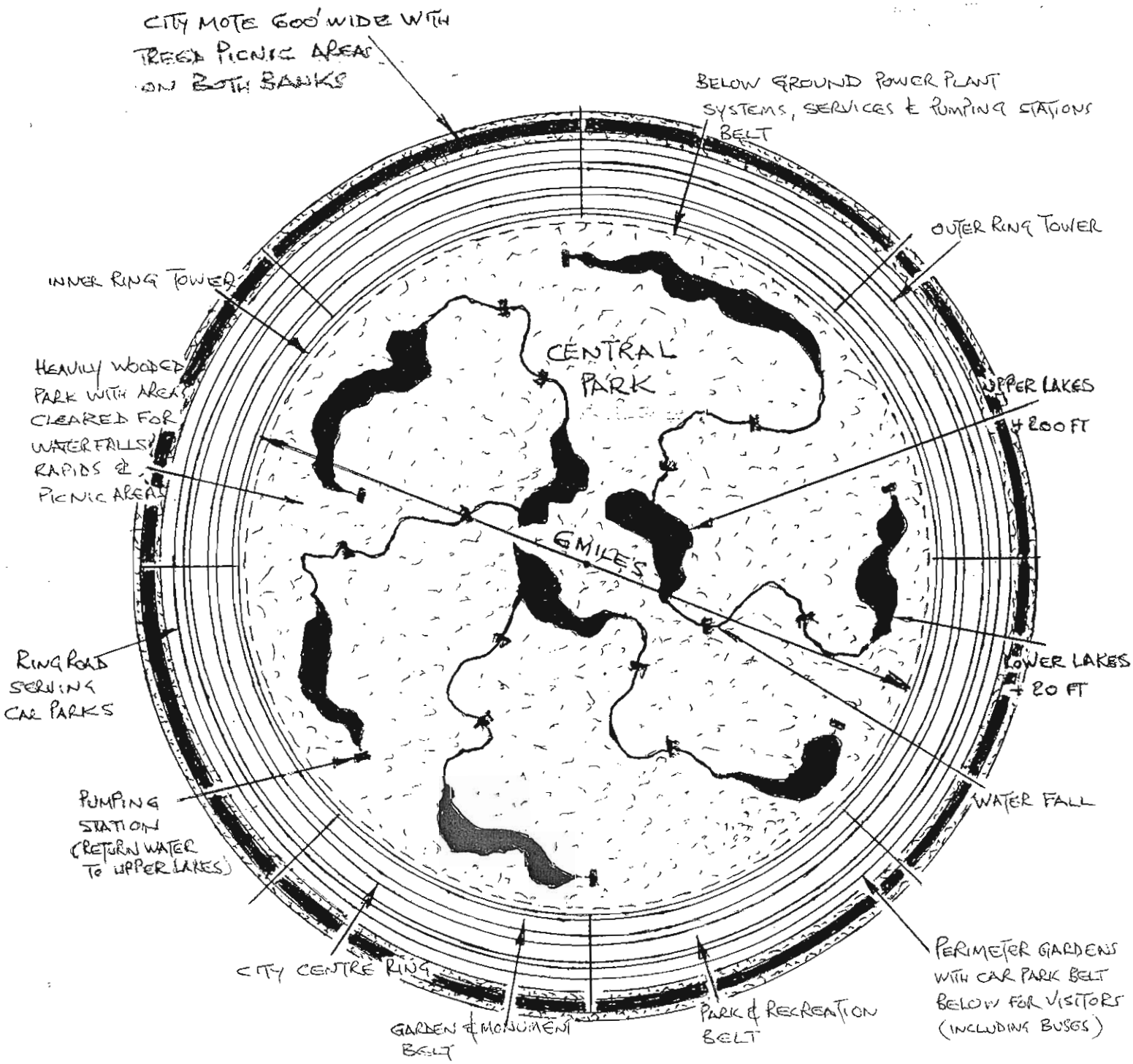
THE RING CITY
BABYLON



SKETCH 1

THE RING CITY

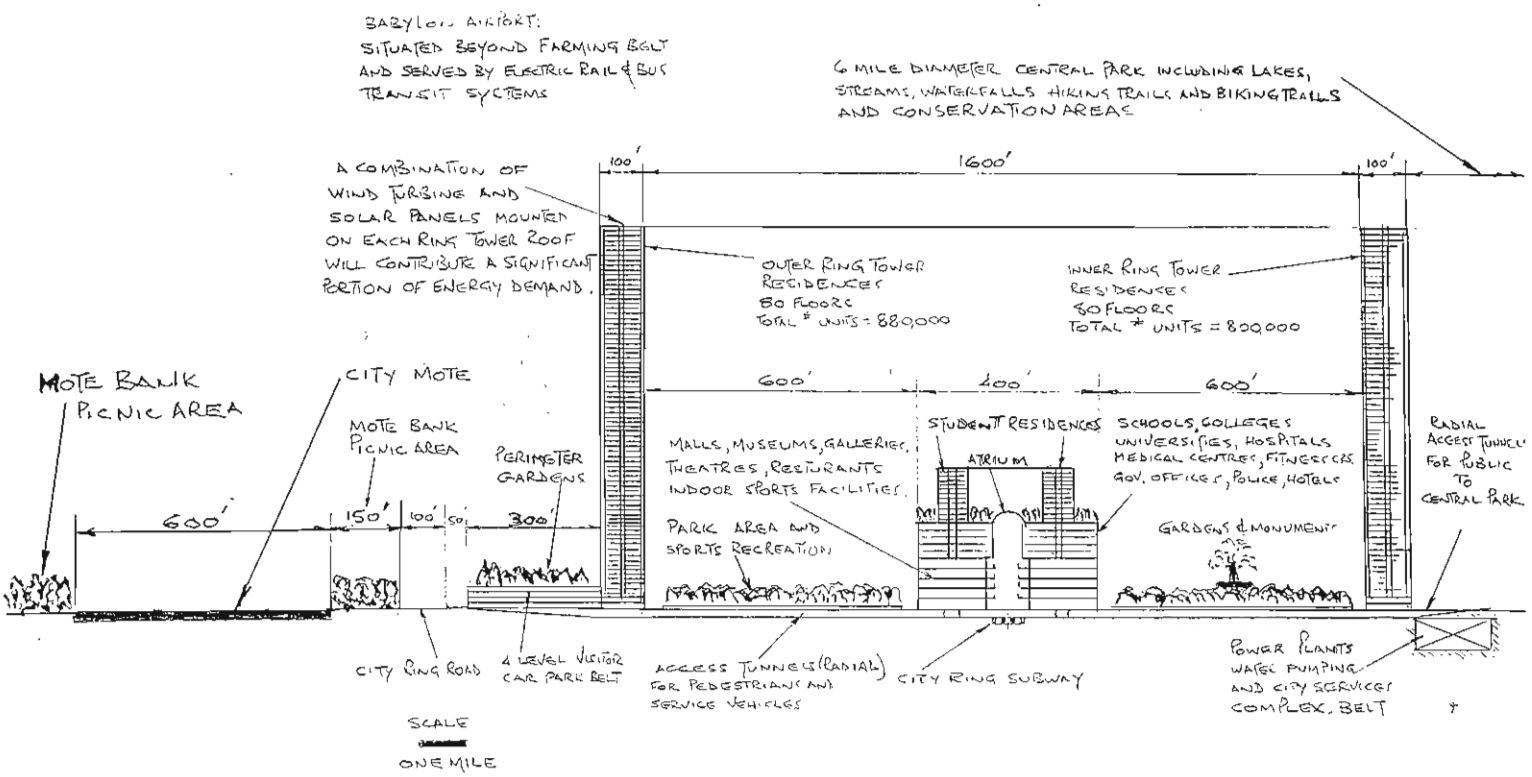
BABYLON



RING CITY - PLAN OF CENTRAL PARK

SKETCH 2.

