

RIGHT TO REPLY – THE GUARDIAN

With respect to the article titled “Design error puts Belo Monte structure at risk”, published by The Guardian on November 8, 2019, Norte Energia, developer of Belo Monte Hydroelectric Power Plant, clarifies that there is absolutely no risk or design error at Belo Monte HPP and definitely no uncertainties as to the safety of the structures that make up the largest 100% Brazilian hydroelectric plant.

The following information regarding the conclusions cited in the report is important:

There is no design error

Just as in all hydroelectric plants, dimensioning the Belo Monte Project began with its reservoir. In this case, it is a run-of-the-river plant, which means there is no regularization reservoir to store flood water, but rather a deviation to take advantage of the natural drop in the river. It is a “flow in, flow out” concept. For this type of reservoir, it is worth mitigating floods below the dam, but never the worsening of droughts. For the venture, the excess flow in the flood season is what will be used for power generation. As such, parameters determined by the environmental licensing project have been considered ever since the viability studies for Belo Monte HPP were conducted, which resulted in the basic project, which was later followed by the executive project – now fully deployed.

The Belo Monte Engineering project was based on Brazilian and international technical standards applicable to ventures of a similar nature, wherein Brazil is recognized worldwide for its experience and competence. From the beginning, technical support for the venture has been provided by a board made up of the most experienced hydroelectric dam consultants in the world (all Brazilians) and by an independent engineering company hired by the funders.

Belo Monte was designed and built to operate with the Xingu reservoir quota at an elevation of 97.00 meters above sea level, and this range may vary down to the minimum operating quota of 95.20 meters. The same is true for the Deviation Channel and for the

Intermediate Reservoir, since these three structures are interconnected.

The 95.20 quota was established as the minimum operating level after considering the greatest level variation predicted in the studies – and which, in its most extreme scenario, of an extremely low probability (2% incidence), would contemplate the occurrence of winds across the reservoir on the order of 100 km/h, causing up to 1.20-meter negative waves.

Considering this data, the erosion protection (rip-rap) for the Belo Monte HPP structures was designed and executed starting at an elevation of 94.00 meters and continuing to the top of the structures. In order to prevent erosion in the dam below this protection, the minimum operating level was therefore set at 95.20 meters – in other words, 1.20 meters above the 94.00 meters where the structure reinforced against erosion begins.

For informational purposes, even if something absurd caused the Xingu River flow to drop to zero, the Xingu reservoir level would not fall below 95.20 under any circumstances.

Possibility of low flow periods was foreseen and considered

In response to the comment from one of the sources consulted by the article in question, alleging that the venture is not familiar with the behavior of the Xingu River, Norte Energia refutes such allegation and adds that the low inflow seen in October reached one of the lowest levels since Xingu River flow monitoring began in 1931.

The National Water Agency of Brazil (ANA) Resolution No. 48/2011 contains the average flow data monitored since 1931 which was technically and statistically worked according to good engineering practices in order to determine the dimensioning parameters for the Plant's structural design, as well as the venture's operating criteria.

In addition to low flow situations, such as those that occurred in October, other natural phenomena were also considered – such as the occurrence of winds up to 100 km/h over the reservoir and their

impact on the structures, in addition to decamillenarian flow (flow that may occur once every 10,000 years), among other variables.

To get a better idea, the Belo Monte HPP structures were sized to meet a decamillenarian flow of 62,000 m³/s. As shown in the mean water volume flow chart contained in ANA Resolution No. 48/2011, the maximum flow observed in the Belo Monte HPP region never surpassed 33,000 m³/s.

Such information shows that, just as in other engineering projects of this nature, Belo Monte HPP upholds safety factors beyond those already obtained.

Flow to Volta Grande do Xingu is a priority

The purpose of establishing a minimum value for the Reduced Flow Stretch (TVR) flow – in accordance with ANA Resolution No. 48/2011 – was to ensure the living conditions for the riverine and indigenous populations, as well as the ichthyofauna, flora and other elements of the Volta Grande do Xingu ecosystem.

This resolution establishes that during drought periods, in addition to the 700 m³/s (700,000 liters of water per second) directed to the TVR, water flow to the Intermediate Reservoir must be on the order of 300 m³/s – which would require a natural water volume flow of approximately 1,000 m³/s.

In severe drought situations, such as that observed in October, the flow rate fluctuates around 700 m³/s. The same resolution establishes that the flow directed to the TVR cannot be less than the water volume flow.

As such, the venture is not authorized to reduce the water supply in Volta Grande do Xingu for the purpose of maintaining the water flow to the Intermediate Reservoir through the Deviation Channel – a characteristic that, associated with the procedures regarding dam maintenance and safety, led Belo Monte HPP to inform, in correspondence to the ANA, the need to reduce the flow directed to the Intermediate Reservoir to a level of 100 m³/s.

