Deriving the susceptance for each line l

X and R are in per unit.

Representative days records

Use k-medoid exact for both input based and cost based

Solve the LP relaxation

Start doing some Repn day selection

Compare cost based and input based for 5 years 15 representative days. Cost based has 2 infeasible days when fixing the investment decisions and solve the whole 365 dataset. Input based has more than 30 infeasible days. The files are named as “input\_15days\_5years\_mediumtax.csv”, “cost\_15days\_5years\_mediumtax.csv”.

The major difference is that input based has less investment cost than the cost based.

And the major difference in investment is the natural gas capacity. Therefore, I conjecture the solution is very degenerate.

We have also added the instance with one extreme day.