(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 February 2011 (17.02.2011)

PCT

(10) International Publication Number
WO 2011/018747 A4

(51) International Patent Classification:
F03D 3/06 (2006.01) *F03D 9/00* (2006.01)

(21) International Application Number:
PCT/IB2010/053592

(22) International Filing Date:
9 August 2010 (09.08.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/232,420 8 August 2009 (08.08.2009) US
12/852,465 7 August 2010 (07.08.2010) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*
— *with amended claims (Art. 19(1))*

[Continued on next page]

(54) **Title**: ENERGY CONVERTER

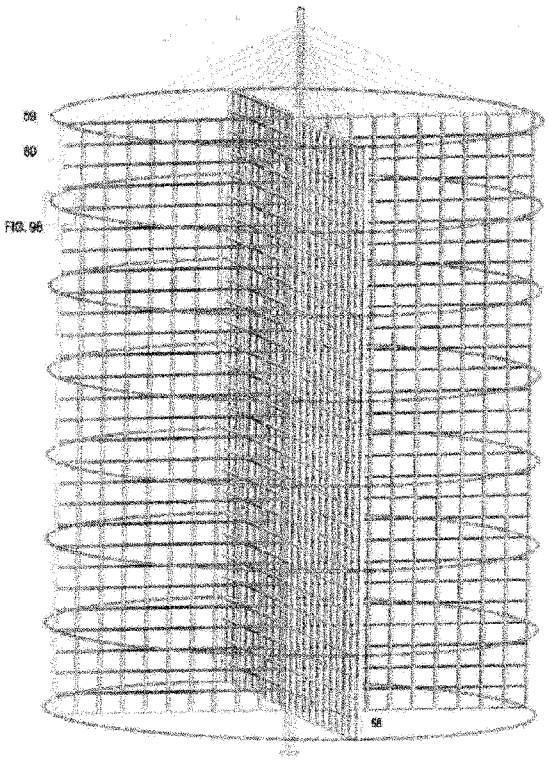

FIGURE 9A

(57) **Abstract**: This invention presents a New Technology with a total approach to solve problems posed by Climate Change and Air Pollution. An energy machine harnesses clean renewable energy from the wind, moving water and the sun as an alternative/replacement for fossil and nuclear power. Precise power is available from kilowatts to megawatts capacities with its flexibility as an assembly-type embodiment. A special feature is carbon and other pollutants capture Converting kinetic to potential energy in the form of compressed fluid against a solid wall and producing a relative vacuum at the back gives high productivity than any other. It has three products electricity, pumped water and compressed air which respectively rely for delivery on the Electric Grid, Water Pipes and Canals and the Air Grid. The Air Grid enables any Electric Power Plant to convert to renewable energy resources, aside from unique features for Air Conditioning/Refrigeration and for wondrous health benefits.

WO 2011/018747 A4

WO 2011/018747 A4

(88) Date of publication of the international search report: 1 December 2011

Date of publication of the amended claims: 3 May 2012

AMENDED CLAIMS
received by the International Bureau on 07.12.2011

The Claims of this Patent are:

CLAIM 1:

A UNIQUE ENERGY MACHINE, E-Machine,

that avails of a single, combination of, or all of renewable clean energy resources namely wind, moving water and solar for their intrinsic energies,

[for the purpose of these claims,] wind shall be used to represent any relevant quantity of appropriate fluid in motion as a power source; the same goes with any relevant quantity of appropriate energy;

to attain continuous conversion of kinetic energy of the wind to mechanical energy, this machine will alternately block the wind with a structure that mimics or functions as a solid wall against the path of the wind and allows the same to rotate at a pivot, which takes the form of a rotating center pole, then render the same structure ineffective as a blocking wall;

to harness the energy from the wind comprises,

ROTATING SOLID WALL, this wall is divided into horizontally and vertically arrayed relatively small adjoining walls that reorient their settings when called for; that is, the small walls will embody one big Solid Wall to block the wind one half of the time; then, the small walls will make the Solid Wall become ineffective with respect to the wind by changing respective positions to let wind pass through at the remaining half of the time; [WIND-IMPACT-REGION, *W-IMPACT-R,* is the path of the wind where it is intercepted by a structure that functions as a Solid Wall; WIND-FREE FLOW-REGION, *W-FREE FLOW-R,* is the path of the wind where it is tolerated to pass through the *E-Machine* with the least obstruction; insertions such as these are more for clarity and continuity of understanding;]

the relatively big Solid Wall can also be comprised of medium-sized solid walls further subdivided into relatively small adjoining walls; the small walls may take varied forms by means such as that of a flat rectangular vane as in a wind vane; that they may also take the form of a foldable hand fan that generates artificial wind when repeatedly moved sideways; in the form of small accordion walls as those used to close stores, or protect windows; there are varied possibilities of what form to use, but what is important is, that they are relatively small, adjoining and synchronized to embody one big Solid Wall; and that, they can be opened or closed as desired using the action of gravity and position to open or close, or they can be made to by means of motorized mechanism for the same purpose;

SMALL WALL WIND VANE, *SWW VANE,* is represented as a small wall in the form of a flat rectangular sheet that has a slim head falling water drop-shaped-cross section for aerodynamic wind flow, the cross section shape may also be that of a wing of an airplane; the design allows it to pivot to a full Flop, vertically down closed position, to mimic a wall that is against the flow path of wind and also pivot to a full Flip, parallel to the Z-plane, that opens the *SWW Vane* to let the wind pass freely;

NORMALLY OPEN SWW VANE, has a *Head Section* that is slightly less heavy than its *Tail Section* to make it normally open, initially with slightly inclined position, then into *Parallel Position to the Z-Plane*; but allowing a minimum exposed area for the wind to act on and make it eventually have a closed position;

OPTIONAL ATTACHMENTS /MATTERS, the *SWW Vane* may be equipped by means of *Vane Stoppers* to limit it from attaining more than Ninety Degrees with respect to the Y-axis – allowing so might adversely affect the Flop action of the *SWW Vane*; and, *Noise Dampers* to constrain whatever noise generated by its quick banging when it moves fast towards a full Flop position; the *SWW Vane* may also open (Flip) or close (Flop) with the aid of a motorized device;

to achieve the Solid Wall effect in the *W-IMPACT-R*, the full Flop *SWW Vanes* overlap at their respective borders with the Tail Edge of an upper vane on top of the Head Edge of its adjoining lower vane; the Tail Edge is slightly extended such that the area of the slight extension presses a corresponding area near the Head Edge;

[there are areas with perennial turbulent winds, storms or hurricanes;] the exposed area must be reduced appropriately; the width of the *SWW Vane* should be reduced accordingly; the length span of the *SWW Vane* should be reinforced as the threat of bending leading to possible breaking by the wind will be more pronounced; the horizontal position of the *SWW Vane* is also claimed with the flexibility that it can be oriented vertically or otherwise; and,

SOLAR WIND VANE, the *SWW Vane* can use Solar Panel as its material for direct electricity generation, instead of rectangular-shaped vane of any other material; and,

VANEFINS, a *Vanefin* allows a *SWW Vane* to initially have more force from the wind acting against it to swing faster towards full Flop (close) position; a *Vanefin* may have the same length as a *SWW Vane* with a width of approximately three-fourths the *Head Section* width of the *SWW Vane;* relative to Claim 4, it has vertical and horizontal arrayed holes, or any appropriate configuration, for easier compression of air molecules in the *Head Section* of the *SWW Vane;* the *Pivot/fulcrum Arm of the Vanefin* is directly above or near the *Pivot/fulcrum Arm of a SWW Vane* with a minimal distance between them which serves as the clearance between a *Vanefin* and a *SWW Vane* when both are simultaneously in the full flip (open) position; beneath the *Pivot/fulcrum Arm of the Vanefin* includes a *first sidewall* with a width as that of the said clearance distance and with a length as that of the *Vanefin*; this sidewall *shall be* seen as concave shape when *in the W-FREE FLOW-R* to minimize air drag; there is a *second sidewall* that is perpendicular to, integral part of and at the right edge of the length of the *Vanefin* when the same is in the *W-IMPACT-R;*

the small sidewalls of a Vanefin with both the Vanefin and a corresponding SWW Vane in full flip position as they enter the *W-IMPACT-R* form an enclosure with which the air molecules of the wind will be trapped and compressed; the resulting increasing pressure of compression against a *Vanefin* and the

lower portion of a *SWW Vane* will compel them to give way to the force of the wind and effect a faster flop (close) action of the wind against the *SWW Vane;* as a *Vanefin* swings towards vertical position, wind becomes increasingly ineffective against the *Head Section* of the *SWW Vane*; this means allows the lower side to swing faster towards full flop position since the counter twisting moment of the *Head Section* is increasingly reduced; with the *Vanefin*, the Pivot/Fulcrum of the *SWW Vane* shall be adjusted nearer towards the center of the width of the *SWW Vane* or any appropriate location,

whereby said unique energy machine avails of a single, combination of or all of renewable clean energy resources namely wind, moving water and solar for their intrinsic energies by use of a rotating solid wall structure that repeatedly and alternately intercepts the wind at one time and let the same pass through at the next time.

