Claims

What is claimed is:

1. An apparatus for efficient power transfer between two rotating shafts, said apparatus comprising:

~~A~~a prime mover mechanical torque and power generating device operating ~~at a particular operating speed~~ and having two best efficent operating rotational speeds based on said prime mover's optimized operation to reduce wear, emissions and fuel consumption, said higher of the two best rotational operating speeds being at least fifty-percent (50%) higher than the lower best rotational operating speed,

~~An~~an electrical generator torgue and power using device operating and having a single best efficient constant rotational speed, said power using device's constant rotational speed being dictated by the electrical frequency requirments of the load that said generator is required to provide, ~~at another particular rotational speed,~~

~~Said~~said prime mover and said electrical generator being rotationally interconnected through a rotational torque and power system, said system comprising a plurality of adjustable speed drive magnetic torque converters, said adjustable speed drive torque converters using variable magnetic field interaction between said torque converters' shafts, said adjustable speed drive torque converters being connected to, and controlled by, automatic

computer programmed electronic linear actuators, said actuators receiving a control signal that the engine speed control system will provide during the relatively large speed change from the higher best efficient rotational speed to the lower best efficient rotational speed change of the Prime Mover, or from the lower best efficient rotational speed to the higher best efficient rotational speed change of the Prime Mover, and a plurality of mechanical rotational torque transfer devices,

said rotational torque and power transfer system thereby allowing for continuous rotational torque and power transfer ~~bewteen~~ over a fifity percent prime mover speed change of said prime mover ~~and said electrical generator~~, while at all times maintaing the single best efficent constant rotational speed of said electrical generator. ~~during any desired changes in the rotational speeds of said prime mover or said electrical generator.~~

2. The apparatus of claim 1, wherein said rotational torque and power transfer system's prime mover's best efficient lower rotational speed is 1200 RPM, said prime over's best efficient higher rotational speed is 1800 RPM, and said system's electrical generator's single best rotational speed is 1800 RPM. ~~mechanical rotational torque transfer devices comprises a plurality of pulleys and sheaves.~~
3. The apparatus of claim 1, wherein said rotational torque and power transfer system's mechanical rotational torque transfer devices

comprises a plurality of meshing gears, or a plurality of pulleys and sheaves.

~~4. The apparatus of claim 1, wherein said adjustable speed drive magnetic torque converters comprise devices that transfer rotational torque and power through variable magnetic field interaction between said torque converters' shafts.~~

~~5.~~4. A method for efficient power transfer between two rotating shafts, said method comprising:

~~Having~~ having ~~a~~ a prime mover mechanical torque and power generating device operating ~~at a particular rotational speed,~~ and having two best efficent operating rotational speeds based on said prime mover's optimized operation to reduce wear, emissions and fuel consumption, said higher of the two best rotational operating speeds being at least fifty-percent (50%) higher than the lower best rotational operating speed,

~~Having~~ having a electrical generator torque and power using device operating ~~at another particular rotational speed,~~ and having a single best efficient constant rotational speed, said power using device's constant rotational speed being dictated by the electrical frequency requirments of the load that said generator is required to provide,

~~Said~~ said prime mover and said electrical generator being rotationally interconnected through a rotational torque and power system, said system

comprising a plurality of adjustable speed drive magnetic torque converters, said adjustable speed drive torque converters using variable magnetic field interaction between said torque converters' shafts, said adjustable speed drive torque converters being connected to, and controlled by, automatic computer programmed electronic linear actuators, said actuators receiving a control signal that the engine speed control system will provide during the relatively large speed change from the higher best efficient rotational speed to the lower best efficient rotational speed change of the prime mover, or from the lower best efficient rotational speed to the higher best efficient rotational speed change of the prime mover and a plurality of mechanical rotational torque transfer devices,

said rotational torque and power transfer ~~system~~ method thereby allowing for continuous rotational torque and power transfer ~~between~~ over a fifity percent prime mover speed change of said prime mover ~~and said electrical generator~~ while at times maintaining the single best efficient constant rotational speed of the electrical generator. ~~during any desired changes in the rotational speeds of said prime mover or said electrical generator.~~

~~6.~~5. The method of claim ~~5~~4, wherein said rotational torque and power transfer system's prime mover's best efficient lower rotational speed is 1200 RPM, said prime over's best efficient higher rotational speed is 1800 RPM, and said system's electrical generator's single

best rotational speed is 1800 RPM. ~~mechanical rotational torque transfer devices comprises a plurality of pulleys and sheaves.~~

~~7.~~6. The method of claim ~~5~~4, wherein said rotational torque and power transfer system's mechanical rotational torque transfer devices comprises a plurality of meshing gears, or a plurality of pulleys and sheaves.

~~8. The method of claim 5, wherein said adjustable speed drive magnetic torque converters comprise devices that transfer rotational torque and power through variable magnetic field interaction between said torque converters' shafts.~~

~~9.~~7. A system for efficient power transfer between two rotating shafts, said system comprising:

~~Having~~ having a prime mover mechanical torque and power generating device operating ~~at a particular rotational speed~~, and having two best efficent operating rotational speeds based on said prime mover's optimized operation to reduce wear, emissions and fuel consumption, said higher of the two best rotational operating speeds being at least fifty-percent (50%) higher than the lower best rotational operating speed,

~~Having~~ having a electrical generator torque and power using device operating ~~at another particular rotational speed~~, and having a single best efficient constant rotational speed, said power using device's constant rotational speed

being dictated by the electrical frequency requirments of the load that said generator is required to provide,

~~Said~~ said prime mover and said electrical generator being rotationally interconnected through a rotational torque and power system, said system comprising a plurality of adjustable speed drive magnetic torque converters, said adjustable speed drive torque converters using variable magnetic field interaction between said torque converters' shafts, said adjustable speed drive torque converters being connected to, and controlled by, automatic computer programmed electronic linear actuators, said actuators receiving a control signal that the engine speed control system will provide during the relatively large speed change from the higher best efficient rotational speed to the lower best efficient rotational speed change of the prime mover, or from the lower best efficient rotational speed to the higher best efficient rotational speed change of the prime mover and a plurality of mechanical rotational torque transfer devices,

said rotational torque and power transfer system thereby allowing for continuous rotational torque and power transfer ~~bewteen~~ over a fifity percent prime mover speed change of said prime mover ~~and said electrical generator~~ while at times maintaining the single best efficient constant rotational speed of the electrical generator ~~during any desired changes in the rotational speeds of said prime mover or said electrical generator~~.

~~10.~~8. The system of claim ~~9~~7, wherein said rotational torque and power transfer system's prime mover's best efficient lower rotational speed is 1200 RPM, said prime over's best efficient higher rotational speed is 1800 RPM, and said system's electrical generator's single best rotational speed is 1800 RPM. ~~mechanical rotational torque transfer devices comprises a plurality of pulleys and sheaves.~~

~~11.~~9. The system of claim ~~9~~7, wherein said rotational torque and power transfer system's mechanical rotational torque transfer devices comprises a plurality of meshing gears, or a plurality of pulleys and sheaves.

~~12. The system of claim 9, wherein said adjustable speed drive magnetic torque converters comprise devices that transfer rotational torque and power through variable magnetic field interaction between said torque converters' shafts.~~