REPORT ON EXPOSURE TO AREAS WITH WATER STRESS

2024

To validate the answer that Cemig GT **does not have hydroelectric power plants in areas of water stress**, two methodologies accepted/indicated by this document were used. The first one was the manual of FAO UN, where the water stress indicator is presented.

$$\text{Water Stress (\%)} = \frac{TFWW}{TRWR - EFR} * 100$$

Where TFWW is freshwater withdrawn, TRWR is total renewable freshwater resources (TRWR) and the environmental flow.

According to the document, rates below 25% indicate low stress, with withdrawals being marginal to the total available water resource. Only in situations where the indicator is **greater than 75%** is a high level of water stress considered, indicating greater impacts on resources and potential conflict and competition between users.

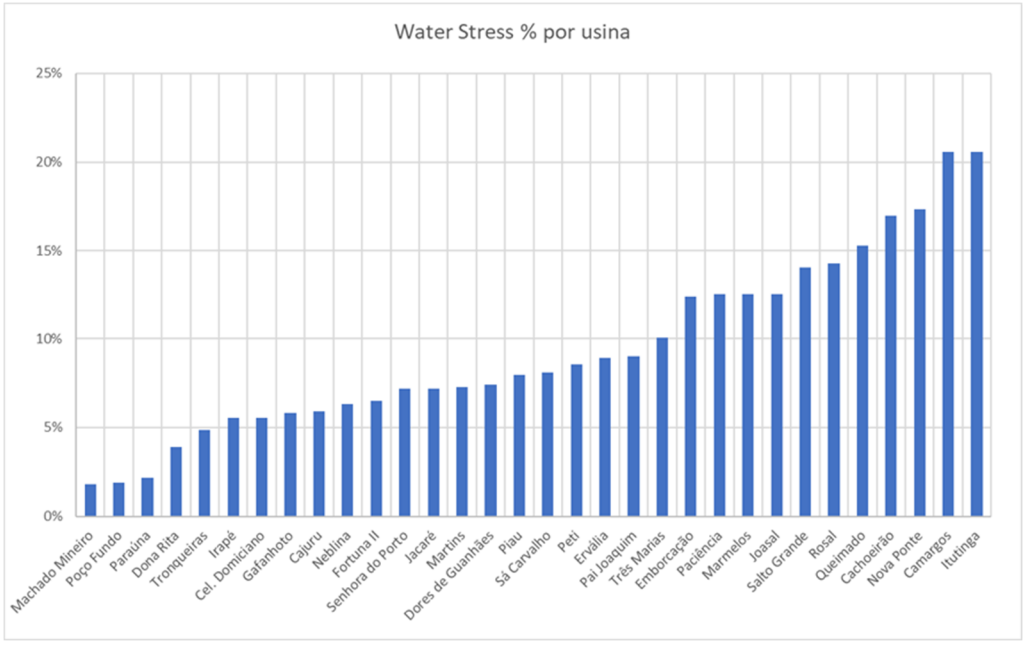
To calculate water stress, potential stress was considered. Where the withdrawal flow (TFWW) was considered the maximum legally possible, with 30% or 50% of Q7.10 for state basins in Minas Gerais and 50% of Q95 as reference flow for federal rivers and the environmental or remaining flow, EFR, will be 1 – removing the reference flow. TRWR was considered the long-term average flow of the watercourse. As it can be observed n in the table and graph below, water stress is in **the low stress range**, **with values varying between 2% and 21%**, as shown in figure 1 and figure 2.

Remarks: The hydroelectric power plant of Sinceridade does not operate with natural flows from the Manhuaçu River, it operates with an artificial flow from another plant that operates on the river (power plant of a third party), which is also not in an area of water stress (Doce river basin).

