Group Problem: Inductor

A solenoid has length $l$, radius $a$, and $N$ turns

1) What is its self-inductance $L$?
2) Charge to current $I_0$ then release through resistor $R$. What is $I(t)$?
3) What, as a function of time, is the electric field induced on its inner surface?
4) What is the Poynting vector there?
5) What is total power exiting (integrate $S$)?
6) Where is the power going? Prove it!