

ASPECTS REGARDING THE VARIATION BETWEEN THE ELECTRICITY CONSUMPTION OF THE INTERNAL SERVICES AND THE CHARGING LOAD OF THE ENERGY GROUPS WITH THE UNIT POWER OF 330 MW

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ABSTRACT: The paper had as a reference element the major importance that synchronous generators with a unit power of 330 MW still have on the stability of the National Power System. It is well known that in the near future it is necessary to replace energy capacities based on burning coal with renewable sources. However, this objective is conditioned by a certain time horizon. Until the realization of these energy capacities, a continuous efficiency of the technological flow schemes that are included in the configuration of power plants is necessary.

Key words: power group, loading load, internal services, electricity, energy consumption, power losses

1. INTRODUCTION

Considering that the National Energy System is coordinated by the national dispatcher on the basis of operational management steps and taking into account that there is a permanent monitoring between the power required by consumers and the power produced by power plants, it can be concluded that a permanent actuation on the charging tasks of the energy groups that enter in the configuration of the power plants for producing electricity[1-3].

Starting from this desideratum, in table 1 is presented the electricity consumption allocated to the internal services of an electric power group with a unit power of 330 MW. Table 1 shows the electricity consumption of internal services that is part of the configuration of the technological flow scheme of an energy group with a unit power of 330 MW, by reference to different charging loads[1-6].

Table 1

<i>Nr. crt.</i>	<i>Electricity produced by the synchronous generator [MWh]</i>	<i>Electricity consumed by domestic services</i>	<i>Electricity discharged into the power system</i>	<i>Percentage consumption of electricity consumed</i>
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		[MWh]	[MWh]	[%]
1.	260 000	16 755	243,245	6,442
2.	270 000	17 390	252,61	6,44
3.	280 000	18 055	261,945	6,448
4.	290 000	18 695	271,305	6,446
5.	300 000	19 335	280,665	6,445
6.	310 000	19 990	290,010	6,448
7.	320 000	20 800	299 200	6,5

2. ASPECTS REGARDING THE VARIATION OF THE ELECTRICITY CONSUMPTION ALLOCATED TO THE INTERNAL SERVICES IN RELATION TO THE CHARGINNG LOAD

electricity consumption allocated to the internal services for several charging stages of a synchronous generator with a unit power of 330 MW was drawn up. The variation between the amount of electricity consumed by domestic services and the amount of electricity discharged into the Electric Power System is shown in Figure 1[7-12].

Starting from the data presented in table 1, the graph of variation of the



Figure 1. Dependence between the amount of electricity produced and the electricity consumption of domestic services

Taking into account the losses of electricity in medium and low voltage electric motors

and transformers, the diagram for a charging load of 320 MW can be drawn up. (figure 2).

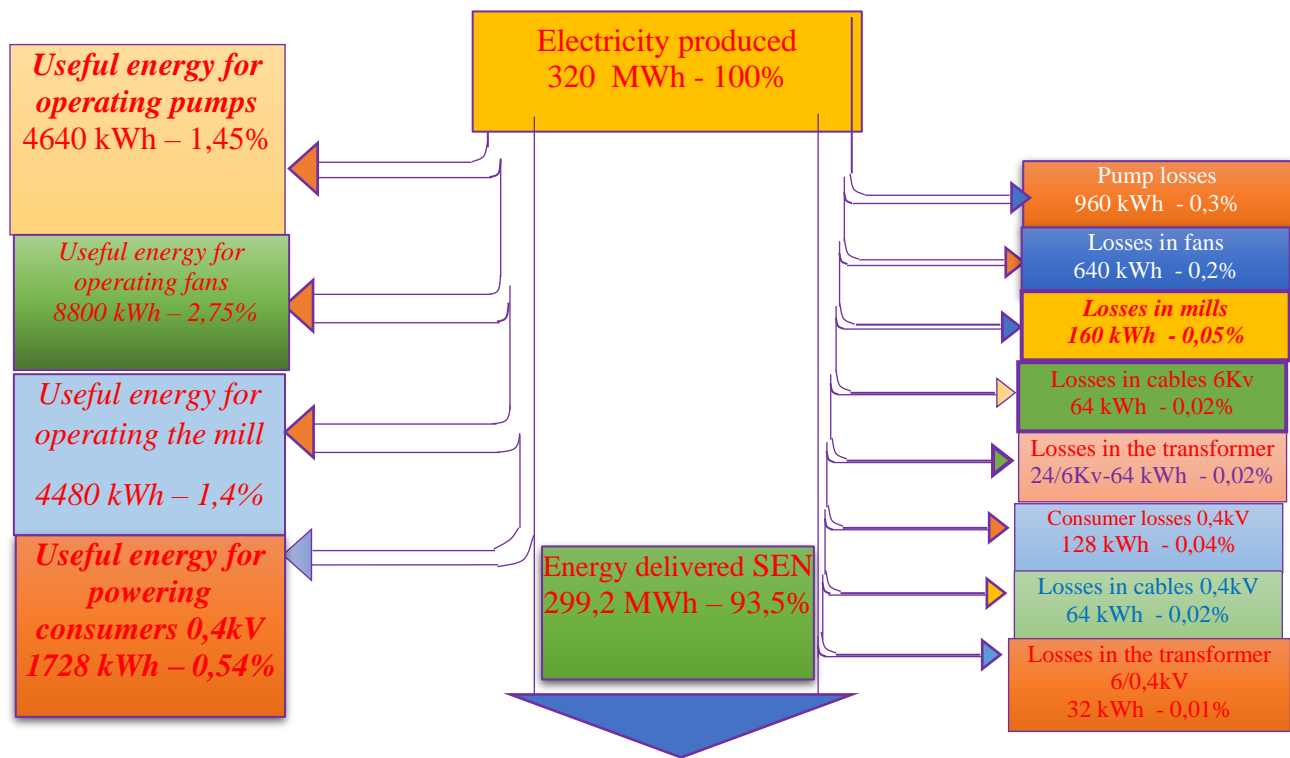


Figure 2. Diagram specific to the 320 MW charging regime

3. COCLUZIONS

Starting from the aspects presented above, the following conclusions can be summarized:

1. Regardless of the load on the energy groups, the percentage rate of electricity consumption allocated to domestic services is approximately constant. This can be argued by the fact that at the same time as the reduction of the loading load, some or all consumers of own services are decommissioned (an example of this is coal mills).

2. The amount of electricity loss in medium and low voltage motors, transformers and electrical cables, for a load of the synchronous generator load to 320 MW is about 0,36%.

3. The amount of electricity supplied to consumers of own services, for a load of the synchronous generator load at 320 MW is about 6,14%.

4. Cumulating the amount of electricity losses in medium and low voltage motors, transformers and electrical cables with, the electricity supplied to consumers of their own block services, results in the percentage allocated to domestic services(6,5 %).

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