# 1\_br\_complete

Period: 07/01/2012 to 07/31/2012 (mm/dd/yyyy)

Input file names:

hydFile="../data/hydro/hydro\_data\_br\_1.csv",

hydFeather="../data/hydro/br\_shype\_hydro.feather",

windFeather="../data/wind/wind\_br.feather",

solarFeather="../data/solar/solar\_GAMS\_br.feather",

loadFeather="../data/load/load\_Br\_2014.feather",

transmissionCSV="../data/transmission/linesCapacities\_br\_1.csv", investCSV="../data/investOptions/investOpts\_br\_thermal.sources\_1.csv",

intermittentCSV="../data/investOptions/br\_intermittent\_opts\_1.csv"

This first run has presented an infeasibility in the minimum flow constraint on the region SE4. The original minimum flow should be 10503.26. I’ve put a slack variable and it’s presented values of 8500 approximately. So I’ve change the minimum flow of SE4 to 1500 and it worked.

# 2\_br\_complete

Changing investment costs of wind and solar to 10% of original values 🡪 the same results. Wind and solar don’t enter.

Coming back to original values of costs.

I’ve tried to change the WindPower column at wind\_br.feather file, but the result was the same: zero PV and wind.

Tomorrow: extremely high costs of thermal technologies in order to check if renewables will enter 🡪 same results

There was a mistake in GAMS formulation. Now we have some good results.

Now I’m producing results and comparing with ONS website.

# Yearly\_full\_run

Let’s verify if the model is running for an entire year. For that let’s make a run for 2012. This year was chosen because it is a kind of stable year in terms of inflows. The difference between 2\_BR\_COMPLETE and 2012\_RUN is that the variable costs are in millions of R$ of 2017 just like the investment costs. This change can affect the investment in intermittent renewables.

The input data was based in Newave deck of 2017, April.

Concerning the results, a strange one is that the model invests in thermal capacity in NE and N, but there is no thermal generation in this locations.

# validation\_2012

In order to validate our model, let’s make a run using the ONS deck of 2012 and zero investment costs. Let’s choose December of 2012. After that, we are able to access the following indicators:

* graphs that I already have;
* correlation between COPA time series and ONS time series;
* RMSE (Perhaps we will need a package to access it);
* point graphs to verify the differences between the time series.

By adding the thermal plants from Dec 2012 deck, we had the same investment in thermal and renewables of the “yearly\_full\_run”. The generation of thermal plants was non negative during the dry period in subsystem SE and it was zero in the other periods. The investigation of investment variables is necessary in the near future, because the model is investing in thermal capacity in some areas, but there is no production in these areas. Probably the model is investing because it is cheap to do it, even it is not necessary to produce. All thermal and intermittent renewable plants has zero investment costs, because they were existent plants already in 2012.

Everything fine with transmission line capacities from 2012.

After making runs with the new hydro\_data\_br\_2012, everything seems ok.

Tomorrow:

Check the investOpts\_br\_2012 and the time-series of capacity factors of wind and solar resources.