TEK5370 - Obligatory 1 - h20 - Energy Distribution and max load

1) Given the Energy usage in Norway and in households, as presented in L1
   a) Create the % of energy used in each segment (creation, industry, transport, home/buildings, others) as compared to the total energy produced
   b) Create the % of energy used in each segment (industry, transport, home/buildings, others) as compared to the total available energy

2) Giving an electrical fuse of 50 A (3-phase) in a home in Norway
   a) how much power can be used in the house, given a voltage of 230 V
   b) how much power can be used in the house, given a voltage of 400 V
   c) How much more energy can a 400 V system provide?
   d) create a drawing of a 400 V system, and a drawing of 230 V system

3) The home has a charger for an electrical car. Given the numbers of exercise 2,
   a) how much [%] of the total available energy is used given a 3.6 kW charger. How much current is used for car charging?
   b) how much [%] of the total available energy is used given a 7.2 kW charger.

4) Assume you connect Trondheim to Oslo (540 km). Given a capacity of 700 MW, how much losses does one have using 380 kV or 120 kV? Assume that cable area is not bigger than 30 mm^2.

When looking at the results from 1-4, what do they tell you?