CLAIM 2:

THE E-MACHINE IS WITH WIND FRAME ASSEMBLIES,

the *E-machine* of Claim 1 comprising in part of *Wind Frame Assemblies* to enable more conversion of kinetic energy of the wind into mechanical energy;

said more conversion of the kinetic energy of the wind is attained by means of more SWW Vanes comprising /by way of,

WIND FRAME ASSEMBLY, a *Wind Frame Assembly* comprising of a number of *SWW Vanes* of Claim 1 arrayed vertically, *Arrayed SWW Vanes* in a *Wind Frame;* each *Wind Frame* may have different thickness that depends on the elevation position of a particular *Wind Frame* with respect to that of the others; [what will be considered are factors of materials used, effects of wind velocities at varied elevations, strength, rigidity, costs, etc.;] said Wind Frame Assembly has a dimension akin to that of a square having a one square meter area but may be with any other desired dimension; the specification considers five *SWW Vanes* arrayed vertically in a *Wind Frame*, but is not limited to this number of *SWW Vanes;* this Wind Frame Assembly shall be bolted behind the *Wind Beams* of Claim 6;

PUSH-PULL RODS, the *Wind Frame Assembly* comprising of *Push-Pull Rods* for the arrayed *SWW Vanes;* vertically adjacent *SWW Vanes* in a particular *Wind Frame Assembly* are connected by these *Push-Pull Rods* that support any *SWW Vane* not yet reacting to the flop (close) action of the wind to be pushed or pulled by those that already are; a set of *Push-Pull Rods* with their *Length Allowance Chambers* allows those *SWW Vanes* that are already going to flop position some time to absorb sufficient to more force to push or pull whatever not responding *SWW Vane;* the *Push-Pull Rod* is pivoted to and comprised of a *PPRod Ball Bearing Pivot* at the belly of an upper *SWW Vane* and similarly pivoted to the surface by means of the adjoining lower *SWW Vane* at a point vertically aligned to the pivot of the upper *SWW Vane;*

a *Push-Pull Rod* may be backed up or substituted by means of a flexible *Pull String* with a length approximating that of the Flip/Flop Vertical Distance plus the distance covered by the *Push-Pull Allowance Chamber,*

whereby said energy machine is with Wind Frame Assemblies that contain arrayed small walls represented by SWW Vanes with appropriate supports for more intercept of the wind to attain more conversion of its kinetic energy to mechanical energy.

CLAIM 3:

THE E-MACHINE IS WITH CENTRIFUGAL SPEED CONTROL MECHANISM,

the *E-Machine* of Claim 1 comprising in part of the means by way of a *Centrifugal Speed Control Mechanism* to prevent runaway speed of said machine;

[to prevent such over-speed of the *E-Machine* in high wind velocities especially from storms or hurricanes or during installation, maintenance and repairs of said machine,] the E-Machine comprising in part of the means to regulate speed with embodiments /components for the purpose,

CENTRIFUGAL SPEED CONTROL MECHANISM, every *Wind Frame Assembly* in Claim 2 may have this specially designed mechanism based on the scientific fact that the centrifugal force of an object is the result of its Mass multiplied by the square of its Velocity divided by the Radius of the object having a circular path around an axis of rotation; this is comprised of a pair of bevel gears with the *First Bevel Gear* having an attached *Half Cylindrical Weight* at its lower half; the *Second Bevel Gear* has an attached *Bevel Rod Arm* that runs adjacent to the belly of the *SWW Vane* at full flop (closed) position; the speed of the *E-Machine* determines the centrifugal force of the *Half Cylindrical Weight* with respect to its radius from the axis of rotation of the machine; the centrifugal force gives the *First Bevel Gear* a clockwise motion which also gives the *Second Bevel Gear* the same clockwise motion; the *Bevel Rod Arm* then pushes the belly of the SWW Vane; [the wind imparts on the *SWW Vane* a force that will counter push the action of the *Bevel Rod Arm;* these opposing forces determine the position of the *SWW Vanes* that makes available the variable desired opening of the Solid Wall effect; it is also considered that the weight itself of the *Half Cylindrical Weight* acts as a counter pull to the action of the Bevel Rod Arm;]

at the opposite edge of the *Bevel Rod Arm* includes the means for an attached flexible *Cable Arm* which is in turn connected to the *Main Override Cable* that extends down to the base of the *E-Machine;* each *Main Override Cable* is then connected to a *Longitudinal Rotary Button;* [the *SWW Vanes* will tilt proportionately at levels considered as over-speed to limit wind intercept which correspondingly regulates the speed of the *E-Machine;*] the *Centrifugal Speed Control Mechanism* connects to the second to top *SWW Vane* of the *Wind Frame Assembly* for the same will push or pull the other *SWW Vanes* by means of the *Push-Pull Rods* in Claim 2;

LONGITUDINAL ROTARY BUTTON, this Button is the means that allows for the manual setting of *SWW Vanes* to tilt at desired angle to let a portion of wind pass through, thence, regulate /control speed of the *E-Machine;* this button is connected to the *Centrifugal Speed Control Mechanism* through the means of a *Flexible Cable Arm* and *Main Override Cable;* however, there is the option for this Button to be connected directly to the *Head Section* of particular *SWW Vanes, also* through the means of *Flexible Cable Arms* and *Main Override Cable*;

this Button is the means that acts as an override to the *Centrifugal Speed Control Mechanism* since the former permits the manual setting of the minimum desired opening of the Solid Wall effect of the E-Machine; to the maximum, the same Button can even be set such that the *SWW Vanes* are always on the full Flip position even when they are in the *W-IMPACT-R* of Claim 1 [as in during extremely windy weather conditions or when the *E-Machine* is being assembled or disassembled for whatever purpose;] as said Button is rotated clockwise and then locked, the *Second Bevel Gear* is correspondingly rotated clockwise by the resulting pull of the *Cable Arm* and *Main Override Cable* without the need for the action of the centrifugal force of the *Half Cylindrical Weight*,

whereby said energy machine has embodiments /components to prevent its over-speed in high wind velocities especially from storms or hurricanes or during installation, maintenance and repairs.

CLAIM 4:

THE E-MACHINE AS SOLID WALL WITH SIDEWALLS FOR AIR CAPTURE in the Wind Impact Region for more productivity,

the *E-Machine* of Claim 1 comprising in part of and functions by means of a Solid Wall with Sidewalls that will effectively catch more air molecules of the wind; [the kinetic energies of the molecules will be converted into high pressure against the Solid Wall for more productive conversion of kinetic energy to mechanical energy;

to take advantage of this realization for a way to more productivity of the *E-Machine,*] the following arrangement includes,

the *Wind Frame Assembly* of Claim 2 with its *Arrayed SWW Vanes* as the means that acts as the Solid Wall that blocks the path of the air molecules; and, the *Wind Frame* is the means that acts as the Sidewalls that enable the capture of more air molecules in the resulting contained space *of* said Assembly; this arrangement combining the *Arrayed SWW Vanes* and the corresponding *Wind Frame* redounds to a conversion of kinetic energies of the captured air molecules into high pressure against a solid wall for more mechanical power;

[AIR CAPTURE PRINCIPLE OF THIS INVENTION, when the wind impacts a solid wall, it will navigate its way through a free flow opening to its open sides; a Solid Wall with all sides containing Sidewalls effectively hinders the air molecules to navigate their way out until the contained space is fully loaded with air molecules to spill out of it; meanwhile, the incoming air molecules will transfer their

kinetic energies to those that have lost their kinetic energies; at the same time, there will be a compression of air molecules with acquired kinetic energy from more incoming air; this will result in an increase in pressure within the contained space or effective volume; incoming air molecules will only be bounced off the contained space when the effective kinetic energies of succeeding incoming air molecules is equal to or less than the high pressure produced by the effective kinetic energies of captured air molecules in the contained space which will then translate into the solid wall being acted upon by high pressure,]

whereby said energy machine has embodiments /components that increase its productivity by means of the air capture principle of this invention that transforms passing wind in the wind impact region into captured air molecules resulting to high pressure against its front for greater mechanical power.