THE RING CITY
BABYLON
RESIDENT POPULATION APPROX 3 MILLION

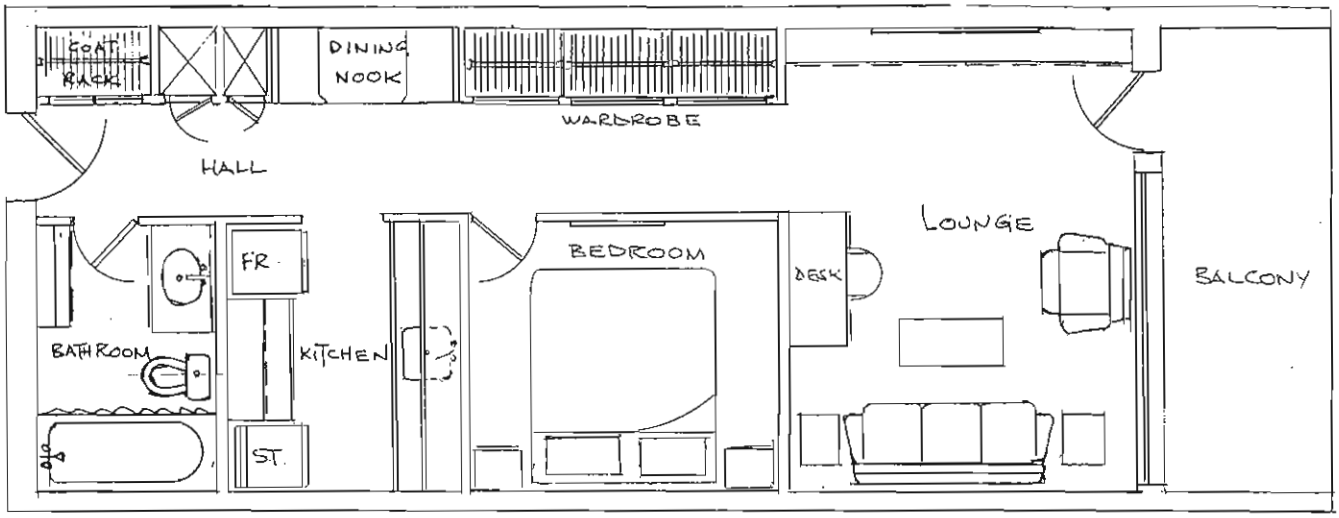


RING CITY - SECTIONAL ELEVATION

SKETCH 3

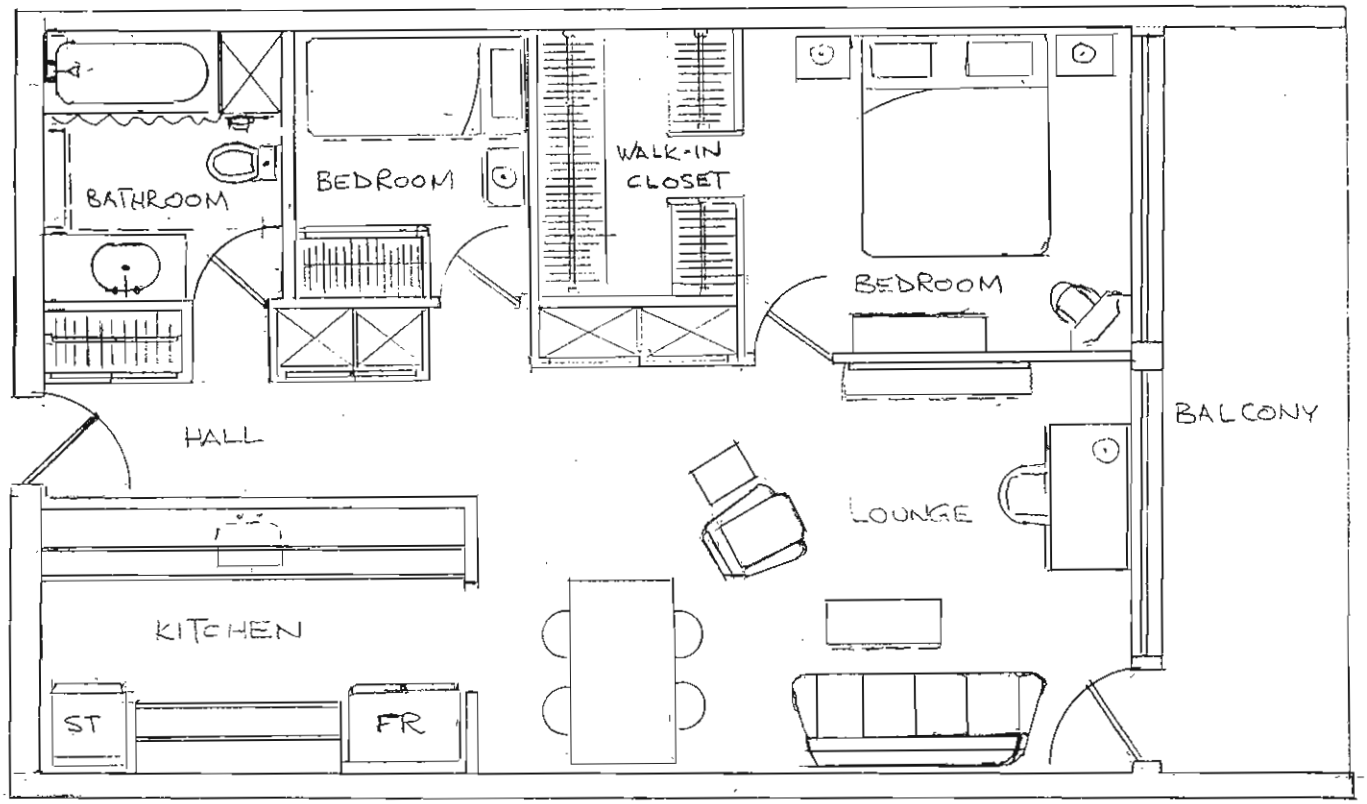
ECONOMY UNIT

33'x14' = 462 SQ FT.



TWO BEDROOM UNIT

33 x 22' = 726 SQ FT

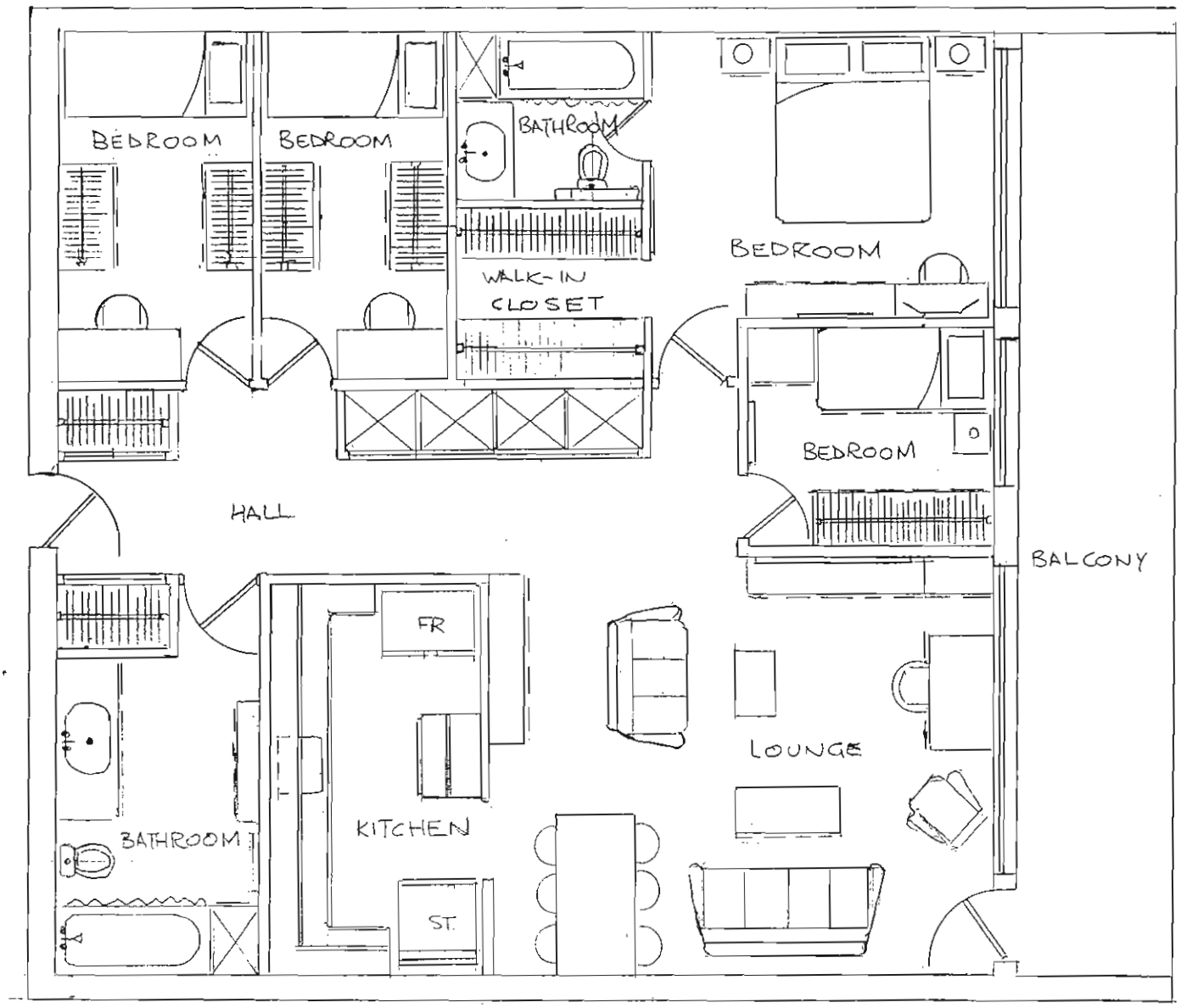


BABYLON - RING TOWER RESIDENCES

SKETCH 4

FOUR BEDROOM UNIT

33' x 33' = 1089 SQ.FT.

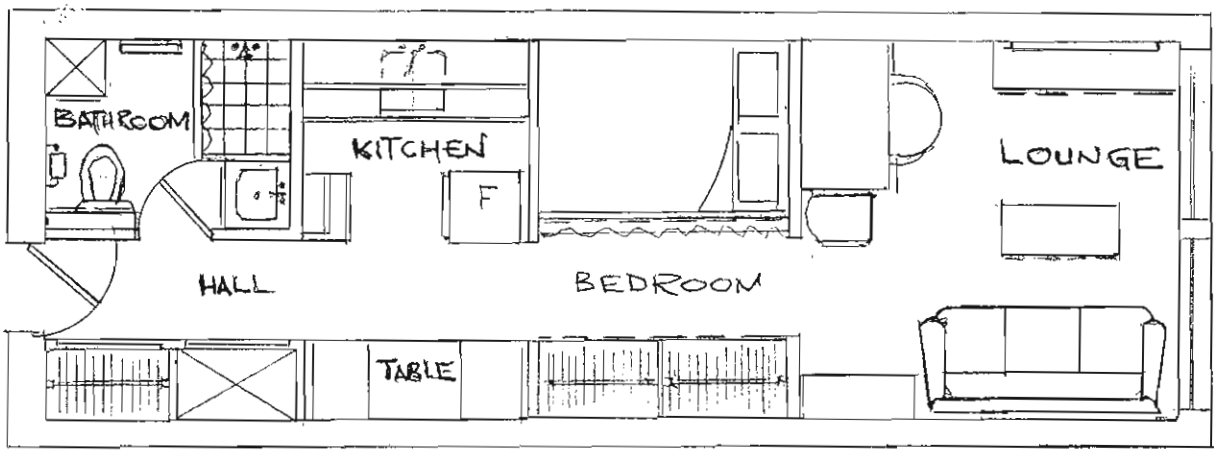


BABYLON-RING TOWER RESIDENCES

SKETCH 5

STUDENT RESIDENCE BY J. VARNEY

10' x 30' = 300 FT² DATED JULY 5TH 2013



CITY CENTRE RING

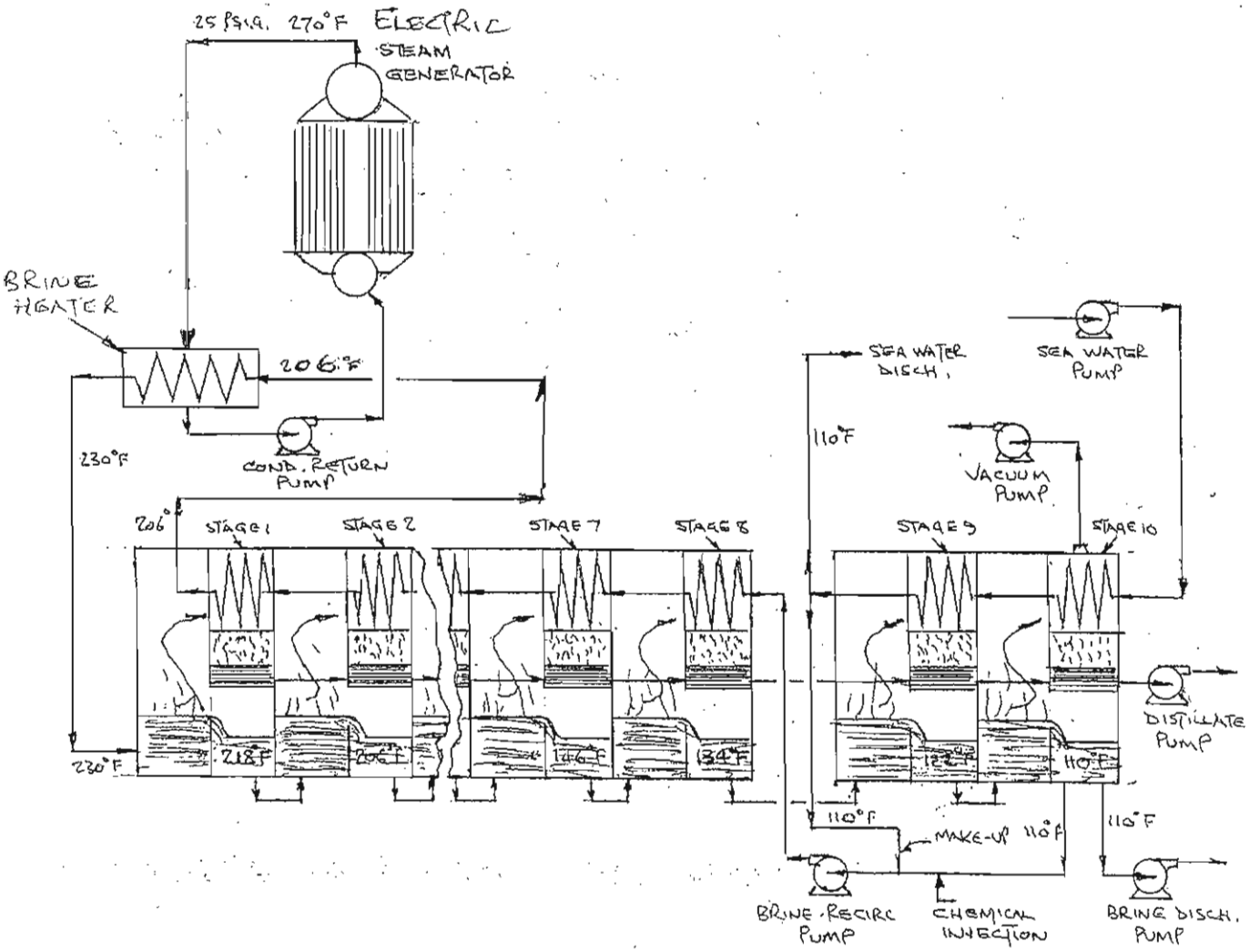
SKETCH 6

THE RING CITY
BABYLON

BY J. VARNEY
DATED JULY 5TH 2013

THE 10 STAGE FLASH DESALINATION PLANT

LOCATED AT ADJACENT SEA COAST
POWER SOURCE - ELECTRIC (REPLACING TRADITIONAL WASTE HEAT)



