

INESC TEC - Report II

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1 Introduction

This report presents the effects of limiting the input features in the model, in order to assess the most relevant features. The previous report showed the results of training the model with all six inputs, which were:

1. Carga subrede de 138 kV
2. Potência solar gerada subrede 138 kV
3. Potência eólica gerada subrede 138 kV
4. Carga subrede de 230 kV
5. Potência solar gerada subrede 230 kV
6. Potência eólica gerada subrede 230 kV

However, now, two more models are trained by either using only the 138 kV features or the 230 kV ones. The methodology was the same as the previous report.

2 Results

The two new models, specified by columns *138 kV* and *230 kV*, were trained and their RSME results are presented by table 1, which also contains the original model (*138 kV and 230 kV*).

Table 1: RMSE results for the three models

Feature	138 kV and 230 kV	138 kV	230 kV
Magnitude tensão barramento 11	0.0077	0.0103	0.0178
Magnitude tensão barramento 12	0.0079	0.0095	0.0175
Magnitude tensão barramento 24	0.0076	0.0096	0.0180
Potência ativa injetada barramento 11	2.565	2.7365	37.8381
Potência ativa injetada barramento 12	4.584	6.5444	47.1200
Potência ativa injetada barramento 24	6.497	11.9612	55.1839
Potência reativa injetada barramento 11	4.532	6.3248	12.3794
Potência reativa injetada barramento 12	4.961	6.8154	16.0528
Potência reativa injetada barramento 24	3.564	4.1928	9.7673

It can be seen that the best results are from the training with all the six input features, i.e., the *138 kV and 230 kV* model, which are in bold.