CLAIM 5:

THE E-MACHINE IS TO PRODUCE RELATIVE VACUUM AT BACK OF SOLID WALL FOR EXTRA-ORDINARY POWER,

the *E-Machine* of Claim 1 comprising in part of embodiments /components which are the means that will simultaneously produce a relative vacuum at its back when the *Solid Wall with Sidewalls* is in the *W-IMPACT-R* of Claim 1, to add more net power delivery; [air pressure at the back of an active Solid Wall Structure pushes against the desired movement of the *E-Machine* for conversion of the kinetic energy of the wind to mechanical power; hence, any reduction of said negating air pressure extraordinarily adds productivity for more resultant mechanical power;]

the production of a vacuum at the back of a solid wall relative to the prevailing pressure at its back comprising of embodiments /components which are the means to substantially attain the said purpose,

ARRAYED MINUTE CONICAL OR STRAIGHT HOLES IN THE SWW VANES, multiples of *Minute Conical or Straight Holes* will transform the air molecules in the high pressure Front of an active Solid Wall Structure to escape as *Tiny Air Jets* into its back;

[the velocity of a *Tiny Air Jet* will push away air molecules in its path and suck the air molecules of the surrounding areas of the minute holes at the back; the remaining air molecules directly in contact with the back of a Solid Wall effect will result in a low pressure with respect to normal atmospheric or prevailing pressure that then pulls the back of a *Solid Wall Structure;*]

the *Tiny Air Jets* will reduce the air pressure, at the back of said Structure, that is responsible for the negative push against the desired clockwise movement of the *E-Machine*; these minute Venturi Holes or simply Straight Holes are arranged in both *Tiny Air Jets Horizontal Array* and *Tiny Air Jets Vertical Arrays* or any appropriate configuration of the tiny air jets;

WIND-FREE FLOW-REGION, the wind passing through the *W-FREE FLOW-R* likewise helps suction the air molecules at the back of the *SWW Vanes* in the *W-IMPACT-R,* which thus lessens pressure in said latter Region; and,

WIND FREE FLOW SPACES, these are the *Clearance Spaces* made available between horizontally arrayed *Wind Frame Assemblies*; these spaces also enable the wind to find openings of the Solid Wall effect in the *W-IMPACT-R;* the speeding wind from the *Wind Free Flow Space* lowers the pressure at the back of the Solid Wall Structure as air molecules at the back of a Solid Wall are pushed or sucked by said speeding wind,

whereby said energy machine has embodiments /components that produce a relative vacuum at the back of the solid wall in the wind impact region which relatively pulls the solid wall thereby extraordinarily adding more delivered power by said energy machine.

CLAIM 6:

THE E-MACHINE IS WITH ASSEMBLY-TYPE STRUCTURE FOR VARIABLE POWER REQUIREMENTS,

the *E-Machine* of Claim 1 comprising in part of embodiments /components which are the means that will attain Flexibility of Power Generation Capacity by the deployment of whatever required number of *SWW Vanes* supported by corresponding number of embodiments /components by way of assembly-type approach;

this assembly-type structure is made possible in the following manner with corresponding embodiments /components comprising of,

HORIZONTALLY ARRAYED WIND FRAME ASSEMBLIES, a number of *Wind Frame Assemblies* will horizontally be arrayed, or any appropriate configuration, between *Horizontal Wind Beams* oppositely deployed in the *W-IMPACT-R* and *W-FREE FLOW-R,* both of Claim 1, and connected to the centrally located *Rotating Extendable Pole* of this Claim;

HORIZONTAL WIND BEAMS, these *Wind Beams* are securely attached, with *WFrame Bolts,* to horizontally arrayed *Wind Frames*; and, taken together become an effective *Truss;* [the length of the Truss is an important factor to help determine the minimum wind velocity requirement of the *E-Machine* for starting the same; this is so by the Mechanics Principle that the longer the Arm of the Rotating Pole, the greater will be the Mechanical Torque;]

when in the *W-IMPACT-R,* the *Horizontal Wind Beam* can be seen as having at its back the integral *Rectangular Protruding Markers* in between of which are the *Wind Frames;* said Wind Beam is also reinforced by horizontal *Wind Beam Supports* to counter-balance the *Twisting Effect* of the weights of the *Wind Frame Assemblies* and the *Rectangular Protruding Markers* on the said Wind Beams; the horizontal *Wind Beam Hub* is the means that connects portion of the *Wind*

Beam that will enclose the *PSegments Connecting Joint* of the connected *Pole Segments* and bolted in the predetermined *Threaded Holes* of both connected *Pole Segments*;

VERTICALLY ARRAYED WIND BEAMS, the installation of more *Vertically Arrayed Horizontal Wind Beams* upwards allows the deployment of more *Horizontally Arrayed Wind Frame Assemblies* which is the means for the deployment of more *SWW Vanes;* these *Vertically Arrayed Wind* Beams, or any appropriate configuration, enable the *E-Machine* to have a flexible capacity to custom-build power generation requirements; and,

ROTATING EXTENDABLE POLE, this is the pivot pole between rotating Truss Structures of Claim 7; the *Rotating Extendable Pole* is divided into and is comprised of *Pole Segments* to be connected upwards one after the other to allow the *E-Machine* with the capability to increase the number of the *Horizontal Wind Beams* added upwards;

the POLE SEGMENTS comprising of preset *PSegment Hub Threaded Holes which are* overlapped by the *Wind Beam Hub Threaded Holes* and similar holes of the *Strap-On Pole Tubes* for bolting purposes; at the bottom of a *Pole Segment* is a *PSegment Female Square Hole* for which the *PSegment Male Square Extension* of a *Pole Segment* will enmesh; the *PSegment Male Square Extension* has a preset *PSegment Male Square Extension Threaded Hole* with which a Pole Segment above it will be bolted; [each *Pole Segment* may be hollow at its longitudinal center at varying diameters or even partially or completely be solid in its entire length;]

STRAP-ON POLE TUBES, the *Rotating Extendable Pole* is reinforced by means of *Strap-On Pole Tubes* to strengthen the former; these are semicircular cylindrical tubes with the *SOPTube Preset Bolt Holes; Strap-On Pole Tube* will be placed between adjoining *Wind Beam Hubs* and bolted to both the particular *Pole Segment* and adjoining *Wind Beam Hubs;* the *Strap-On Pole Tubes* may have varying thickness;

ROTATING EXTENDABLE POLE ORIENTATION, the *Rotating Extendable Pole* vertical orientation is with flexibility that it can be oriented horizontally or otherwise but still maintain its basic function, approach, etc.;

POLE SEGMENT CAP, [the topmost Wind Beam will tend to bend downwards especially as it is acted upon by a heavy-to-carry Resultant Load from a summation of weights of the *E-machine;*] the topmost *Pole Segment* is fitted with the means of appropriate *Strap-On Pole Tubes* and with the *Pole Segment Cap* by locking the *First Pole Segment Male Square Extension* into the *PSegment Cap Female Square Hole;* the *Pole Segment Cap* has *PSCap Horizontal Holes* arrayed and vertically aligned through which appropriate *PSCap Tension Cables* will be inserted into; a PSCap Tension Cable will be with *PSCap Cable Tension Hooks* at both its ends and hooked into corresponding *Wind Beam Hooks* of the topmost *Wind Beam;* the Wind Beam Hooks will be as many as may be determined to appropriately spread the carried Resultant Load,

whereby said energy machine has embodiments /components that enable it to be an assembly-type structure for variable power requirement needs and suitable for mass production of parts.