DESIGNED WATER PRODUCTION RATE = 30,000,000 IMPERIAL GALLS/DAY

SKETCH 7

THE VARNEY ENERGY TRANSCRIPTS

PART 1 - NEW BATTERY TECHNOLOGIES FOR ROAD VEHICLES

PART 2 - NEW FUSION REACTOR FOR POWER GENERATION, MARINE PROPULSION AND AEROSPACE PROPULSION

To the Fusion Energy Researcher and Editor - primarily PART 2 is for your attention and interest

A message for the executive of all Oil & Gas corporations

You now have a great opportunity to take care of your approaching business with the skills, energy, determination and fine management that you already possess, but transfer the focus to the clean electrical age that entails the following specific areas of committed and energetic investment :-

[a] Establish and own a worldwide network of vehicle charging stations [incorporating a universal high voltage charging appliance for all vehicles].

[b] Establish a global interest to speed up the manufacture and marketing of the "Ultra-capacitor Battery" [incorporating barium -titanate coating on densely packed plates], and the Blacklight Power CIHT unit, all in concert with an agreement from all auto manufacturers that they will commit to manufacture exclusively electric vehicles from January 1st. 2015.

[c] Establish and run a vigorous development program to produce a prototype 100MW DPF reactor system [based on the Varney Protocol] that will have a massive global mass production program [perhaps requiring a production run of several hundred thousand 100MW units], that will meet much of the global power and marine, aircraft and spacecraft propulsion needs beginning in 2015.

[d] Establish and own a worldwide network of production plants for the "Aneutronic" fusion power fuel known as pB 11.

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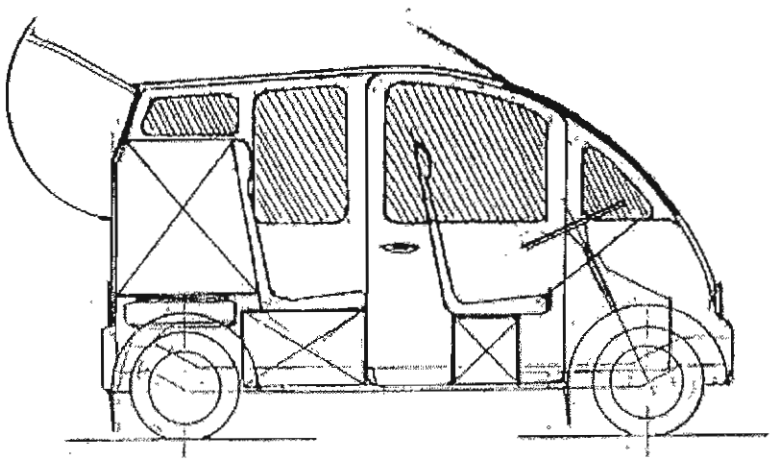
A revolution in environmental health and clean new energy is now beginning to emerge with a great momentum!

PART 1 - NEW BATTERY TECHNOLOGIES FOR ROAD VEHICLES



THE ELECRIC CAR

The transformative nature of all these [largely proven] energy technologies is that they are totally clean, safe and are free of toxic materials of construction and produce no toxic or harmful effluent – in fact they represent the end of the era of combustion [as a source of power or propulsion].

Who locked the garage door on our Super electric car

Was it **Santa Clause** or the **Wicked Witch**?

Surely it can't be the oil and auto industries, because what on earth could they have against a transformation of all road vehicles to the simple, clean, efficient and lower cost electric mode ?

Surely it can't be the reality of a sudden and total global collapse of fuel sales to road vehicles. The fine corporate executives who have the awesome responsibilities of building a better world for themselves would not dream of compromising their future if it meant abandoning the addiction to power and wealth, even as such a selfish strategy denies any benefit [of an improved environment] for people and all other species that inhabit this planet.

Such is the world today, populated by a vast majority who have the care and passion to nurture their families against all odds that reality throws at them, and a small minority whose privilege of financial success and a position of power has blinded them to the profound gifts of service and compassion for others.

Technology suppression and deception exposes the public to avoidable dangers.

Boeing's Dream-liner problems with lithium-ion battery fires, is a grim reminder of suppression of technologies [technologies that threaten the future of fossil fuel vehicle propulsion].

GM and elements of the Military-Industrial complex became involved in ownership of the new technology of ultracapacitors for the express purpose of burying the program in the back waters of suppression so that vehicle propulsion [land, sea and air] will survive in the profitable domain of combustion engines.

Blacklight Power have developed and proven [with an energy source classified as a variant of cold fusion] a remarkable and transforming CIHT unit [Catalyst Induced Hydrino Transition] that will compete with the ultracapacitor battery when it has been scaled up for use in all road vehicles. This exciting technology is, without doubt, a target for any agency with an agenda to prolong the use of combustion engines in all road vehicles.

The following documents provide the evidence for the promising scenario [and political and industrial challenges] that will be experienced, in the emergence and global transformation from combustion to electric power for the car and all road vehicles:-

A BRIEF SUMMARY OF THE DUEL BETWEEN THE MOTOR CAR AND THE ELECTRIC CAR

By J Varney Dated April 16th. 2009

Edison's new Alkaline battery was invented in 1901- electrolyte was Potassium Hydroxide - Electrodes were Nickel and Iron

In early 1900's most cars were electric and powered by lead acid batteries which although initially unreliable and of poor quality gradually recovered a moderate amount of respect and provided a far more enjoyable ride than its engine driven rival with its gross pollution and frequent catastrophic breakdowns.

A fire disaster at Menlo Park in 1914 resulted in Edison losing his entire battery lab. [arson by agents of engine car firms, was alleged]

Edison joined with Henry Ford in initiating an electric car firm and also a battery plant but their marketing efforts were often sabotaged by ploys of the hostile and determined combustion vehicle outfits that later collaborated into a single firm called General Motors. Both Edison and Ford sensed their opportunity had passed and the joint venture for the electric car became extinct.

The public, during this early period of the car, were certainly ready to embrace electric cars but the aggression of the struggling motor car outfits combined with a sputtering battery development program finally doomed the prospects of a bright new era of the electric car. The subterfuge of the thriving oil companies sealed the fate of the electric car, as they fully comprehended the lucrative worldwide markets that were about to emerge in providing gasoline for millions of cars, trucks and buses.

Today what has changed? The auto industries in collaboration with the many oil corporations, despite the frightening dilemma of pollution, global warming and climate change, are determined to maintain their advantage and prolong the life of combustion engines to create an ever growing oil consumption throughout the world.
As the emergence of transforming battery technologies proceeds and excites the public, these new companies are stealthily infiltrated, by the auto and energy corporations [indirectly by using independent individuals to act as their covert agents] and via the acquisition of shares the
corporations apply damage control to the threatening potential of a new battery technology by slowing development and eventually removing the new technology from the public view until it is ultimately forgotten.

The ultracapacitor and the Hydrino Hydride batteries [already invented] are perhaps under going a suppression strategy!

ELECTRIC VEHICLES - NEW BATTERY TECHNOLOGY
By J Varney – June 16th. 2010 – update November 15th. 2010

The emergence of the electric car [and of course the electric truck and bus etc.] is now possible with the new technology of the ultra-capacitor battery. This technology provides units incorporating parallel plates and a barium-titanate powder and the total construction is of non-toxic materials.

The critical features that make this battery such a game changer are as follows:

When mass produced will cost much less [per unit of capacity] than all current battery types
The capacity rating of - 280 watt-hours/kg. [is far higher than current batteries].
Hundreds of thousands of discharge cycles are available before unit becomes dysfunctional. [current batteries provide orders of magnitude less than this figure – perhaps in the hundreds of cycles].

Compact Sedan Electric cars with an ultra-capacitor battery of say 100 kwh storage capacity and 357 kg. weight will give a range of between 400 to 500 miles between charges.

This same technology has a potential valuable application to the renewable energy industry such as wind and solar power.
By storing any excess power during windy and sunny weather, this technology can compensate by providing steady power during cloudy or calm weather. When applied to a nationwide grid then calm, cloudy days in some regions can be balanced with stored energy release.

For several years Dr. Randell Mills and his company Blacklight Power Inc., have leaked news and a little information about a Hydrino battery [the CIHT unit] that would possess remarkable storage capacity and extremely low weight and which is claimed to have the potential to power a car for a range of 1500 miles whilst consuming [for derivation of fuel to charge the battery] a mere liter of pure water.

With both the "Ultra-capacitor " and the "Hydrino" battery research programs, there is that lurking probability that the oil and gas corporations in concert with most vehicle manufacturers will conspire to invest in [and ultimately control] these programs in order to effect a stealthy suppression and eventual extinction of these world changing batteries.

ANALYSIS OF STATE OF THE ART TECHNOLOGY FOR LEAD ACID AND LITHIUM-ION BATTERIES

By J Varney Dated April 16th. 2009

Lead acid battery banks, even with state of the art improvements, these units appear to embody the following limitations and of course disadvantages:

[a] they are heavy in nature [because of plate material] and thus have a relatively poor "specific energy" rating in comparison with ultracapacitors. The claimed "specific energy" is, as an absolute maximum, 50 wh/kg and the battery weight for a 100KWH storage rating is 2000 kgs [4400 lbs]
[b] they utilize a hazardous electrolyte which can seriously burn and needs processing prior to legal disposal.
[c] they utilize dangerous and most toxic electrodes which have also serious obstacles to a legal disposal
[d] any manufacturing plant would represent a multi-layered environmental challenge to the owner and his endeavors to get the necessary operating permits.
[e] even with relatively high voltage and short charging time capability, their maximum number of discharge cycles [before becoming dysfunctional] is orders of magnitude less than that of ultracapacitor banks.
At this point the advantages awarded to the ultracapacitor are so profound as to make the lead acid battery a non starter in the dawn of the electric vehicle era.

