1. Consider the following problem, where the vectors $c^1, \ldots, c^k, b$ and the matrix $A$ are given:

$$\min \sum_{i=1}^{k} |(c^i)^T x|$$
$$st. \quad Ax \leq b$$

Prove that the LP below is a correct formulation.

$$\min \quad \sum_{i=1}^{k} (s_i + z_i)$$
$$st. \quad s_i \geq 0, \quad z_i \geq 0$$
$$(c^i)^T x = s_i - z_i \quad (i = 1, \ldots, k)$$
$$Ax \leq b$$

2. Apply this to formulate the power estimation problem (that is, overall you will have 2 different solutions to the same problem). Solve it with AMPL and CPLEX.