CLAIM 7:

THE E-MACHINE IS WITH WIND TRUSS STRUCTURES AS TENSION OR COMPRESSION TRUSSES,

this will make the *E-machine* withstand strong winds especially during extreme weather conditions;

the *E-Machine* of Claim 1 comprising in part of embodiments /components which are the means that shall embody *Wind Multi-Truss Structures* with each *Truss Structure* composed of securely bolted *Vertically Arrayed Horizontal Wind Beams* and horizontally arrayed *Wind Frame Assemblies;* these *Truss Structures* are the means that perform both as a *Tension Truss* or a *Compression Truss* depending on its position with respect to the flow of the wind; it has four of these Vertical Structures equally spaced 90 degrees apart forming a Quadrant; but, the number of said Structures can vary;

these Wind Multi-Truss Structures are comprised of embodiments /components that are deployed as,

WIND CYLINDRICAL MULTI-TRUSS STRUCTURES, this is the means that comes into being from a combination of *Wind Multi-Truss Structures*, *Horizontal Wind Beam Arcs* and *Vertical Wind Beams* transformed into this kind of structure;

HORIZONTAL WIND BEAM ARCS, to protect the *Vertical Wind Truss Structures* from the impact of the wind, the same are bolted with *Horizontal Wind Beam Arcs* each in the form of a quarter-circle strategically attached to adjoining said Structures; these said *Horizontal Wind Beam Arcs* are deployed at certain height intervals and at predetermined radii from the *Rotating Extendable Pole* of Claim 6; these can optionally come with the means that act as proper horizontal flat covers, with embedded appropriate steel frames for strength, to guide non-horizontal wind to be something like horizontally flowing when the same enters the *E-Machine;* [these may be substituted by or in combination with appropriate strength cables to lower costs and efforts of installation;]

the *Horizontal Wind Beam Arcs* are also the means that function as that of Tension Truss or that of Compression Truss depending on the position of the *E-Machine* with respect to the path of the wind; these can also be installed at the tips of selected *Wind Beams* of the *Wind Truss Structure;* the same tips shall also be connected to *Vertical Wind Beams* to transform the Wind Quadrant Truss Structure into a stronger Wind Cylindrical Multi-Truss Structure;

[WIND BEAM FABRICATION, each *Wind Beam*, either as Horizontal or Vertical, as Main, as Support, or as an Arc, can be hollow inside, at varying cross-sections and/or thickness or even partially or completely be solid in its entire length; much will depend on the elevation position of a

particular *Wind Beam* with respect to that of the others; factors such as materials used, effects of wind velocities at different elevations, strength, rigidity and costs will be considered, among others;]

FLYWHEEL ENERGY STORAGE, this is comprised of the combination of weights of these component parts that are rotating as a whole and are the means for Energy Storage of the *E-Machine* resulting to with more uniform speed and energy supply, or more consistent mechanical torque,

whereby said energy machine has embodiments /components that can be considered as built-in energy storage and that form and function as effective tension and compression trusses to withstand strong winds especially during extreme weather conditions.

CLAIM 8:

THE E-MACHINE IS WITH BALANCER ASSEMBLY,

the *E-Machine* of Claim 1 comprising in part of embodiments /components which are the means to act as the *Balancer Assembly* that functions as its stabilizer against the Resultant Force of the wind on the *E-Machine;* [the resulting dynamic compression and tension supports placed on or near ground level for easy installation, maintenance and repairs prevent the *E-Machine* from swaying especially during extreme weather;] the *Balancer Assembly,* aside from its primary purpose as stabilizer, independently or together with the *Ground Thrust Bearing* of Claim 9 acts as part of a fail-safe backup support to the *Lifter Assembly,* also of Claim 9, to carry the weight of the *E-Machine;*

the *Balancer Assembly* comprising of,

HORIZONTAL WIND BEAM ARCS; the lowest *Wind Beam Arcs* are connected to *Wheels* that run along a *Balancer Elevated Circular Rail* firmly bolted with *ECRail Bolts* on the *Balancer Circular Rail Stand;* this circular rail is with *Rubber Matting or Oil Sealant* for the *Balancer Circular Casing* and is located on the *Roof of the Working Platform;* the *Lowest Wind Beam Arcs* located on top of the *Roof Truss* are bolted with individual sets of *Balancer Wheels* that run along the circular rail; and,

BALANCER WHEELS, each set of *Balancer Wheels* comprising of a plurality of wheels and other embodiments /components with the *Top Pair Balancer Wheels* running on top of the Balancer Elevated Circular Rail, which is attached securely with ECRail Bolts to the Balancer Circular Rail Stand; and the other *Bottom Pair Balancer Wheels* running underneath the said rail; the *Top Pair Balancer Wheels* joined by the horizontal *Top Casing Shaft* are cross-joined by the *Vertical Wheel Shafting* that is connected to a particular Arc; the *Bottom Pair Balancer Wheels* joined by the horizontal *Bottom Casing Shaft* are also cross-joined to the *Vertical Wheel Shafting;*

each wheel is connected by a corresponding *Horizontal Wheel Shaft* to its respective *Balancer Square Block* within a vertical *Rectangular Casing*; said Casing includes an *Adjuster Thick Plate* driven by the *Adjuster Bolt;* the *Top Adjuster Bolts* and *Top Thick Plates* serve to jack down the *Top Pair Balancer*

Wheels through a particular *Balancer Square Block* to push up the lowest *Wind Beam Arcs*, when the *Balancer Wheels* are worn down; oppositely, the *Bottom Adjuster Bolts* and *Bottom Thick Plates* serve to jack up the *Bottom Pair Balancer Wheels* through a particular *Balancer Square Block* to the underneath of the *Balancer Elevated Circular Rail*, when said wheels are worn down; a *Bottom Shock Absorber* comes between the *Bottom Adjuster Plate* and *Balancer Square Block;*

the *Balancer Wheels* will be connected by means of respective *Vertical Wheel Shafting* through *Balancer Pivots* to corresponding *Wind Beam Arcs* at their edges and midpoints and/or predetermined strategic intervals of their individual horizontal lengths; the connected lowest *Wind Beam Arcs* trace/form as concentric circles when viewed from the top/plan view; each of the *Balancer Pivots* is comprised of *Balancer Rod and Clamp* resting on a *Balancer Pivot Thrust Bearing;* the *Balancer Pivots* enable the individual sets of *Balancer Wheels* to carry the weight of a particular *Wind Truss Structure* as its *Balancer Wheels* smoothly move along the path of the *Balancer Elevated Circular Rail;*

the top and bottom of the *Balancer Elevated Circular Rail* are appropriately with *Grooves* to guide the wheels; the *Balancer Circular Casing* with a *Balancer Oil Inlet* for its full oil bath are the means for the protection of the *Balancer Wheels and Rail*; the *Balancer Circular Casing* is designed to prevent oil spills and acts as a Noise Damper as well, and comes with the *Balancer Roofing*;

the individual sets of *Balancer Wheels* are the means that function similar to compression or tension rods, depending on the position with respect to the flow of the wind, that prevent or control swaying of the E-Machine; [this is critically important during stormy winds with gustiness prevailing,]

whereby said energy machine has embodiments /components that guarantee its stability while rotating especially during strong winds and also perform as back-up for carrying the weight of said energy machine.

CLAIM 9:

THE E-MACHINE AS STAND-ALONE POWER GENERATION STRUCTURE; IT HAS EMBODIMENTS BENEATH THE WORKING PLATFORM AS PART OF THE E-MACHINE FOR STABILITY, WEIGHT CARRYING CAPABILITY AND PRODUCTIVE USE OF MECHANICAL POWER, the *E-Machine* of Claim 1 comprising in part of embodiments /components are the means against the Resultant Force of the wind that acts against the *Wind Cylindrical Multi-Truss Structure* of Claim 7; [the consequential bending moment needs to be more than significantly countered; also, there is a need for fail-proof safeguards for lifter embodiments /components to carry the weight of this massive *E-Machine*; and, provisions for the productive use of the mechanical power derived from the kinetic energy of the wind;]

this Claim complements Claim 8 and includes a combination of embodiments /components,

WORKING PLATFORM, the *E-Machine* shall have the means for a working platform as an anchor for which it shall be operational as a stand-alone rotating structure with a Pivot Assembly at its base comprising of a *Lifter Assembly*, a *Pole Anchor Assembly* and *Ground Thrust Bearing* with back up supports by the *E-Machine Balancer Assembly of Claim 8*; the said working platform includes embedded Trusses at its cemented Rooftop and sides to handle the Reactive Forces produced by the Wind against the *E-Machine;* this is also the means for housing the receiving gear train and air compressor, electric generator or water pump as may be desired;

POLE ANCHOR ASSEMBLY, this *Pole Anchor Assembly* is the means for holding the *Rotating Extendable Pole* of Claim 6; this said assembly includes the *Pole Anchor Housing* that contains *Sliding Fit Bearing* and which are contained within the *Pole Anchor Casing;* this housing includes *Trusses* and supports that are bolted to the roof and optionally to the sides and/or floor of the *Working Platform;* the *Pole Anchor Casing* is a massive cylinder firmly attached to the likewise massive cemented flat *Roof Truss*, and further supported by the *Circular Pole Anchor Truss* which is also firmly embedded in the *Roof;* the *Pole Anchor Casing* includes a *PACasing Cap Lock* to secure the *PAnchor Oil Bath;* the *PAnchor Casing Cap Lock* of this Assembly is provided with *PAnchor Oil Inlets*; beneath the Pole Anchor Casing is the *PAnchor Bearings Lock and* is provided with the *PAnchor Oil Outlets* in case of the need to change oil; this lock also provides for the inspection or replacement of the Sliding Fit Bearings;

the *Sliding Fit Bearings* can be replaced and/or reinforced by a group of smaller bearings so arranged that their outer diameters trace the circular shape of the inner diameters of the Sliding Fit Bearings;