Lithium-ion battery banks although much progress has been made in this technology and the compactness, weight and "specific energy" ratings are better than lead acid units. The claimed specific energy is, as an absolute maximum, 135 wh/kg and the battery weight for a 100KWH storage rating is 741 kgs [1630 lbs]. They have exhibited serious instability characteristics that at this time constitute a considerable hazard to the vehicle occupants and must be thoroughly engineered out of this otherwise attractive product. However its energy storage potential is still considerably less than that heralded for the ultracapacitor and again the maximum discharge cycled are of a much lower order of magnitude than that of the ultracapacitor unit. Perhaps a final disadvantage of the lithium-ion battery is that under mass production conditions it is expected to be more costly than its ultracapacitor competitor.

POWER COMPARISON OF THE COMBUSTION ENGINE CAR WITH THE ELECTRIC CAR

By J Varney Dated April 16th. 2009

The combustion engine car:

Consider a compact well-designed vehicle with a relatively efficient small engine [i.e. a modern Honda civic]
Engine overall efficiency including all mechanical and thermal losses are say 22 %
Gas tank capacity = 10 imp. gallons - Highway m.p.g [at cruise speed] allow 40 m.p.g - Range 400 miles.
Specific gravity of gasoline = 0.75 – Weight of fuel in an imperial gallon = 7.5 lbs - Total weight of fuel in tank = 75 lbs.
Net heating value [L.H.V] = 18,600 B.t.u. / lb. – Total thermal energy stored in tank = 1,395,000 B.t.u.
Electrical energy [KWH] expressed as heat energy [B.t.u.] is 1 KWH= 3413 B.t.u.
Therefore the total energy stored in tank expressed as electrical energy = 1,395,000 divided by 3413 = 408.7 KWH.
Therefore the total useful energy stored in tank [accounting for engine efficiency] = 408.7 times 0.22 = 90 KWH.

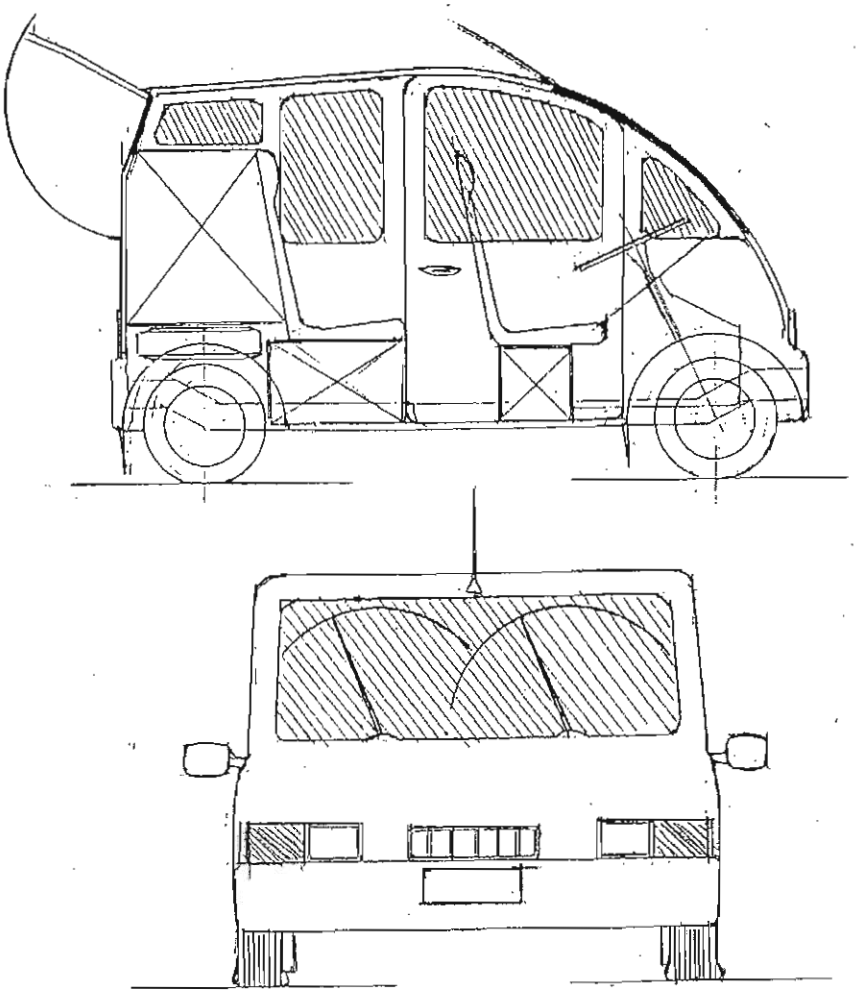
The Electric car:

Consider the same compact vehicle used in the example above but assume it is equipped with an electric drive system as a replacement of its engine drive system.
The energy stored in the "ultracapacitor" battery system is to provide a useful energy storage of 90 KWH.
Now the number of devices or components within the electric drive system that leak energy is far fewer than the engine system and will result in a much higher overall efficiency.
Energy losses in the processing components between the battery and the traction motor could amount to say 7%.
Energy losses in the "traction motors" [that drive the rear wheels] including thermal losses could amount to say 3%
Therefore the overall efficiency of the electric drive system will be 90%.
The installed capacity of the ultracapacitor battery system = 90 divided by 0.9 = 100KWH.
Using the "specific energy" rating, identified on the internet specifications for the ultracapacitor of 280watt.hours/ kg, we can deduce that the weight of the battery = 100,000 divided by 280 = 357 kgs. [786 lbs]

It should be noted that the drive train efficiencies identified above are nominal rather than real and merely demonstrate a basis for comparison.

THE PROTOCOL SEDAN
A FIVE SEATER ELECTRIC CAR

Designed by: John Varney Dated: March 30th. 2009

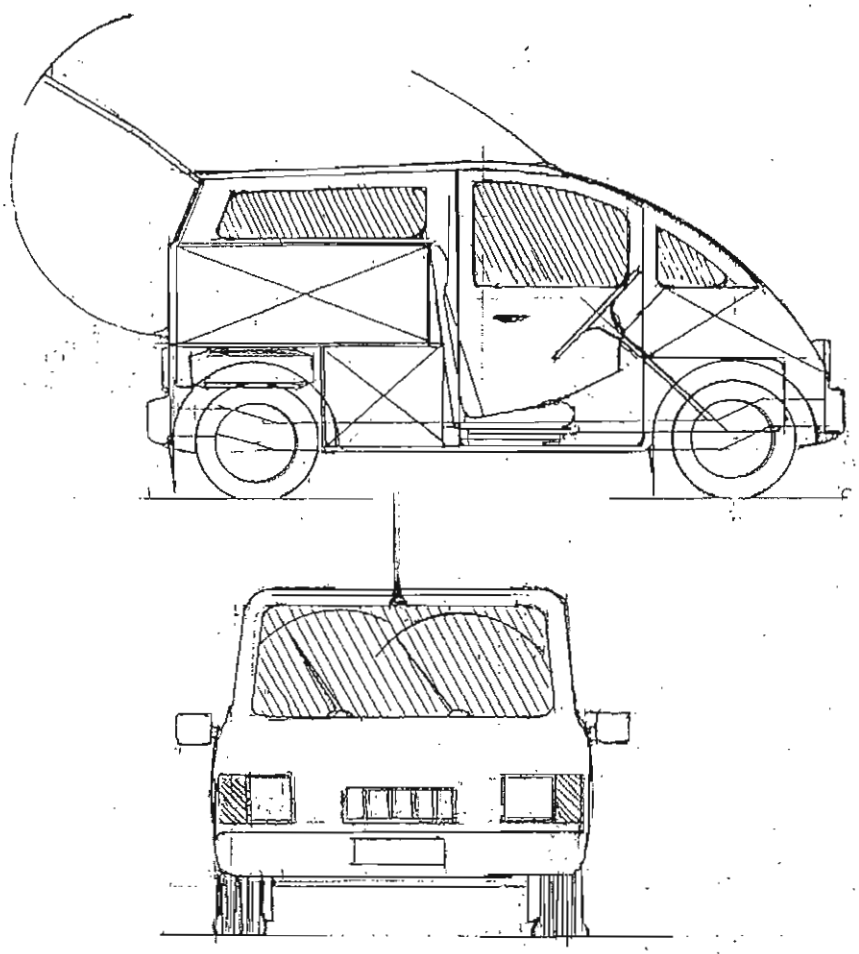


Specifications:

Two door Hatchback – Family sedan – Traction motor drive on each rear wheel
O/A length - 100 inches. O/A width – 70 inches. O/A height – 60 inches
Wheels 18 inch dia, 6 inch wide. Rear bench seat for 3. Front bench seat for 2.
Ultra-capacitor battery system –Energy storage 100 KWh. – Voltage 350.
Specific energy 280 watt-hours/kg. - Peak power 50 KW – Cont. power 18 KW.
Range with fully charged battery 400 miles.
Cruise speed [highway] – 60 mph. Maximum speed – 100 mph.
Charge time [a] for public HV station – 5 min. [b]- for home outlet – overnight.
Manual steering [electric steering optional]. – Electro-Hydraulic brakes.
Front suspension with independent strut-type.
Rear suspension with independent strut-type.
Electric heater [air conditioning optional]. Electric wipers. Trunk space 18 cu.ft.
Battery system [including processing components] under rear bench seat.
Vehicle auxiliaries under front bench seat and under dashboard.

THE PROTOCOL SPORTS
A TWO SEATER ELECTRIC CAR

Designed by: John Varney Dated: March 30th. 2009



Specifications:

Two door Hatchback – Sports – Traction motor drive on each rear wheel
O/A length - 100 inches. O/A width – 55 inches. O/A height – 50 inches
Wheels 18 inch dia, 6 inch wide. Two bucket seats.
Ultra-capacitor battery system –Energy storage 80 KWh. – Voltage 350.
Specific energy 280 watt-hours/kg. - Peak power 50 KW – Cont. power 18 KW.
Range with fully charged battery 400 miles.
Cruise speed [highway] – 60 mph. Maximum speed – 100 mph.
Charge time [a] for public HV station – 5 min. [b]- for home outlet – overnight.
Manual steering [electric steering optional]. – Electro-Hydraulic brakes.
Front suspension with independent strut-type.
Rear suspension with independent strut-type.
Electric heater [air conditioning optional]. Electric wipers. Trunk space 15 cu.ft.
Battery system [including processing components] behind bucket seats.
Vehicle auxiliaries inside the large dash board compartment.

PART 2 - NEW FUSION REACTOR FOR POWER GENERATION, MARINE PROPULSION AND AEROSPACE PROPULSION

Emergence from Chaos, a shining new Order

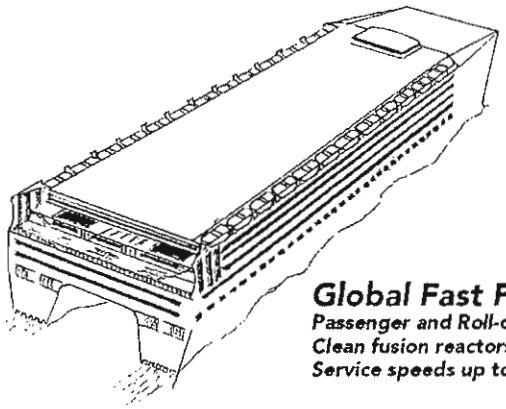
The world cries out for urgent action by governments, industry, academia and yes, the media, to focus with determination, resolve and cohesion, on refining and mass producing equipment incorporating technologies [some of which are already proven in research laboratories] that will provide vehicle propulsion [on land, sea, air and space] and power generation with compact, efficient, safe, clean and low cost units that will replace all fossil fuels and nuclear [fission] fuel within a decade.