Usina	TRWR (m³/s)	TFWW (m³/s)	EFR (m³/s)	Water Stress (%)
Cachoeirão	59,5	8,64	8,64	17%
Cajuru	36,75	1,911	4,459	6%
Camargos	126	21,5	21,5	21%
Cel. Domiciano	5,93	0,291	0,679	6%
Dona Rita	15	0,534	1,246	4%
Dores de Guanhães	31	1,956	4,564	7%
Emborcação	444	49	49	12%
Ervália	1,22	0,09	0,21	9%
Fortuna II	14,3	0,804	1,876	6%
Gafanhoto	42,54	2,181	5,089	6%
Irapé	143	7,5	7,5	6%
Itutinga	126	21,5	21,5	21%
Jacaré	27,6	1,698	3,962	7%
Joasal	22,399	2,176	5,077	13%
Machado Mineiro	17,77	0,315	0,315	2%
Marmelos	21,2	2,1	4,8	13%
Martins	25,1	1,56	3,64	7%
Neblina	34,6	1,908	4,452	6%
Nova Ponte	281	41,5	41,5	17%
Paciência	23,07	2,241	5,229	13%
Pai Joaquim	79,5	5,91	13,79	9%
Paraúna	32,98	0,678	1,582	2%
Peti	20,91	1,488	3,472	9%
Piau	9,48	0,636	1,484	8%
Poço Fundo	11,27	0,204	0,476	2%
Queimado	49	6,5	6,5	15%
Rosal	44	5,5	5,5	14%
Sá Carvalho	85,59	5,826	13,594	8%
Salto Grande	142	17,5	17,5	14%
Senhora do Porto	28,7	1,764	4,116	7%
Sinceridade	Vazão Artificial			Não se aplica
Três Marias	658	60	60	10%
Tronqueiras	5,77	0,252	0,588	5%

Legend: *Usina* - Power Plant |

Figure 1: Calculation of exposure to areas with water stress



Legend: Water Stress & per power plant].

Figure 2: Percentage of water stress per power plant.

The other methodology used was the WWF Water Filter Risk, according to this indicator, they are considered critical only if the areas are at "high risk" or "very high risk" of water stress. As can be seen in the figure below, the river basins, delimited in red, which make up the areas that have hydroelectric projects of Cemig GT, **do not have areas in light red and dark red**, which would indicate high risk or very high risk of stress water (figure 3)

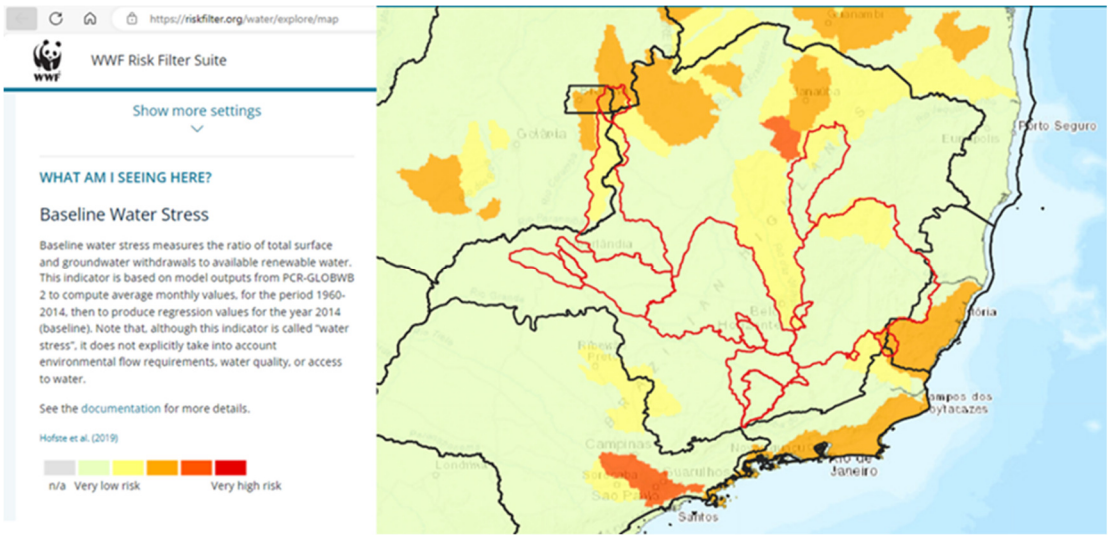


Figure 3: Location of river basins where hydroelectric power plants of Cemig are located

In this regard, based on the two methodologies used, it remains provided the statement that the company does not have projects in areas with water stress.