BEVEL GEAR AND GROUND THRUST BEARING ASSEMBLIES, the mechanical power from harvesting the kinetic energy of the wind is put to direct productive use by a single or set of *Bevel Gears* connected to an electric generator and/or water pump and/or air compressor; as a backup for carrying the weight of the *E-Machine*, an appropriate *Ground Thrust Bearing* or a group of the same comes handy;

the *BEVEL GEAR ASSEMBLY* is comprised of a *Main Bevel Gear* that is attached to the lowest *Pole Segment* of the *Rotating Extendable Pole* of Claim 6; this gear is enmesh with a *Small Bevel Gear* that connects the *E-Machine* to the *Gear Box Assembly* which delivers the required speed and mechanical torque to run whatever appropriately desired load; this *Main Bevel Gear* is also enmesh with another *Small Bevel Gear* to connect to another *Gear Box* for the brake system of the *E-Machine;* integrally attached to and on top of the horizontal bevel gear is a *BGear Cylindrical Casing* that is connected to the *Lowest Pole Segment* of the *Rotating Extendable Pole* by a plurality of *BGear Lock Keys;* also integrally attached to the horizontal bevel gear is an underneath *Conical Solid Segment* that will rest on the *Ground Thrust Bearing;*

the GROUND THRUST BEARING ASSEMBLY includes a *Ground Thrust Bearing* enclosed in the *BGear/GTBearing Casing* that contains the *BGear/GTBearing Oil Bath;* the *GT Bearing Shock Absorber* is enclosed by said Casing; this allows the *Ground Thrust Bearing* clearance for the *Balancer Assembly* of Claim 8 to share when needed the Dead Weight Load of the *E-Machine;* the *Ground*

Thrust Bearing includes the *EPSegment Sliding Fit Bearings* in which the *Extension Pole Segment* passes through to hold the *Buoyant* of the *Lifter Assembly* contained in this Claim;

LIFTER ASSEMBLY, the entire weight of the *E-Machine* is primarily carried by the *Lifter Assembly* with the *Balancer Assembly* and *Ground Thrust Bearing* as fail-safe backup support system; the upward force exerted by the *Buoyant* shall fully carry the downward dead weight of the *E-Machine*; the said *Lifter Assembly* is comprised of a main *Buoyant* attached to the bottom of the *Extension Pole Segment* which is connected to and enmeshed with the *Conical Solid Segment* of the *Bevel Gear Assembly;* a buoyant made of *Cylindrical Hollow Tank* with very smooth surfaces is reinforced by *Buoyant Trusses* from within and filled with just enough *Buoyant Compressed Air* to counter the liquid pressures outside the buoyant; the *Buoyant* is contained within a *Large Liquid Tank* with the *Liquid Surface* slightly below the top of the *Buoyant;*

Compressed Air Buffer and/or *Oil Buffer* are the means employed at the bottom of the *Buoyant* to lessen friction loss when the *Buoyant* is rotating; the *Compressed Air and Oil Fence* prevents Air and Oil from escaping the bottom of the buoyant; *Lifter Compressed Air Inlets,* a *Lifter Oil Inlet* and Lifter *Air Pressure Gauge* are included; to minimize friction loss with respect to liquid pressure as in adhesion of a fluid to a solid surface, *Buoyant* height shall be as short as is needed for lesser liquid pressure and with *Buoyant* diameter as big as practicable; the B*uoyant* diameter can be increased later to accommodate more weight when the size of the *E-Machine* is increased to deliver more power; a *Buoyant Liquid Sensor* is included to sound an alarm signal when liquid is detected inside the buoyant with the *Buoyant Liquid Pump* then automatically activated; a portable *Buoyant Accessory Air Compressor* is also included to maintain the desired pressure within and at the bottom of the buoyant tank,

whereby said energy machine has embodiments /components that enable it to be a stand-alone structure and at the same time perform as additional back-up for stability as well as for carrying the weight of said energy machine and also empower productive use of the resulting mechanical energy transformed from the kinetic energy of the wind; likewise the weight of said energy machine is principally carried by a corresponding buoyant designed with the intent to minimize friction loss.

CLAIM 10:

THE E-MACHINE IS WITH INSTALLATION AND MAINTENANCE LIFT AND HOLDER EQUIPMENT,

the *E-Machine* of Claim 1 includes in part embodiments /components that are the means that act as Lift and Holder Equipment used during installation, maintenance, inspections and/or repairs of the *E-Machine;* [this equipment has a dual function of steadily holding or preventing the *E-Machine* from rotating or moving, and also using it as a lifting or lowering equipment of the components of the same; the *Wind Truss Structures* of Claim 7 comes with a pair of Lift and Holder Equipment for the purpose of one of the pair holding firmly a *Wind Truss Structure* and the other of the pair alternately being worked for actual lifting or lowering its particular components;]

to accomplish Lift and Hold functions, these embodiments /components include,

VERTICAL LIFT CYLINDRICAL STAND, this stand is comprised of a *Conical Head Tip* with a *Circular Threaded Cylinder* that can be made to rotate in any direction by *Direct Current Motor* with its *Motor Electric Wires* passing through the vertical hole of said stand; the design includes other parts such as: the *Motor Rectangular Shaft* to fit with the *Rectangular Tail Hole*; the *Threaded Ring* screwed to the *Conical Head*; the *Mid-Section Part* below the *Circular Threaded Cylinder*; the *Lower-Section Part* below the Mid-Section Part; and, the *Main Cylindrical Part* of this stand; and,

HOLDER ASSEMBLY, includes the *Holder Square Block* that has a *Holder SBlock Circular Threaded Hole* and directly below this Hole is a *Holder SBlock Conical Hole;* the *Holder Square Block* can be horizontally moved forward or backward through the *Holder SBlock Sliding Rail Guides* in the form of [ ]; the *Holder SBlock Sliding Rail Guides* include *Holder Wheel Bolt Locks* on both rails that can be tightened when the Holder Square Block finds its right position; the *Holder SBlock Sliding Rail Guides* have the capability to be moved sideways by sliding thru a *Holder Rectangular Block* bolted to the *Holder Clamps* equipped with *Holder Horizontal Clamp Locks;* the *Holder Clamps* will be attached to the designated *Wind Beam* of Claim 6 to be worked on and through the adjoining *Wind Free Flow Spaces* of Claim 5;

[when the *VERTICAL LIFT CYLINDRICAL STAND* IS RAISED UP, its *Conical Head Tip* will find exactly the *Holder SBlock Circular Threaded Hole* assisted by the *Holder SBlock Conical Hole* and the capability of the *Holder Assembly*, which has the *Holder SBlock Circular Threaded Hole*, to make forward, backward or sideways movements; this is to make provisions for misalignments that may occur between the *Vertical Lift Cylindrical Stand* and the *Holder Assembly*,]

whereby said energy machine has embodiments /components that are the means for installation, maintenance, repairs of said energy machine.

CLAIM 11:

THE AIR SYSTEM AS NECESSARY TO MAXIMIZE /OPTIMIZE THE USEFULNESS OF THE E-MACHINE WITH ITS GOAL TO CONTAIN /EVENTUALLY REVERSE DETERIORATING CLIMATE CHANGE, MORE WITH RESPECT TO THE SCIENTIFICALLY ACCEPTED PRIMARY CULPRIT, CO2 FROM HUMAN ECONOMIC ACTIVITIES; AND, SIGNIFICANTLY ADDRESS AIR POLLUTION, the *E-Machine* of Claim 1 has additional embodiments /components as the means that redound for the invention to have the wherewithal for a single or combination of Nature System(s); [the Systems are referred to as NATURE SYSTEMS considering that they will be deployed with the long-term objective to significantly restore Nature, more particularly with respect to the environment, to its original order before the Industrial Revolution that started more than a century ago;]

the *Bevel Gear Assembly* of Claim 9 as the means to connect to an appropriate gear train which will then be connected to an electric generator for the *Electricity System*; and/or to a water pump for the *Hydro System* and/or to suitable air compressor(s) for the *Air System*;