The redundant nuclear weapons, nuclear power plants in power stations and in naval ships [both surface and submarine vessels] will be deactivated [decommissioned], dismantled, decontaminated and the fissile material placed in adequately shielded containers for temporary storage.

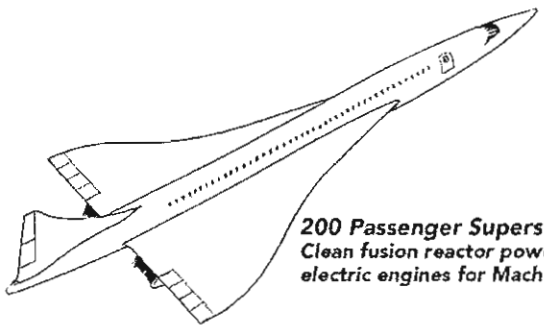
We can now accept the reality, that a dawn of enlightened progress, can now begin its delivery to the global village.

All internal combustion engines presently powering aircraft, ships, yachts, trains and all road vehicles will, within the decade be replaced with alternative electric power plants that do not involve the combustion process and thus do not in any way contribute to global warming and climate change.

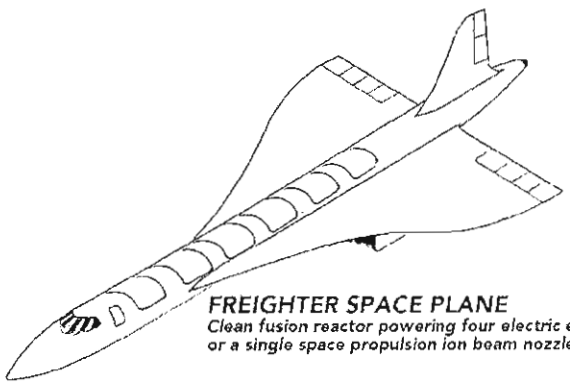
IMAGES ON TOMORROW'S RADAR



Global Fast Ferry
Passenger and Roll-on/Roll-off Freight
Clean fusion reactors driving water jets
Service speeds up to 70 knots



200 Passenger Supersonic Transport
Clean fusion reactor powering four electric engines for Mach 3 cruise



FREIGHTER SPACE PLANE
Clean fusion reactor powering four electric engines or a single space propulsion ion beam nozzle

With the need to have a plan for steady growth, a cleaner environment and time urgent action to control the degree of calamity from climate change, this technology is achievable with a transparent and committed international project that is planned and implemented immediately.

It will not only foster international trust and co-operation, but will trigger an enormous, diverse, healthy and clean industrial revolution that will represent a huge step in global cohesion and enlightenment.

The more recent strategy, embracing nuclear fusion [via the DPF reactor system] reveals the direct conversion of an extreme high temperature plasma to electrical power avoiding the elaborate and expensive thermal system that is traditional in power generation and propulsion. This strategy is called the Varney Protocol and the following associated documents outline the DPF reactor and its application to the market place.

The Varney Protocol – Summary

The Varney Protocol – An illustrated pressurized DPF reactor system

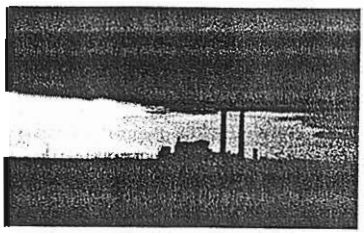
Prime objective, project set-up and funding framework [for first phase of prototype experimentation]

Removal from earth of all nuclear weapons and fissile material

Space-plane details & flight plan analysis

Both national and local governments, all the major corporations [Rolls-Royce, Siemens, General Electric, Airbus, Boeing and NASA] have received the listed documents and refuse to discuss the material, despite the fact that all oil, gas and coal fired power generating plants [in fact all power plants incorporating the combustion process] will be decommissioned, decontaminated and dismantled within the decade.

Why have today's industrial societies been totally absent in planning and implementing such an all-important, urgent and necessary strategy?



The simple and tragic reason is that these important decisions are not made by politicians, they are made by a secretive, wealthy, powerful and ruthless cabal that represents [what President Eisenhower had originally coined] the military/industrial complex that informs sitting heads of governments, what strategies will be implemented. These strategies will meet with their requirements for widespread weapons production [for global sales] and extensive "Black budgets" that enable development and control of technologies that are perhaps a century in advance of technologies that are available to the rest of civilization.

Should this "cabal" practice transparency, a sincere sense of service to the worlds citizens and true compassion for the billions suffering from starvation, failing health, general poverty and exploitation [by the corporate world], they would ensure that all technologies [energy, transport systems] that would arrest global warming, promote a higher and healthier standard of living for everyone would be made available to every corner of the globe as a matter of absolute urgency.

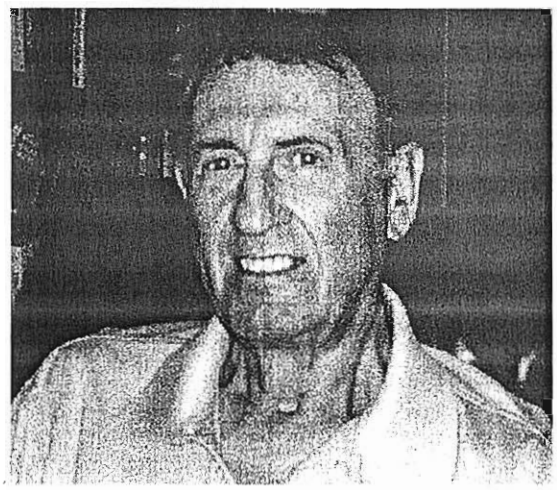
Sometimes silence is golden.

Sometimes silence can be deadly if it equates to maintaining the status quo in regard to the use of fossil and nuclear fission fuels [and the existence of nuclear weapons with delivery systems].

From *Transformation Protocol Canada*, "We have a great opportunity, at this moment, to exercise faith in our collective scientific and technological capabilities, to leapfrog the more modest, methodical and comfortable research programs that are now in operation, to secure for our children and grand-children, a real opportunity to thrive in a world that can recover from the devastation that our collective stupidity has brought upon them."

For this to happen in the short period of time available to us [before global warming and climate change proceeds to the condition that humanity can no longer control the deterioration of the environment from dooming are future existence], we must unite our efforts with the many experts and specialists able to transform this conceptual design into a practical reality

It can be done and it must be done now, before we fall asleep in comfortable denial of the dire, global predicament.



After studying Mechanical Engineering, **John W. Varney** migrated to Classical Atomic & Nuclear Physics at the Naval College in England. A member of Institution of Nuclear Engineers, he has designed aircraft jet engines, nuclear submarine primary systems design, steam plant design for power generation, application of gas turbines in power generation, and general consulting for industrial projects. Born 1939 in London, England, Varney is now retired and works to promote Dense Plasma Focus (DPF) fusion technology as a clean energy alternative to fossil fuels.

Summary of the Varney Protocol

Strategy:

The past few decades has demonstrated [through a lack of resolve and public cohesion] a failure to address the growing threat of Climate Change and Global Warming caused by the widespread use of the combustion process with fossil fuels. The international initiatives around the world to achieve an appropriate action strategy has been undermined by the relentless power plays of the corporate bodies related to combustible and nuclear fission fuels that provide the globe's power and propulsion needs.

Via the complete transformation of a 50 year old "Dense Plasma Focus Device" [utilizing a fuel that with this fusion process, generates zero harmful radiation or other polluting elements], a compact, powerful and potentially inexpensive reactor plant can be rapidly developed that can be applied to all the world's power and propulsion needs including vehicles on land, sea, air and space perhaps within a decade, with a united cohesive and urgent international project targeted for global survival.

The transformation of this device, into a stable and continuous operating fusion reactor, entails the extreme pressurization of the reactor [presently operating at an extreme vacuum], utilizes a unique hydrogen/boron fuel and compacts all components into a small package that can be delivered, ready for start-up, to any location around the globe or can be installed in any ship, aircraft or spacecraft as a replacement to an existing combustion or nuclear fission propulsion unit.

Conceptual Reactor Design:

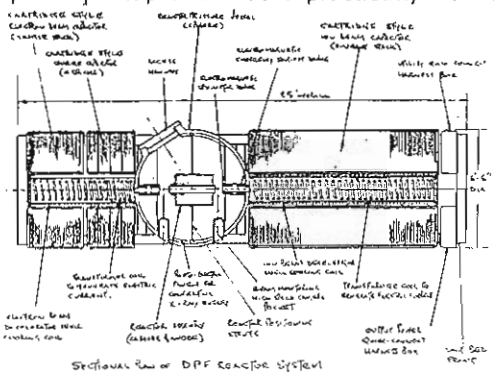
The Dense Plasma focus device, if and when converted to a fusion reactor, will produce electric power directly via ion beam and electron beam decelerator units [working in tandem with high efficiency super-capacitors]. This important feature means that the traditional thermal systems incorporating steam plant or gas turbine plant are no longer relevant to power stations or vehicle propulsion plant that utilize this remarkable process.

Eric Lerner and his research team at Lawrenceville near Princeton have, for the past few years, experimented with substantial success, to convert the "Dense Plasma Focus Device" from a research tool to a continuous fusion reactor utilizing an aneutronic fuel comprising of hydrogen and boron and identified as "pB 11".

The word 'aneutronic" means that the fusion process, when applied to this fuel will produce an ion beam and a separate electron beam but will emit no neutrons within those beams thus ensuring almost zero radiation and minimizing any requirement for radiation shielding. There will be a limited amount of X rays in this fusion process for which Eric learner has patented a special decelerating device.

This research team is however committed to development utilizing [in line with all historical research with this device] with the entire system operating in an extreme vacuum and with most components physically isolated from each other.

The problem that I see with this strategy is that ion and electron beam densities will be very low, reactor systems will be relatively large and potential gain ratios [output power/input power] will prove to be impractically modest.



For this reason and after contact with the Lerner team, I have decided to create a conceptual design that would operate at extreme pressure [at 50 atmospheres instead of at 0.05 atmospheres] in order to increase beam densities by a factor of at least 1000 and to obtain extremely powerful and compact reactor systems with the real potential of remarkable gain ratios.

Further, to increase the energy capture [of the high energy beams] within the ion beam and electron beam decelerator systems I have invented a system designed to maintain full pressure of the reactor and the generated energy beams whilst operating the decelerator units [within their chambers] at extreme vacuum.

For more specifics of the reactor system components see the Varney Protocol illustrated DPF reactor system document here.

Worldwide application

For central power generation worldwide, all existing fossil fueled power generating plant and all existing nuclear [fission] power stations would be shut down [dissembled and decontaminated as possible] and would be replaced with powerful, compact, environmentally clean and low cost fusion reactors.

For new local community power stations, small fusion reactors, independent of or tied into a national grid system can be installed.

For all existing railway networks, that are not electrified, they would, where possible, be converted to electric systems or in rare cases [for transcontinental networks] the existing locomotives would be replaced with fusion powered locomotives.

