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[Invited] Modular and Repairable Superconducting Wind Turbine Generators 5-20MW

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The desire is for light weight wind turbine generators for both land and offshore wind that can be serviced on top of the wind towers. Hyper Tech has developed a modular concept design so the components can be shipped over conventional highways and assembled on top of a tower. The design can be scaled from 5-20MW. There is also the desire to have low operational and maintenance costs for these large wind turbine generators. The Hyper Tech design concept allows for the replacement of any of the superconducting coils or cryogenic components on site on top of the tower. Using these modular concepts if a failure occurs, the entire generator would not have to be taken down off the tower to be repaired. In addition, with the development of fine filament MgB₂ wires there is the potential of developing all cryogenic MgB₂ wind turbine generators. An all cryogenic wind turbine generators will result in lower weight compared to superconducting wind turbine generators where only the rotor is using superconductor wire.

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