[said systems are easier understood with an analogy of a locomotive train that requires a Railroad System, consisting of its rail tracks, passenger stations, fuel, stocks and repairs depots, etc., to fulfill its objective for mass transport; or an analogy of an electric power plant that requires an Electric Grid to distribute and deliver electricity to a great number of consumers; hence, the three different systems are employed to maximize /optimize the worthiness and enhance the practical applicability of the machine;]

the dramatic reduction and eventual elimination of Co2 emissions that substantially come from electric power plants, *EP-Plants*, and various modes of transportation that are fossil fuel-based shall be largely accomplished, directly and indirectly, by the embodiments /components that comprise the *Air System*, using the *E-Machine* or any complementary renewable clean energy-based technology,

the AIR SYSTEM, the *E-Machine* which may be complemented by any renewable clean energy embodiment comprising of and starts with the production of *Air Fuel*; provides *Air Fuel* storage facilities as part of the *Air Grid* of this Claim; and continues with its means of efficient distribution and safe delivery to targeted clients, especially existing conventional *EP-Plants* that will be converted to use the *Air Fuel*; [this system emanates in part from the desire to allow electric power plants the choice to convert to *Air Fuel* without the problems of relocation to new sites and/or availability of renewable clean energy resources in their respective localities;]

AIR FUEL, *A-Fuel,* this is the specially produced quantity of compressed air of high-to-ultra-high pressure at low-to-high-to-ultra-high temperature; this is called *A-Fuel* per se since this special compressed air has its mass with potential energy that can be transformed instantly into a mass with kinetic energy, to drive the Special Air Turbine(s) or Special Reciprocating Air Engine(s) of converted Power Plant(s) that use *Air Fuel* as well as for use by other appropriate engines, equipment, tools and devices of commerce and industry; its available heat can normally be used to turn water into the required steam of electric power plants;

[*A-Fuel* is made available by the *E-Machine* using an air compressor that may be aided by an Automatic Gear System; it can also be made by a multi-stage air compressor where the compressed air from a prior stage is used by the next stage for further compression and so on, until the desired compression of air is achieved; similarly, a series of compressors may be deployed where the compressed air from a prior compressor is kept in a holding storage, then subsequently transferred to the next compressor for further compression and so on, until the desired *A-Fuel* is produced; the multi-stage compressor shall be driven by the *E-Machine(s)*, as with a series of compressors; or a combination of some compressors driven by the *E-Machine(s)* and others as electric driven; a suitable compressor used is the heavy duty *Normally Operational Air Compressor*, *NOA Compressor*, extensively deployed in this Air System;]

there are two classifications /kinds *of Air Fuel,*

HOT AIR FUEL is comprised of the quantity of compressed air by the means to receive as much heat from the *Compressed Air HEAT COLLECTOR Chamber* of Claim 14 by way of the *Compressed Air HEAT RECEIVER Chamber also* of Claim 14 and stored in the *Hot Air Fuel Sector* of the same numbered Claim or delivered to users; and,

COOL AIR FUEL is comprised of the remaining quantity of *Air Fuel* after a quantity of compressed air is apportioned to become *Hot Air Fuel* thru the *SAPipes Crossing* of Claim 14; this avails of the means to have as much heat from the air compressor as transferred from the *Compressed Air HEAT COLLECTOR Chamber to the Compressed Air HEAT RECEIVER Chamber;* this is the quantity of *Air Fuel* with expelled heat that is not allowed into the *Compressed Air HEAT RECEIVER Chamber* but instead channeled and stored in the *Cool Air Sector or delivered to users;*

the AIR GRID is comprised of *Special Air Pipes*, *Large Storage Compressed Air Tanks*, and all *Other Operational Equipment*; the *Air Grid* is conceptualized with embodiments /components based on: the *A-Fuel* source may just be adjacent to, near, or some distance away, or even miles, and even still, a thousand miles or more away from a converted *EP-Plant*; whether near or far, distance between the *A-Fuel* source and a converted *EP-Plant* or other users does not matter;

SPECIAL AIR PIPES, *SA Pipes,* are comprised of materials with high strength such as steel, appropriate composite materials and even graphene that is considered a hundred times stronger than steel; these pipes enable the *A-Fuel* to be delivered from source to wherever a converted *EP-Plant* and Other Users may be located; [this saves franchisees /operators from the burdensome, expensive and time-consuming efforts and related activities of relocating converted *EP-Plants* to sites where renewable clean energy sources are in abundance; also, there will be no necessity for ships, trains, or trucks to deliver to users as done in the fossil fuel industry;]

LARGE STORAGE COMPRESSED AIR TANKS, *LSCA Tanks*, are comprised of similar materials for the *SA Pipes*; these are surface and/or underground embodiments /components that are of voluminous space and of massive build and are used to store large quantities of *Hot Air Fuel* and *Cool Air Fuel*; [they serve more to accommodate surplus wind power particularly through periods of strong winds, even that of hurricanes; the large quantity of *Air Fuel* produced and stored is also counted on as standby reserve during peak demands on power; and, for Energy Security;]

any or a combination of appropriate part(s) /portion(s) of the whole embodiments /components of the *Air Grid* is applicable for use by any Independent Power Producer not connected to said Grid for commercial, industrial or residential use; these are also applicable as transportable embodiments /components as the

means for emergency use of the *Air Fuel* in times of disaster and for whatever appropriate reasons for using them,

whereby said energy machine has embodiments /components that comprise the support /add-on nature systems, particularly the air system that enables the production, storage, distribution and safe delivery of a new kind of fuel (air fuel) that can substitute fossil and even nuclear fuel, to maximize /optimize the usefulness of said energy machine designed to contain or even eventually reverse deteriorating climate change, more with respect to the primary culprit, Co2 from human economic activities; and, significantly address air pollution that threatens human health and lifestyle.

CLAIM 12:

The AIR SYSTEM WILL ENABLE ELECTRIC POWER PLANTS TO CONVERT TO AIR FUEL USAGE INSTEAD OF FOSSIL FUEL OR NUCLEAR FUEL TO STEADILY REDUCE CARBON DIOXIDE EMISSIONS OR AVOID NUCLEAR DISASTERS; SOLVE ENERGY STORAGE PROBLEMS; AND, REPEATEDLY RID THE ENVIRONMENT OF AIRBORNE VIRUSES AND VARIOUS POLLUTANTS IN THE AIR, the *Air System* of Claim 11 is the means for use of *Air Fuel* in place of burning fossil fuel to produce the required steam of as many existing and planned conventional *EP-Plants* to eliminate Co2 and other attendant greenhouse gases and air pollutants; the use of *Air Fuel* also allows the conversion of Nuclear Plants in the generation of electricity to avoid horrendous nuclear disasters;

the *Air System* of Claim 11 is the means that can be used during Low-Electric Demand: The electricity generated by electric power plants, whether conventional fossil fuel- or nuclear-based, renewable clean energy-based or by already converted to Air Fuel, can be used to run electric driven air compressors that produce the *Air Fuel* for Energy Storage in *Large Storage Compressed Air Tanks* of Claim 11, for eventual use by converted *EP-Plants* and Other Users;

the *Air System* of Claim 11 is also comprised of the compressor *Air Inlet* of a *NOA Compressor* as the means to have *Multi-Stage Polluted Air Collector Chamber* with *Special Air Cleaners-Processors-Devices* for nonstop capture of carbon, other pollutants, mineral and/or metal dust, even radioactive dusts from nuclear disasters; *Elevated Air Inlets* are installed as collectors by means of *Towers*, or *Stationary Balloons*; Air Collectors can be strategically spread out by means of *Smaller Special Air Pipes*;

HIGH-TO-ULTRA-HIGH TEMPERATURE HEAT, the availability of high-to-ultra-high temperature heat within the compressors and at the compressor *Air Outlet* up to the *Compressed Air Heat Collector Chamber* for heat transfer, or even within the *LSCA Tanks* that contain *Hot Air Fuel,* of the *Air Grid* of Claim 11, is the means that will help eradicate various threats to health posed by airborne pollens, germs and viruses;

NEUTRALIZE FREE RADICALS, many heavy /toxic metals normally mix with the air as pollutants; these increase the damaging chain reactions caused by free radicals between atoms /cells in humans from several thousand times to several million times; the capture of these metals at the inlets of compressors is the means to prevent a lot of these chain reactions from greatly damaging human cells that lead to various diseases including that of aging; the *Air Grid* of Claim 11 can include Air Ionizers to help neutralize Free Radicals that easily destroy frail and even strong bodies,

whereby said air system has embodiments /components that will enable now the conversion of electric power plants to air fuel usage instead of fossil fuel or nuclear fuel, solve energy storage problems; and, repeatedly rid the environment of airborne viruses and various pollutants in the air.