For all existing road transportation vehicles, these would be converted to electric power via a new technology of the super-capacitor [also known as the ultra-capacitor] that incorporates dry cells comprising of compact bundles of parallel thin plates coated with a remarkable compound called Barium Titanate, The potential storage capacity, the power density and the number of deep power cycles that the unit can withstand [in the region of a million] makes this unit a game changer. Another emerging [and proven] technology is the Blacklight Power CIHT [Catalyst Induced Hydrino Transition] unit that is now being scaled up for use primarily in road vehicles.

For marine applications [ocean-going, coastal and inland waterways] for commercial and naval vessels, the fusion reactor is again a clean, powerful and compact answer. The major naval vessels [nuclear aircraft carriers and nuclear submarines] would be converted to fusion units enabling the existing reactor plant and steam plant to be dissembled and decontaminated as far as is possible. Another option for these major vessels is to decommission them and build new ships as needed for the long term naval strategies!

This era would introduce vast fleets of global fast ferries [now removing the need to carry huge fuel inventories] carrying freight and passengers point to point across the world's oceans at about 70 knots [almost 2000 miles in 24 hrs] so that you could travel in comfort and at leisure from anywhere to anywhere in less than 7 days.

For all commercial, private and military aircraft, a powerful and compact fusion reactor would power motor driven multi-stage fans [within conventional nacelles]. For the take-off phase, the motor driven unit would absorb most of the reactor output to generate the high thrust requirement, however during cruise at high altitude [low air density] an appreciable surplus of reactor power could activate electric heating elements located downstream of the multi-stage fan to increase the exhaust velocity of the propulsive air and increasing the unit's efficiency at the cruise condition.

Similarly for supersonic transporters the transonic and mach 3 cruise phases could be efficiently achieved with activation of heating elements downstream of the multi-stage fan.

For spacecraft, take-off [from any airport] as a supersonic aircraft, would proceed through climb to altitude for the transonic phase and then acceleration and climb to mach 3 at 100,000 feet, before the fans and heaters are shutdown and the powerful ion beam [being generated in the fusion reactor] is routed through a deactivated ion beam decelerator, and on to an ion beam propulsion nozzle [propelling the spacecraft]. Under this phase of operation, the reactor input energy will be drawn from the electron beam decelerator unit and any surplus electrical power could be routed to the iron beam propulsion nozzle for further processing [augmenting] the energy of the propulsive ion beam.

Every airport, every seaport, every power station and every city would be provided with a pB11 [hydrogen/boron fuel] production and storage facility where a thoroughly refined, stable and totally uncontaminated fuel can be produced, stored, handled, monitored and delivered to all the fusion plants [in vehicles or power stations].

For this concept to evolve thru the feasibility and initial prototype phases, it will definitely encounter discoveries, problems, depressing hurdles and will require relentless resolve that, with international co-operation, funding and committed project control, will deliver to mankind the enlightenment and technology needed for our grandchildren to survive and prosper.

The Varney Protocol – An illustrated pressurized DPF reactor system

March 27th, 2012

Ladies and Gentlemen

I am not a Scientist or a person with expertise in the area of fusion research, but I do propose a compact revolutionary fusion reactor system [based on the long and developed technology of the Dense Plasma Focus device] that may well rapidly and effectively transform the status- quo of fossil fuel power generation [and propulsion systems] and nuclear fission power generation, into a clean [non-polluting] zero emissions era that will form the bedrock for future generations to thrive and prosper thru the 21st. century.

For this to happen in the short period of time available to us [before global warming and climate change proceeds to the condition that humanity can no longer control the deterioration of the environment from dooming are future existence], we must unite our efforts with the many experts and specialists able to transform this conceptual design into a practical reality.

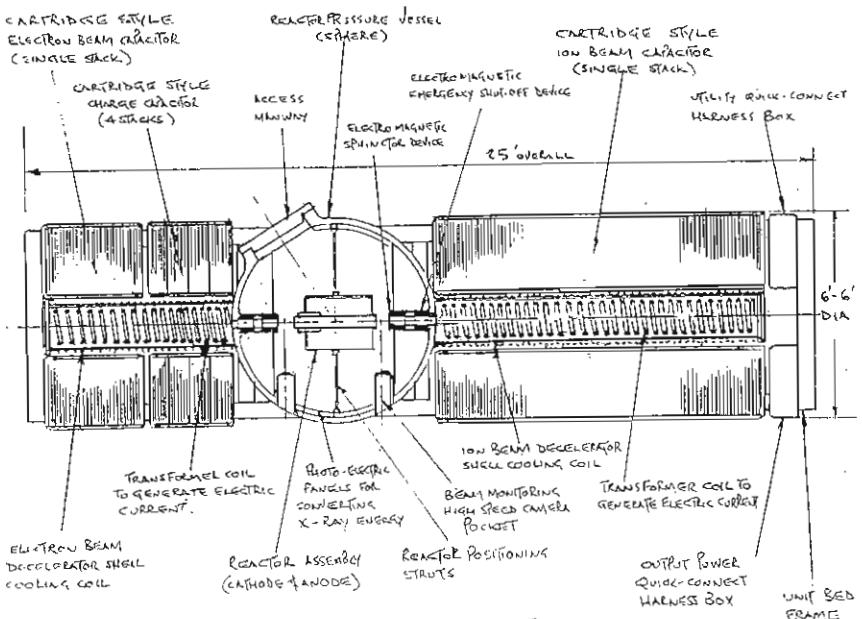
We can best achieve this by governments getting off its collective arse and directing the participation of established research groups and major international corporations towards an urgent and totally committed project schedule and budget to replace the fossil and nuclear fission fuel era within the next decade.

It can be done and it must be done now, before we all fall asleep in comfortable denial of the dire, global predicament.

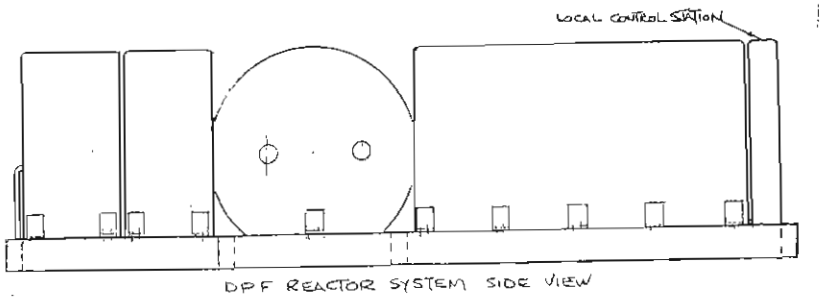
Illustration of the DPF reactor system

ILLUSTRATION OF THE DPF REACTOR SYSTEM
Designed to the Varney Protocol Dated March 26th. 2012

This illustration shows only a conceptual design for a prototype DPF reactor system that operates with a reactor pressure of 50 atmospheres. As there are many unknowns in relation to size and strength of the ion and electron beams created, it is not possible in this unexplored territory, to predict net output or gain ratio [output/input] of this unit. With the generous size of the major components, a net output from this prototype in the region of 100 MW would not be an unreasonable expectation.

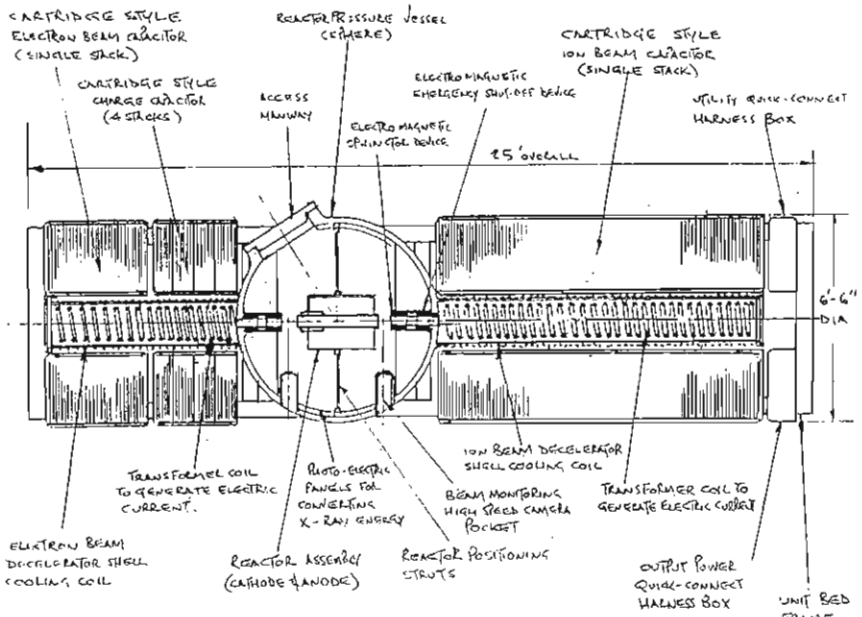


SECTIONAL PLAN OF DPF. REACTOR SYSTEM



DPF REACTOR SYSTEM SIDE VIEW

Strategy to operate a Dense Plasma Focus Device at high pressure
Assumptions: Reactor chamber is to be placed in a pressure vessel [a sphere] that is designed to applicable ASME codes [to say a design pressure of 1000 psig and a design temperature of say 800 degrees F].



SECTIONAL PLAN OF DPF. REACTOR SYSTEM

Size and proportions of Cathode and Anode optimized for anticipated requirements for operating with pressurization of fill gas from initially to 10 atmospheres and ultimately to say 50 atmospheres.

Design of decelerators to be suitable for operation under vacuum inside their own cylindrical chambers [integrated to opposite sides of reactor sphere and each decelerator served by a electromagnetic sphincter device to maintain pressure in reactor sphere and a vacuum condition in the decelerator chamber.

Operating [conceptual] procedure:
Initiate pressurization to say 0.1 atmos. and initiate the electric charge frequency to give desired fusion pulse.

Increase gas fill pressure in increments of 0.1 atmos. until existing charge frequency begins to lose maintenance of fusion pulse [because of the retardation of plasma sheath movement down the anode due to increasing gas density].

Double charge frequency [whilst simultaneously adjusting voltage downwards] so that the frequency of fusion pulse is approximatel maintained but the input charge is now in two increments that deliver more energy to the plasma forming process thus maintaining healthy fusion pulse.

Proceed with pressurization in increments of 0.2 atmos. whilst gradually increasing charge voltage [to maintain energy input requirements but still at the double frequency of electric charge].

