

## 1. Electrical features of the network of RTE (corresponding to the so called « static grid model » of RTE)

### 1.2 General principles of the publication

The attached excel file gives a list of very high voltage grid elements (400 and 225 kV overhead lines and 400/225 kV auto-transformers) which are identified with geographical names (French names of the substations) and associated with their electrical features that are used to model the network.

The order is alphabetical. The publication will be updated every year.

### 1.3 Overhead lines

Concerning the overhead lines, the publication provided deal with:

- CWE interconnectors (the publication is agreed with the TSOs of the region);
- The assets that are strictly the property of RTE. Indeed, RTE cannot publish some information related to other owners which are connected to the network.

An example of the table related to the lines is given below:

Identifiant géographique	Longueur (km)	IST_E1	IST_IS1	IST_IS2	IST_H1	Rd (Ohm)	Xd (Ohm)	Hd/2 (μS)	Cd (nF)
LIT 400kV NO 1 AGASSES (LES) - JONQUIERES	10400	3465	3622	3622	3780	0,206	2,707	22,42	142,744

Where the columns give the following piece of information:

- “Identifiant géographique”: the link or overhead line is identified by its nominal voltage level and its geographical location (two substations defining its ends that can be read in the ENTSO-E map);
- “Longueur”: the length of the link in kilometer;
- “IST\_E1, IST\_IS1, IST\_IS2 and IST\_H1”: “Intensités de Secours Temporaires” (Maximum currents that the line can withstand during a time limit) given in ampere for four seasons defined by RTE which are respectively Summer (21<sup>st</sup> May – 1<sup>st</sup> October), in-between season 1 (1<sup>st</sup> October – 31<sup>st</sup> October), in-between season 2 (10<sup>th</sup> April – 21<sup>st</sup> May) and Winter (31<sup>st</sup> October – 10<sup>th</sup> April);
- “Rd”: direct resistance in ohm;
- “Xd”: direct reactance in ohm;
- “Hd/2”: semi-susceptance in micro-Siemens;
- “Cd”: direct capacity in nano-Farrad.

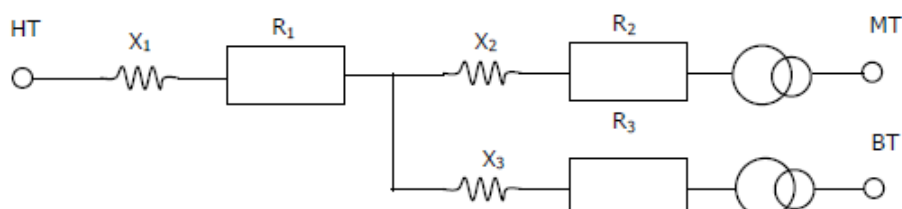
### 1.4 Auto-transformers (400/225 kV) :

The attached file gives the electrical features of the Auto-Transformers of RTE (400/225 kV) and below is an example:

Identifiant géographique	Rd1 à Prise moy	Xd1 à Prise moy	Rd2 à Prise moy	Xd2 à Prise moy	Rd3 à Prise moy	Xd3 à Prise moy	U1r sur Prise moy	U2r sur Prise moy	IPE_T / ISTE	IPH1_T / ISTE
TRANSF. 400/225kV 762 EGUZON	0,25	68,3	0,77	-5,7	1,93	302	380	235	847	921

Where the columns give the following piece of information:

- “Identifiant géographique”: The transformer substation as it is located on ENTSO-E map
- “Rd(i), resp Xd(i), à Prise moy”: resistance, respectively reactance, in direct ohm, with a nominal coupling and voltage for the primary circuit. The transformer with three windings can be modelled as followed:



- “U1r sur Prise moy”: Nominal voltage for the primary circuit;
- “U2r sur Prise moy”: Nominal voltage of the secondary circuit;
- “IPE-T/ISTE”: “Intensité de Secours Temporaire” (Maximum currents that the line can withstand during a time limit) in Summer season (10<sup>th</sup> April – 31<sup>st</sup> October);
- “IPE-T/ISTH1”: “Intensité de Secours Temporaire” (Maximum currents that the line can withstand during a time limit) in Winter season (31<sup>st</sup> October – 10<sup>th</sup> April).