CLAIM 13:

THE AIR SYSTEM PRODUCTION OF AIR FUEL COMES WITH SAFETY AND OTHER FEATURES,

the *Air System* of Claim 11 includes in part heavy duty air compressors with safety and other features and are the means that facilitate for the production of the *Air Fuel*;

the production of *Air Fuel* includes, but not limited to,

NORMALLY OPERATIONAL AIR COMPRESSORS, *NOA Compressors,* shall initially supply to the *SA Pipes* until the compressed air is equal to Eight Times Greater than a Reference Pressure; when said pressure is attained, the *SAPipes Motorized Control Air Valve* will be in Closed Mode until the pressure is lowered to Five Times Greater than a Reference Pressure by which time said Air Valve will be in Open Mode and remain so until the same again increases to the said Eight Times Greater Pressure, and so on;

HIGH-TO-ULTRA-HIGH PRESSURE, the *LSCATank Motorized Control Air Valve* will remain in Open Mode until the pressure in the *SA Pipes* reaches Five Times Greater than a Reference Pressure by which said Air Valve will be in Closed Mode; it will remain so until the pressure in the *SA Pipes* is lowered to Three Times Greater than a Reference Pressure by which it will again be in Open Mode and remain so until the same again increases to Five Times Greater than a Reference Pressure, and so on;

when the pressure in the *SA Pipes* reaches Eight Times Greater than a Reference Pressure, the gear combination driving a *NOA Compressor* will allow more compression of air; the changing of the correct gear combination of a *NOA Compressor* to lower or higher Torque depends on: the pressure of the compressed air in the *SA Pipes* or the pressure in the *LSCA Tanks*;

a *NOA Compressor* will mechanically channel its compressed air supply to the *LSCA Tanks* when the pressure in the *SA Pipes* reaches Eight Times Greater than a Reference Pressure when both the *Motorized Control Air Valves* of the *SA Pipes* and *LSCA Tanks* will be in Closed Mode; the *Normally Locked*

Compressed Air Piston due to the force of a *LSCATank Spring* will be overcome to an Unlocked position; the *Free Sliding Compressed Air Piston* will also be pushed open;

the QUOTED PRESSURES, as in Eight, Five, etc, Times Greater than Reference Pressure, are subject to economic and technological factors in the actual deployment of this invention; this is to say that much will rely on the metallurgy, costs, availability, etc., of the materials to be used; the actual pressures shall depend more on the durability, safety and feasibility factors to be considered in the implementation of the *Air Grid* of Claim 11;

ACCESSORY AIR COMPRESSOR, an equally heavy duty *Accessory Air Compressor*, *AA Compressor*, is directly connected to *the LSCA Tanks* of Claim 11; this may also be called upon to do the same job done by a *NOA Compressor* when wind velocities are in excess of normally prevailing;

the *Air System* of Claim 11 takes into serious account the dangers posed by the *Air Fuel* with high-to-ultra-high pressures, more so with high-to-ultra-high temperatures; to address this all important reality, safety and other features are integrated into the system,

SAFETY AND OTHER FEATURES, these include *Data Sensors* or Monitors that are attached to the *Air Grid* of Claim 11; the desired high-to-ultra-high pressure of the *Air Grid* necessitates safety devices, monitors and fail-safe supports to safeguard lives, limbs and properties;

these are comprised of, AGrid Pressure Gauges and *AGrid Temperature Gauges* are provided; a *LSCA Tank* is with *LSCATank Safety Air Valves*; also, *SA Pipes* are with *SAPipes Safety Air Valves*; both are adequately equipped with *Large Anti-Blast Air Valves*; *Motorized SAPipes Control Air Valves* at equal distance intervals are Normally Open but can also be closed for special purposes; each Control Valve comes between adjacent *Duo Junction Pipes* with *Control Valves* that can be used to connect *Mobile By-Pass Special Air Tubes*; the *Motorized SAPipes Control Air Valves* will automatically close in case proximate *Large Anti-Blast Air Valves* are triggered to activate; *Liquid and Water Sump Pits* are available in as many lowest points of elevation; *Level Sensors* will be installed to monitor water or other liquids and to flush them out, when detected through the *Automatic Liquid and Water Discharge Pipes and Valves,*

whereby said air system has embodiments /components that allow the safe production, distribution and delivery of air fuel to various user especially converted electric power plants as well as afford smooth operations, maintenance and repairs.

CLAIM 14:

THE AIR SYSTEM PROVIDES FOR A NEW KIND OF AIRCONDITIONING AND REFRIGERATION SYSTEM; THIS ALSO MAKES AVAILABLE HIGH-TO-ULTRA-HIGH TEMPERATURE AIR FUEL FOR VARIED APPLICATIONS, the *Air System* of Claim 11 is comprised in part of embodiments /components that are means to enable a new kind of Air Conditioning and Refrigeration; [this is now made possible by the fast and efficient removal of the heat generated from high compression of air by air compressors in the production of *Air Fuel* of Claim 11, instead of the conventional system that use dangerous refrigerants; the process of separating Heat as fast as and as much as can be removed from a volume of compressed air and transferring the heat to another quantity of compressed air produces *Hot Air Fuel* and *Cool Air Fuel* for residential, commercial and industrial applications; COOL AND HOT AIR SECTORS, the production, distribution and delivery of *Air Fuel* in the form of compressed air is divided into the *Cool Air Sector, Cool Sector,* and the *Hot Air Sector, Hot Sector*;]

to realize this new kind of Air conditioning and Refrigeration and/or make available High-To-Ultra-High Temperature Air Fuel, the following unique approach is comprised of embodiments /components which are the means to attain the purposes and hereby presented,

HEAT CHAMBERS WITH HEAT PIPES, etc, immediately attached to the *Air Outlet* of an air compressor will be a *Compressed Air HEAT COLLECTOR Chamber* protected by *Heat Insulators* and which Chamber contains *Heat Pipes*; the *Heat Pipes* are embedded into *Heat Sinks* with both functioning as media for heat transfer, and also perform as *Wall Dividers* of the *Compressed Air HEAT COLLECTOR Chamber*; these *Wall Dividers* are so arranged that they guide the flow of the compressed air towards the *SAPipes Crossing*; this Crossing allocates the compressed air to the *Cool Sector* and to the *Hot Sector* of the *Air Grid* of Claim 11; the *Motorized Allocation Piston Valve, MAP Valve*, of the *SAPipes Crossing* either partially /fully blocks or allows the compressed air to the *Cool Sector* or the *Hot Sector*; the *MAP Valve* seeks to balance the pressures of these sectors or is programmed at whatever determined trigger pressure(s); in the *Hot Sector*, *SAPipes Crossing* then leads to the *Compressed Air HEAT RECEIVER Chamber*; a *Uni-Direction Control Valve* allows allocated compressed air from the *SAPipes Crossing* to pass through on a one-way direction to the said *HEAT RECEIVER Chamber*;

[THERMODYNAMICS DEFINES COLD AS THE ABSENCE OF HEAT, the quantity of high-temperature heat expelled from the *Compressed Air HEAT* COLLECTOR Chamber to the *Compressed Air HEAT RECEIVER Chamber* is the measure of cooling or even freezing effect of compressed air in the Cool Sector; when compressed air in the *SA Pipes* of the *Cool Sector* is discharged through the *Cool Compressed Air Regulators* of Claim 15, the *Cool Air Fuel* – net of expelled heat from the *Compressed Air HEAT COLLECTOR Chamber* – can be used for cooling homes, offices, hospitals and other establishments;

an essential advantage is for the world to do away with Freon gas that depletes the ozone, and/or Freon-replacement gases, hydro fluorocarbons that are considered to be ten thousand times more potent than carbon dioxide, that help accelerate Global Warming, and all other harmful refrigerants used in refrigeration and air conditioning;]

the HIGH-TEMPERATURE HEAT EVIDENTLY MANIFESTED resulting from air compression by the work done by air compressors will be utilized for varied applications; [such usages include but are not limited to, availing of the heat of the *Hot Air Fuel* in the form of hot compressed air in the cold winter season for various users such as residential units, offices, establishments, etc.; and, eliminate the need to use fire for cooking; since the heat manifested by increased temperature is considered as energy, this hot compressed air can also be used solely, or may be mixed with some quantity of cool compressed air from the *Cool Sector* at the point of injection, to supply power to the *SA Turbines* of the converted *EP-Plants*;]

the temperature of the *Hot Air Fuel* may further be increased, if needed, for special purposes such as industrial smelting of ore and other minerals; as means to replenish dissipated heat that may have escaped the *Air Grid,* the following embodiments /components are resorted to comprising of,

HEAT SUPPORTS, the *Air Grid* can be installed with Electric Source Heater Chamber, Solar Source Heater Chamber and Earth Underground Source Heater Chamber; the *Electric Source Heater Chamber* contains *Electric Heating Elements* contained in selected *SA Pipes or LSCA Tanks* to add heat to the *Hot Air Fuel*; the *Solar Source Heater Chamber* contains *Heat Pipes* attached to the *Solar Closed System Pipe* which is heated by *Solar Panel Heat Collectors*; this Solar Closed System Pipe is equipped with *SCSPipe Pump* for circulation of the liquid or gas medium for heat transfer; the *Earth Underground Source Heater Chamber* contains Heat Pipes attached to the Earth Underground Open System Pipe; this system is equipped with a *Water Standby Source* that activates when water availability is lacking; this is also equipped with an *Electric EUOSPipe Water Pump*,

whereby said air system has embodiments /components that allow a new approach to air conditioning and refrigeration without the use of freon and other harmful refrigerants as well as provide high-temperature heat from air fuel for varied usages.