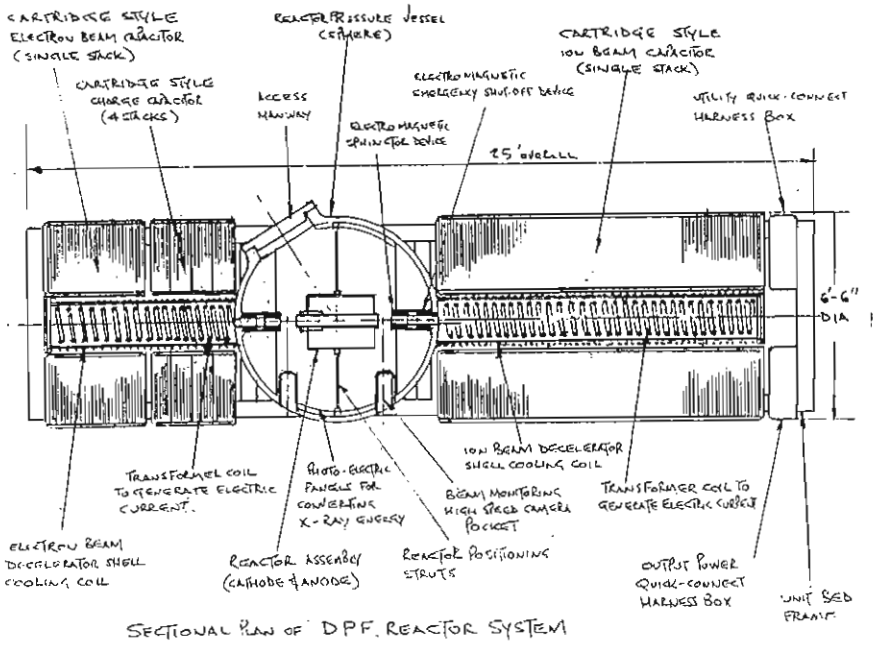
As fill gas pressurization continues, the double charge per fusion pulse may again begin to be inadequate to maintain the plasma ful cycle and again the charge frequency should undergo a step increase to three charges per fusion pulse [whilst again, adjusting voltage downward to match ongoing energy requirement for maintaining the frequency of fusion pulse.

As long as reactor performance continues to be enhanced and all components operate safely within the mechanical and electrical designed limits, this pressurization of reactor operation should advance [with further increase in charge frequency as necessary] to achieve performance optimization.

Note: Before and after a step change in charge frequency, a manipulation of the charge voltage may enable a better match of the required charge energy application to the plasma sheath, to be effected.

Comment with speculation of plasma production:
When doubling, tripling or further increasing the charge pulse this may well reduce the amplitude [but not the essential characteristics of] the plasma pulse with a result that a degree of fusion events will appear to exist constantly at a low flux level anc as a baseline threshold that is subject to peak fusion event flux occurring at the constant pulse frequency.

The overall result with vastly increased pressure, a baseline of constant low level fusion together with high power peaks may delive gain ratios well beyond our most optimistic expectations.



SECTIONAL PLAN OF DPF REACTOR SYSTEM

DPF reactor system

A pressure sphere is required to provide a pressurized chamber filled with hydrogen/boron fuel that is at the same pressure as the operating reactor thus removing any pressure differential across the wall of the cathode. All cabling and piping from the reactor system are routed thru the wall of the pressure vessel with appropriate electrically insulated and pressure containing connections, to components beyond the pressure vessel [for example to the integrated decelerator chambers, switches, capacitors, local control station, export power grid and site services harnesses].

Within the reactor sphere will be housings [diametrically opposite each other] for the electromagnetic sphincter devices [together with electromagnetic emergency shut-off units] that will convey the pulsating energy beams [ion beam on one side and electron beam on the other side] to the decelerators, whilst the beams briefly exist, then providing a tight pressure seal for the brief moment that they do not exist.

Two cylindrical pockets [extending from the outer surface of the sphere into its interior and including a pressure lens in the end wall], will house high speed cameras to monitor the pulsating beams and thus enable the display of these pulsations [substantially slowed down] on a screen at the local and remote control stations.

The reactor pressure vessel will include an access man-way that allows for inspection and service and will be adequately sized to enable components to be removed and replaced as necessary.

Ion Beam and Electron Beam Decelerators

The Varney Protocol strategy may be successful, as originally defined, however the pressurization of the ion beam and electron beam decelerators and the associated retardation of the beam due to extreme gas pressure will probably result in substantial energy loss and very low efficiency of energy recovery.

It is therefore proposed to operate both decelerators [housed in their own chambers but still integrated with the reactor system pressure chamber], at a vacuum condition!

This would be effected by positioning at the beam entry point to the decelerator, a small but powerful electromagnetic sphincter that would open for the duration of the ion beam pulse [but tightly embracing the beam] and then, as the beam collapses, close to isolate totally the decelerator chamber from the reactor system chamber. We would then get the best of both worlds as follows:-

[a] reap the benefit of an extremely dense plasma sheath-forming cycle because of the fill gas [fuel] pressure thus delivering a much more powerful ion beam to the decelerator via the sphincter.

[b] reap the benefit of a high efficiency decelerator [within its own chamber] operating at an acceptable vacuum.

It may also become evident that the increased number of charge cycles per ion beam pulse under steady operation [at high pressure] will provide a constant beam of varying size [in unison with the pulse cycle].

The essence of the decelerator device, as I understand it [as a non expert in the discipline of electrical engineering], is that a tightly wound helical coil, arranged to embrace the axis of the ion beam [or electron beam] and with the excitation of an appropriate electric field, will act as a transformer by decelerating the beam, converting the beams energy into electric currents that are then routed to banks of capacitors [thus providing a source of electric power to be transmitted to the grid].

Each decelerator unit would incorporate all necessary electrical insulation and if necessary a water cooling coil embracing the outer surface of the vacuum vessel, to remove heat radiating from the decelerating beam whilst maintaining an acceptable temperature of the thermally insulated decelerator shell.

The vacuum drawing exhaust connection [on each decelerator vessel] would be relatively large and would provide, via a relief valve in a branch line, a route for large flow-rates of fill gas to be relieved from system [to a storage vessel] should total failure of electromagnetic sphincter system occur.

The Ion Beam decelerator, providing the vast majority of energy for power generation [via the capacitor banks], will be substantially longer than the Electron Beam decelerator but both units will have the same vessel and coil diameter.

Note: Owing to the high density of fill gas [fuel] in the reactor sphere the deceleration of X-Rays produced in the process may well be achieved without the use of the special decelerator device [patented by Eric Lerner] and therefore only the high-tech. photo-electric cells [panels] for capturing the residual X-Ray energy, need be placed on the inside surface of the sphere.

Capacitor banks for the Dense Plasma Focus Reactor system

Part of the "Varney Protocol" is to integrate the several banks of high voltage capacitors into this simple and compact DPF reactor system such that these capacitors and all system components can be strategically positioned and mounted on a strong bed suitable for air-freight to any site location in the world where, on arrival, it can easily be set in place, undergo testing, be commissioned and brought on-line to the grid within hours.

The Vacuum type capacitor stacks would be designed in the form of cartridges with an outer diameter [over the outer vacuum casing] of approximately 2 meters and with an inner diameter [over the inner vacuum casing] of approximately 0.5 meters. These capacitor stacks would [during the assembly of the reactor system] be positioned around [envelope] the decelerator vessels with both reactor assembly and capacitor stacks orientated in the vertical position. The stacks and reactor system will be in a horizontal position and all mounted on unit bed when assembly is complete.

The Charge capacitor bank will consist of 4 stacks [operating in parallel] and will via a switching unit, deliver the charge to the reactor in sequence [thus reducing frequency of charge firing/ stack by a factor of 4]. During the latter stages of pressurization the frequency of firing, overall, will be much higher than at the beginning of the process.

The capacitor banks serving the ion beam and electron beam decelerators will each consist of single stacks with the electron beam decelerator capacitor having only about 30% of the plates that will be included with the ion beam decelerator capacitor. Outputs from these power generating capacitors will require processing for either 50 cycle or 60 cycle grid frequency together with a device for synchronizing with grid frequency.

An option exists to either seal vacuum condition into capacitors or to connect each stack into the DPF reactor system unit vacuum system.

After reaching full operating pressure, the power for the Charge capacitor bank should be taken from the power output main and, with a small transformed [low voltage] power supply, auxiliaries should also be supplied from the power output main.

Unit size range and features of self contained DPF systems

In consideration of the possibility that DPF generating plants could, in the not too distant future, become a mass produced product in a wide variety of standardized sizes, we could contemplate automated [but necessarily labor intensive] production lines similar to those of the auto industry.

Each production line would assemble a specific size [MW rating] of DPF integrated power plant [mounted on a common bed and including all connected and tested components together with a local control station] and would be placed on a flatbed for shipment to its site of installation. When placed in its operating location and a secure high integrity quick-connect harness integrates it to the power grid, the central control station and necessary site services, it will be ready for testing and commissioning.

With a vigorous worldwide market anticipated [in all categories of application] the offering of standard, mass produced sizes, may be a more practical strategy than offering units custom designed for each client.

The following unit sizes are envisaged for each category of application with the intention that the power plant for any specific application would incorporate [for flexibility and reliability of operation] multiple reactor systems:-

Central power stations – 100 MW units
Local power stations – 10 MW and 25 MW units
Rail transportation [for non-electrified rail systems] – 5 MW units
Large marine vessels [including naval surface and submarine craft] – 10 MW, 25 MW, 50 MW and 100 MW units
Small marine craft [in all categories] – 0.5 MW, 1 MW, 2.5 MW and 5 MW units
Aircraft [in all categories] – 0.5 MW, 1 MW, 2.5 MW, 5 MW, 10 MW, 20 MW, 40 MW, 60 MW and 80 MW units

Sales [worldwide]of the 100 MW units for new power stations and for replacing all existing fossil and nuclear fired stations, could exceed 70,000 units over a 5 year period [being supplied by perhaps 10 major multinational corporations].

In the case of units for the aerospace industry, standard size power plants would still prevail but incorporate arrangements and materials that optimized compactness and weight.

Prime objectives, project set-up and funding framework

Prime objectives, project set-up and funding framework, to be achieved with first batch of prototype fusion reactor systems

[a] using the pressurization process- establish the beam pulse on a continuous and stable basis with the intent to fine tune the charging criteria and anode length to establish a continuous ion and electron beam that has a varying diameter [thus a varying strength] as a modified identity of a frequency of individual pulses.

[b]following the completion of [a] to establish a capability to have [at steady range of output electric power] a continuous charge energy that reflects stable voltage and thus bypasses [under stable operation] the elaborate and hard wearing switching devices.

[c]Further optimization of components and conditions of charge energy and beam power will reveal the best achievable Gain Ratio [output/input] for the first phase of production models.

[d] to establish a clean, compact and efficient process for the production of uncontaminated and stable hydrogen/boron fuel.

[e] With necessary heat removal systems, to maintain an acceptable range of operating temperature for all components and to capture and recycle [also decontaminate] any fuel that reaches the vacuum extraction system serving the ion beam and electron beam decelerators.

[F]To determine the best achievable fuel consumption rate [expressed as the number of MW hours exported to the grid per pound of PB fuel consumed]. This fuel rate will include the advantage of recycled component from the decelerator vacuum system.

Of course there are so many unknowns, discoveries and unimagined hurdles to climb, in the prototype phase and this is why the program must be an international endeavor with several teams participating with their own prototype unit and via total transparency and a single project management and control team, will, via monthly progress meetings, bring this fantastic project to a successful conclusion.

In regard to funding I recommend as follows:-

[a] The government for each country participating in project, will fund [for an initial 3 year program] the team of [technologists, engineers and scientists], the laboratory, equipment, power consumption and power infrastructure and all other consumables. Also the travel and accommodation costs incurred for project meetings and interfacing with competing teams will be funded by their teams government.

