(1) If the energy stored in the Earth's magnetic field could be drained with no losses and used to supply the world demand for electrical power, how long would it last?

The external magnetic field of the Earth is approximately that of a dipole down to the metallic core within which the currents flow. At the north magnetic pole the field strength is 0.5 G. The radius of the core, R_c, is approximately half the Earth's radius. Down at the pole of the core, the field will have risen to $B_c = 0.5 \times 2^3$ or 4 G. In the simplest model (and the one with the least stored energy) the source of the field would be a current on the surface of the spherical core, producing a uniform field B_c inside the core and the dipole field outside it. Integrating $B^2\, dv/8\pi$ over both regions we find the total stored energy to be $\frac{1}{4} B_c^2 R_c^3$, of which two-thirds is inside the core. With $B_c = 4$ G and $R_c = 3 \times 10^8$ cm the energy stored in the field in this model is 10^{26} erg. The actual field within the core is surely more complicated, as it must be in any dynamo, with toroidal components that don't show up outside. The total stored energy could well be several, possibly many, times 10^{26} erg. Annual use of electrical energy in the U. S. is equivalent to a steady consumption of 800 W per person, or 1.5×10^{12} kW h/y. The world use is about three times that, 4.5×10^{12} kW h/y, which is 1.4×10^{26} erg/y. It appears that the field energy would last us a few, maybe several, years.