CLAIM 15:

THE AIR SYSTEM HAS SPECIFIC COMPRESSED AIR REGULATORS FOR CONVERTED EP-PLANTS AND OTHER USERS, the *Air System* of Claim 11 includes in part the embodiments /components which function as the means to regulate and/or measure Air Fuel consumption;

to monitor /measure the usage of the *Air Fuel* of Claim 11,

the *Air System* is equipped with *Open-System Hot Air Regulators* and/or *Open-System Cool Air Regulators* that discharge the *Air Fuel* to the atmosphere; likewise, *Close-System Air Regulators* enable the reuse of the *Hot Air Fuel* or *Cool Air Fuel*, both of Claim 11, with heat transfer of the compressed air from /to the desired environ; a *Closed-System Hot Air Regulator* and/or *Closed-System Cool Air Regulator* are/is connected to twin secondary SA Pipes; the *First Secondary SA Pipe* delivers the compressed air to the user and is then discharged through the *Second Secondary SA Pipe* to go back to the M*ain SA Pipe*; any of the secondary pipes is equipped with an

appropriate *Pressure Pump* for adjustment of the pressure before/after use; These *Air Fuel* regulators come with *Air Consumption Meters* to exactly measure the quantity of *Air Fuel* usage,

whereby said air system has embodiments /components that allow to regulate and measure the use of air fuel.

CLAIM 16:

THE AIR SYSTEM HAS PROVISIONS FOR A CONVENTONAL EP-PLANT TO BECOME A urGEMns CONVERTED EP-PLANT,

the *Air System* of Claim 11 enables any conventional *EP-Plant* that use fossil fuel and even nuclear fuel to become a fully or partially transformed *urGEMns Converted EP-Plant* that use this new kind of fuel known as *Air Fuel* by adapting any or a combination of different approaches comprised of corresponding embodiments /components;

this invention provides for the following different means for converting said *EP-Plants* to use said *Air Fuel* with methods /approaches /embodiments for conversion,

HOT AIR FUEL OF SUFFICIENT TEMPERATURE, the same shall be used to turn liquid water into the required high-to-ultra-high temperature steam of an *EP-Plant* either through heat transfer from *Hot Air Fuel* of Claim 11 to water or by-then-water-turned-steam, with the *Hot Air Fuel* physically separated from the water/steam;

what can also be adapted is a *Hot Air Fuel-Water Boiler* with water injected by a pump into the boiler, the pump being activated or deactivated depending on the level of the water bath inside the boiler; hot air jets may also be injected with the jets passing through the liquid water bath as an option; or, a *Hot Air Fuel-Water Pipe* may be adapted with water below the *A-Fuel*, or with the *Hot Air Fuel* and water /steam systematically mixed for direct heat transfer;

HOT AIR FUEL OF LESSER TEMPERATURE, after heat transfer, the *Hot Air Fuel* with reduced temperature can then be used further to drive *Special Air Turbines* or *Special Reciprocating Air Engines* that require lesser temperature than that of conventional Steam Turbines; or, the same may be used by other users;

[the *Special Air Turbine*, *SA Turbine*, comprising of an Impulse Section and a Reaction Section as that of a steam turbine with whatever appropriate modifications to replace steam with *A-Fuel*; *Special Reciprocating Air Engines* can be deployed to run the electric generator /dynamo of a Converted *EP-Plant*; similar arrangements as that of steam turbines of conventional *EP-Plants* can be employed;

there is no need at all to change /modify the electric generator of an *EP-Plant*; in the case that the pressure power from the *Air Fuel* is not enough for the *SA Turbine* to effectively run the electric generator of a converted *EP-Plant*, Tandem Compound Arrangements can be used with two or more shafts directly coupled in series, linearly; Cross Compound Arrangements can be used also with two or more shafts which are not in series, with the turbines operating at different speeds but synchronized by gears to have a common output speed as that of the electric generator;]

this Air Fuel after heat transfer can also be utilized to preheat the water, or even still produce steam, which can then be further heated to produce the desired higher temperature steam needed by an *EP-Plant*; this approach will give significant reduction of the use of fossil fuel to turn water into the required high temperature steam;

AIR FUEL AND VAPORIZED WATER, with *Hot Air Fuel* or *Cool Air Fuel,* both of Claim 11, the steam requirement for an *EP-Plant* can be replaced by a combination of *Air Fuel* and vaporized water to drive a particular *SA Turbine* or even a steam turbine; the combination of *A-Fuel* and Water Vapor transformed into air-water vapor jets for use by an accordingly modified turbine will enable the turbine to run to drive an electric generator /dynamo;

water vapor has much higher density than air density; turbine power also depends on the mass of the medium used, in this case, a combination of air and water vapor with kinetic energy; there shall be greater available power than just relying on the mass of air molecules; it is anticipated that a portion of water vapor will condense into liquid water such that a drain system shall be provided along the path of the air-water vapor;

COOLING HOT STEAM, the *Cool Air Fuel* can be used for fast-cooling the hot steam of a particular EP-Plant, whether the plant is conventional or converted; the steam will repeatedly be recycled to condense into liquid water for reuse into steam then back to liquid water; this will help minimize emissions into the atmosphere of water vapor – also a greenhouse gas that contributes to Global Warming that in turn leads to Climate Change;

DUAL POWER DRIVERS FOR THE ELECTRIC GENERATOR, the *SA Turbine* and the steam turbine will run its electric generator by way of connecting gears to a common gear; it can be that at Normal Electric Demand, the *SA Turbine* will be in operation to drive the electric generator; at Peak Electric Demand, the steam turbine can be activated as a standby support turbine mechanism to help drive the same electric generator; this can be on a vice-versa way; the steam turbine can also be availed of in case of a lack of appropriate *A-Fuel* supply for the *SA Turbine,*

whereby said air system has embodiments /components that now make available various means that can be availed by electric power plants to convert to air fuel instead of using fossil or nuclear fuel.

CLAIM 17:

THE AIR SYSTEM HAS PROVISIONS FOR BALANCED ENERGY AVAILABILITY,

the *Air System* of Claim 11 enables a country or even the world to have the flexibility for locations with low winds to be compensated by those with high winds; this can be attained by embodiments /components as means to transfer *Air Fuel*, it involves,

AIR TRANSFER AIR COMPRESSORS, *ATA Compressors*, will directly siphon *Air-Fuel* from the *SA Pipes* and supplied to the *LSCA Tanks,* both of the Air Grid of Claim 11, at sites with low winds; when needed, the *NOA Compressor* can also do the same;

ELECTRIC BOOSTER AIR COMPRESSORS, *EBA Compressors*, will siphon compressed air in the *SA Pipes* with abundant wind for transfer to areas in need; the *Hot Sector* and *Cool Sector* will each have an *EBA Compressor* with a *Duo-Direction Piston Valve* configured to have a plurality of *Piston Heads* linked by a corresponding plurality of *Piston Rods*; this said *Duo-Direction Piston Valve* serves to block or allow the flow of *Air Fuel* in the connecting pipes in accordance with the desired direction; an *EBA Compressor* depends on the relevant *AGrid Pressure Gauges* and/or *AGrid Temperature Gauges* that act as sensors; an *EBA Compressor* with its *Duo-Direction Piston Valve* can be replaced by equivalent individual compressors,

whereby said air system has embodiments /components that are the means to enable a country or even the world to have a balanced energy availability and energy security from renewable clean energy resources that are abundant, recurring, and virtually limitless.

CLAIM 18: PERTINENT APPLICABLE SPECIFICATIONS/discussions/details/approaches in the Specifications portion of this Non-Provisional Patent Application inadvertently missed in Claims 1-17 or not claimed are likewise claimed. and,

CLAIM 19: ANY SINGLE/ PARTIAL/ WHOLE EMBODIMENT(S)/ PRINCIPLE(S)/ CONCEPT(S) accepted or approved by this patent office that has/ have the same or similar effect(s)/ function(s)/ uses/ scientific claim(s) of any/ combination/ all of the above foregoing single/ partial/ whole embodiment(s)/ principle(s)/ concept(s) is/ are claimed.