It is important to highlight that such change in flow rate to the Intermediate Reservoir was the object of Water Quality Studies through mathematical simulations, which were duly submitted to the ANA and IBAMA in March 2019, demonstrating that there would be no changes in water quality as a result of reduced water flow to the Intermediate Reservoir, dropping from 300 m³/s to 100 m³/s.

Water quality

Water quality is another point raised by the article that needs to be clarified. Directing water flow on the order of 300 m³/s to the Intermediate Reservoir was established and published in a specific ANA resolution, as previously mentioned. According to studies conducted and the constant monitoring performed by Norte Energia, it was verified that water quality does not suffer interference even with a flow rate of 100 m³/s.

Furthermore, the Plant's developer would not be so irresponsible as to request the referred flow rate reduction to the Intermediate Reservoir without first conducting several studies to support such demand.

Outcomes of the action communicated to the ANA

The change to the Intermediate Reservoir flow occurred during the period of October 12 to 23, 2019 and the water volume flow rate was gradually increased as the elevation and rising trend in the reservoir level were verified until reaching the flow rate of 300 m³/s, which occurred on October 23, 2019.

Additional water quality monitoring campaigns were conducted at three points in the Intermediate Reservoir, with three daily measurements in the period of October 12 to 23, 2019. As predicted in the mathematical simulations, the results verified in these campaigns showed that there were no changes to the water quality of the Intermediate Reservoir.

In addition, within the scope of the Belo Monte HPP Limnological and Water Quality Project, quarterly and monthly monitoring is conducted at points located downstream from the Escape Channel, in the Flow Restoration Stretch, as well as in the Reduced Flow

Stretch, downstream from the Pimental dam. Data from the most recent monitoring conducted in these compartments, specifically in the month of October 2019, was following the regulations of the Brazilian National Environmental Council (CONAMA) at all points monitored.

Tabuleiro do Embaubal

It is also important to mention that the municipality of Senador José Porfírio and Tabuleiro do Embaubal, both of which are mentioned in the article, do not lie in the vicinity of the Intermediate Reservoir, but are located downstream of the Belo Monte HPP Flow Restoration Stretch (TRV). The TRV is the point where the water that passes through Volta Grande do Xingu/Reduced Flow Stretch (TVR) meets the water from the Intermediate Reservoir, which feeds the Plant's Main Powerhouse, and the Xingu River flow is then reestablished to the natural water volume flow rates.

As such, any contamination from low flows is discarded.

Safe dams that are constantly monitored

The dams and dikes built in the Belo Monte complex are of compacted soil (homogeneous section) or clay-cored rockfill (mixed section), as is used by the vast majority of Brazilian hydroelectric plants. Such structures were built with material selected and previously tested; executed, layer by layer, under constant quality control; and have filters and transitions for internal drainage of the materials; as well as protections on their upstream and downstream slopes.

For greater peace of mind, it is worth mentioning that a characteristic of hydroelectric plant dams is to present signs well before the development of situations that may compromise the structure's safety.

At Belo Monte HPP, such signs are checked through systematic monitoring of the instrumentation results (1,976 instruments installed) and routine field inspections. This continuous work is part of the venture's Dam Safety Plan (PSB), ensuring the predictability

of potential damage and also allowing for immediate interventions to be performed to correct any deviations, if needed.

None of the instruments installed at Belo Monte HPP show any signs of attention or warnings. It must be noted that ANEEL periodically performs on-site inspections of the procedures regarding dam and dike safety for the Plant.

Norte Energia ratifies that the construction methods adopted for the Belo Monte HPP structures are proven to be the best engineering practices for hydroelectric dams. Brazil is a global benchmark in this sector.

Regarding the alleged shearing risk in the concrete structure of the Pimental dam mentioned in the article, Norte Energia is categorical: this risk does not exist.

Hydroelectric dams are different from mining dams

As for the comments from sources heard by the article that question the Belo Monte HPP engineering project, several improprieties are committed that deserve due clarification.

From a technical point of view, it is incoherent to compare hydroelectric dams and mining dams. The dams executed in the mining ventures mentioned by the article published on November 8 were built with techniques and materials completely different from those used in the Brazilian power industry and were used to contain mining process tailings.

Efficiency: clean and sustainable energy for Brazil

The Belo Monte Hydroelectric Plant is a venture whose technical characteristics are innovative and of proven structural quality and safety, such that the venture's configuration, a run-of-the-river plant, respected the important balance between power generation potential of the Xingu river and social and environmental conservation in the region.

Different from what was cited in the article, Belo Monte has one of the best installed power (MW) per reservoir area (km²) ratios. This results in a reservoir area per installed capacity that is much lower than the national average.

Due to lack of knowledge on the rules of the electricity sector and energy marketing, the article in question presented unfounded claims that the project is inefficient, which is not true.

It must be additionally noted that the power production is as predicted for this time of the year, taking into consideration periods with flows below the historical average.