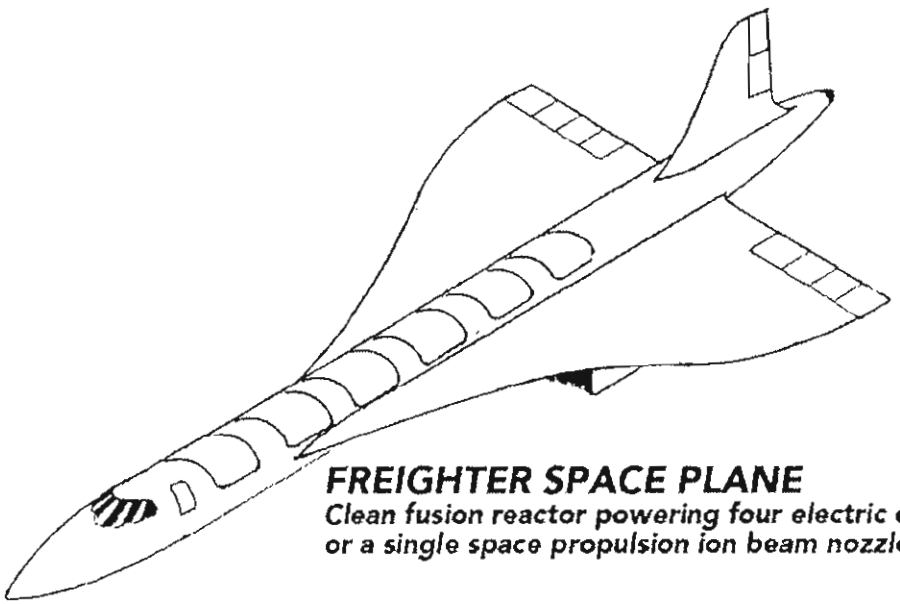
[b] all manufactured components [and spares] forming part of the prototype and including the total unit assembly will be donated by a major contractor [and their subcontractors] as a signed contract that on successful completion of prototype phase they all will supply the first 1000 production units. Of course included in their donated services will be, engineering, delivery of equipment, project control of prototype reactor plant delivery schedule and travel and accommodation of all staff required through the prototype 3 year program.

They will appropriately recover their considerable outlay be integrating all those costs into the price for the production units.

Removal from earth of all radioactive weapons

Ref: Varney Protocol Summary November 26th.2012

The possibility that backing for the fusion reactor concept program is forthcoming and the associated initiative for the development of the space-plane progresses, then we have the potential for a fleet of vehicles [called space-plane freighters] to ship all fissile material [in shielded containers], into earth orbit and then accelerate to escape velocity on a trajectory that will bring the payload [when released from the cargo hold] to eventual and fairly rapid capture by the sun.



FREIGHTER SPACE PLANE
Clean fusion reactor powering four electric engines or a single space propulsion ion beam nozzle

The major features of such a vehicle would be as follows:-

-Have ability to take off from a conventional airport [but at a remote coastal location], climb over the ocean to an altitude suitable for the transonic phase, climb and accelerate to mach 3 at 100,000 ft. and then switching from the multi-stage fan plus heater propulsion system to the ion beam space propulsion system to achieve earth orbit.

-Have the ability to accelerate to escape velocity [plus] before shutting down ion beam propulsion and when reaching the non-return point to sun capture, release payload, maneuver vehicle away from payload and re-orientate for activating ion beam propulsion unit for return to earth orbit.

-Have the ability, during re-entry to the upper trace edges of the atmosphere, to activate ion beam in a retro-fire mode to limit velocity [in backwards motion] to Mach 2 prior to re-orientation and penetration through the atmosphere with speeds below mach 3. At approximately 50,000 ft the multistage fan propulsion units would be activated to facilitate return to the originating airport.

One round trip could possibly be accomplished in about 12 hours and when the total shipping operations are in full swing each vehicle could make a daily schedule.

A starting point for the sizing of the space-plane is to be designed for perhaps, a payload of 200,000 lbs.

If we assume [as an example] that the global compliment of fissile nuclear material [as weaponry] is say 25,000,000 lbs. and if we assume that the global compliment of fissile nuclear material [as spent and unspent reactor fuel] is also an amount of 25,000,000 lbs. The total material for shipment is 50,000,000 lbs of fissile material and if we allow 10 lbs of shielding for every lb of fissile material, then the total global weight for removal is 550,000,000 lbs.

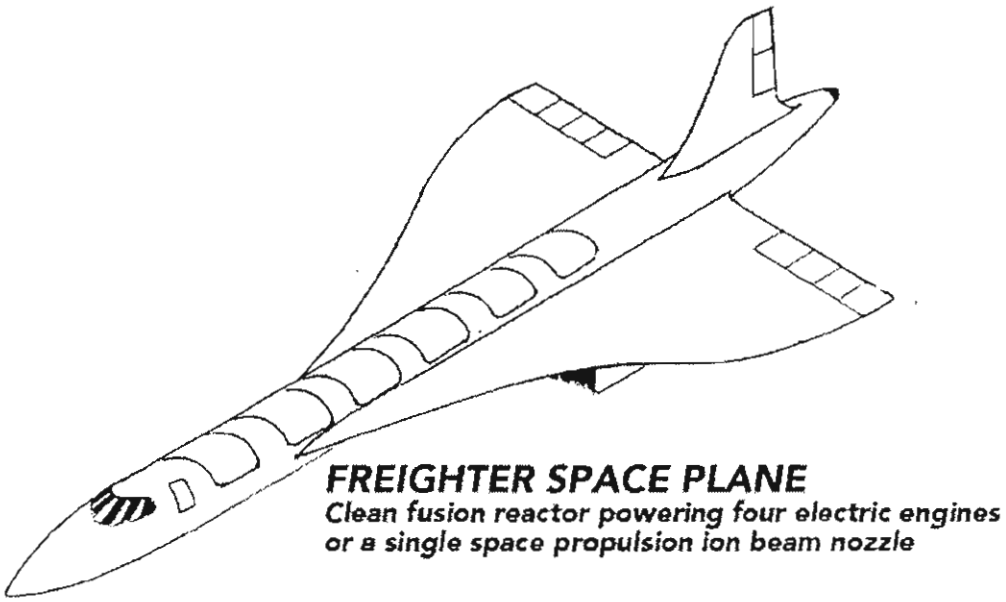
This would need, to complete the project, a total of 2750 shipments. With a fleet of 10 space-plane freighters each doing one round trip each day this program would be completed in 275 days!

Space plane basic details

My article issued November 30th. 2012, briefly describes the removal of fissile material [complete with necessary shielding] via a freighter space-plane, from this planet and deliver it to a trajectory in space that would, after release from space-plane, result in it impacting the sun.

On impacting the sun's surface, the fissile material would be subject to intense nuclear processes that would have the overall effect on the suns surface activity, as a grain of sand has on a beach. This processing of fissile material is, I believe, a much more effective and harmless solution to disposal than the alternative contamination threat that exists [for thousands of years] to this planet and all living species, if we try to store and secure the stuff here on earth.

The following data and flight analysis provide the primary mathematics that would enable each freighter [in a fleet of 10] to complete a round trip delivery in approx. '10 hours and thus in due course of experience to make a shipment on a daily basis. After a thorough testing and proving campaign it may be possible to operate these freighters entirely by remote control [similar to the latest technology drones] thus removing the risk of pilots [through malfunction] not returning from a delivery!



The maximum velocity achieved by the space-plane, prior to propulsion ion beam shutdown and payload release, is vectored in such manner that the orbital velocity [around the Sun] has reached zero and the payload is in free-fall toward the sun's surface.

Space-plane basic details:

Max. take-off weight including hydrogen/boron fuel for the fusion reactor and 200,000 lbs of payload = 450,000 lbs

The atmospheric propulsion system - 4 multistage electric motor driven fans [with electric heaters downstream for operation at altitudes above 30,000 ft.].

At take-off, each engine would provide a maximum thrust of 45,000 lbs [giving an acceleration down runway of 0.4 g].

Space plane basic details

For propulsion in space, a single ion beam nozzle [perhaps energy enhanced with surplus reactor power output] would provide a thrust of 225,000 lbs giving an acceleration rate of 0.5 g. * After ejection of payload and because of the reduced weight of space-plane during the homeward bound segment of the flight plan, the acceleration [deceleration] rate would increase to 0.9 g.

Small thrusters for re-orienting space-plane complete with appropriate fuel would be provided.

A cargo hold suitable for standardized containers and served with hatches and payload ejection pistons would be accommodated in a fuselage with an internal diameter of 150 inches.

The structure of the space-plane would be from composites having high strength and high temperature capabilities.

When passing through the atmosphere speeds will never exceed [especially its upper reaches during re-entry] mach 3 so that no surface insulation layers are required.

The arrangement of the space-plane [in regard to supersonic intakes and exhaust systems serving the 4 engines] will resemble the proven technology incorporated in the Concorde supersonic airliner.

Flight Plan Analysis [**download .xls**]

Flight Phase	Propulsion system	initial velocity ft/sec [m/s]	final velocity ft/sec [m/s]	accel/decel AVG ft/sec.sec	phase duration seconds	miles to Earth's surface at end of phase [km]
Take-off to mach 3 at 100,000 feet	Atmospheric	zero	3000 [914m]	6.44 [0.2g]	466	NA
Mach 3 and accel to orbit	Space	3000 [914m]	25,867 [7823]	16.1 [0.5g]	1,408	NA
Cruising in orbit to find escape window	None	25,867 [7823]	25,867	zero	Allow 2,700	NA
Earth orbit to escape velocity	Space	25,867	36,870 [11,177]	16.1 [0.5g]	683	NA
Escape velocity to final velocity	Space	36,870 [11,177]	100,000 [30,480]	15.5 [0.48g]	4,066	52,882 [85,105 km]
Cruise during payload ejection	None	100,000 [30,480]	100,000	zero	Allow 1,000	71821 [115,585]
Decelerate for return to earth	Space	100,000	zero	28.98 [0.9g]	3,451	104,501 [168178]
Accelerate for return to earth	Space	zero	30,000 [9,144]	28.98 [0.9g]	1,035	101561 [163,447]
Cruising back to earth orbit	None	30,000 [9,144]	35,289 [10,756]	0.322 [0.01g]	16,427	NA
Decelerate into earth orbit	Space in retro	35,289 [10,756]	25,867 [7,823]	28.98 [0.9g]	332	NA
Cruising in orbit to find re-entry window	None	25,867 [7823]	25,867	zero	Allow 2,700	NA
Re-entry from orbit to 100,000 ft.	Space in retro	25,867	1,000 [305]	28.98 [0.9g]	851	NA
Return to home airport	Atmospheric	1,000 [305]	zero	3.22 [0.1g]	311	NA

The total duration of round trip is 35,450 secs. [9.847 hours].

The total duration of fusion reactor operation is 12,623 secs. [3.506 hours].

The vectoring of the space-plane ion beam propulsion system, during the burn to achieve a velocity of 100,000 ft/sec [relative to the earth] and to achieve an orbital velocity [relative to the sun] of zero, will result in the released payload, having a velocity toward the sun [with zero orbital drift] of 20,954 ft/sec which will progressively increase with the increasing gravitational pull of the sun. The payload will impact the sun's surface approximately 60 days after release from space-plane.

Of course all the data above is based on the successful experimentation and development of the subject prototype fusion reactors [identified in the "Varney Protocol"] and the efficient harnessing of the energy generated from this proposed process.

The future adaption of this Freighter Space-plane to a 100 or even 200 passenger transport providing flight plans that include a lunar orbit [round trip of less than 24 hours] is not, in itself, a difficult progression once the freighter project is proven and implemented.