Mitigation and compensation measures: over R\$ 6 billion invested

Belo Monte HPP was developed to preserve living conditions and the environment. Investments in mitigation and compensation measures, as well as enhancement of positive interferences total approximately R\$ 6.3 billion in over five thousand social and environmental actions executed in the venture's neighboring municipalities, including 78 education projects (construction, remodeling and expansion of educational units, training, and furniture donations) and the construction and equipment of 31 Basic Healthcare Units (Unidades Básicas de Saúde, UBSs), in addition to three new hospitals to expand service to the population surrounding the Plant.

Regarding deforestation in the region, lightly correlated by the The Guardian article to the influx caused by the venture, Norte Energia is obligated to clarify that there was, in fact, a significant population increase due to the construction of Belo Monte HPP. However, studies conducted by Norte Energia under the scope of its Basic Environmental Project show that the workers in the region returned to their cities of origin as the job was completed, and no direct relationship was observed between the population and deforestation.

It is also important to consider that a deforestation reduction has been noted in the municipalities of the Plant's region of influence in the historical series as of 2005, a decrease that is related to the

various phases of Operation Arco de Fogo, since the number of fines imposed by Ibama in the region has increased significantly since then.

Such command and control measures, proven to be effective in reducing deforestation levels, are the responsibility of the municipal, state and federal environmental agencies. At the federal level, it is important to mention that Norte Energia provides effective support to Ibama for environmental inspection actions conducted by the agency, through a specific Technical Cooperation Agreement (ACT) signed in May 2011 and still in effect. In addition to fighting deforestation in the Amazon, such actions involve combating illegal wildlife species trafficking. On the other hand, in addition to supporting the fight against deforestation, Norte Energia is investing R\$ 126 million in the creation and maintenance of Nature Conservation Units in the region, effectively contributing to the preservation of regional biodiversity.

All actions are related to the Basic Environmental Project (PBA) and Basic Environmental Plan – Indigenous Component (PBA-CI), linked to the venture's deployment. The document comprises 117 programs and projects focused on the development and quality of life of the communities in the region, as well as environmental conservation and the broadening of scientific knowledge on the Amazon. As for volume of actions performed, Belo Monte is already considered the largest environmental licensing process to ever have been monitored by the Brazilian Institute of the Environment and Renewable Natural Resources (Instituto Brasileiro do Meio Ambiente, Ibama).

Food safety

Regarding the needs of the inhabitants of the Plant's area of influence, Norte Energia emphasizes that it has been prioritizing the establishment of dialogue with the communities – both indigenous and non-indigenous – since the Environmental Study phase and the granting of the Operating License in November 2015. This required a government evaluation and approval of the social and environmental conditions implemented by the developer, respecting the rights of indigenous communities by establishing several communication and dialogue channels.

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Around 4,000 indigenous people of nine ethnicities that inhabit 12 territories are supported by a set of programs and projects that make up the Basic Environmental Plan – Indigenous Component (PBA-CI).

With respect to food safety, Norte Energia emphasizes its initiatives that create conditions for the production of different foods, as well as enabling the development of productive activities that contribute not only to subsistence, but also to income generation, such as raising fish in net tanks, introduced in the indigenous lands of Paquiçamba and Arara da Volta Grande do Xingu.

Considering the section of the article that addresses the presence of fish in the TVR, it is important to remember that fish were already trapped prior to the dam, due to the river's oscillations always causing pools to form.

In addition, monitoring in the Volta Grande do Xingu region is intensified during the drought period by teams that identify the formation of pools and verify the presence of trapped fish, water quality, whether the fish need to be rescued and georeferencing of the point.

A drone is also used to assist in monitoring from the air, in order to direct teams to places where pool formation is possible.

It is worth mentioning that the inspections occur in the presence of riverine and indigenous people and it is possible to verify that the number of live fish rescued is much higher than those already dead. All of this data is sent to Ibama immediately or on a weekly basis.

Fish monitoring, which has been conducted since 2012 under the Sustainable Fishing Incentive Project, considered a benchmark and model in terms of fishing offload monitoring within Brazilian continental waters, indicated that there was in fact a reduction in fishing after the plant deployment, but that the values are around 8% for the TVR – which corresponds to Volta Grande do Xingu. This information comes from the monitoring of over 60,000 fishing offloads using robust analytical tools.

Regarding navigability in the VGX region, four field campaigns have been conducted thus far in the years from 2015 to 2018, and the fifth campaign for 2019 has been underway since September 2019. It is reported that more than 14,000 users were served in the first four campaigns between the navigation guidance and support activities at the seven points of attention mapped.

Finally, Norte Energia reiterates that it has been rigorously complying with the commitments established under the concession of the Belo Monte HPP environmental license, including with respect to dam safety.

Norte Energia would also like to use this space to clarify that the Full-Scale Simulated Exercises of the Emergency Action Plan (PAE) linked to the Dam Safety Plan (PSB) for Belo Monte HPP, held in communities surrounding the venture in October, were routine activities previously scheduled by Norte Energia.

They are completely unrelated to the alleged risks presented by the article published on November 8, which is a piece intended by those who are against the venture to cause panic in the population surrounding the Plant – which Norte Energia vehemently repudiates.