Powering Brazil

The Outlook for Brazil’s Energy and Mining Sectors
with Brazil’s Minister of Mines and Energy Bento Albuquerque

On March 7, 2019, Brazil’s Minister of Mines and Energy Bento Albuquerque spoke at the Wilson Center on the outlook for Brazil’s energy and mining sectors under the new administration.

The Minister was candid in his recognition of the challenges ahead for Brazil, but affirmed that the government remains committed to strengthening governance and improving the legal and regulatory processes in the mining and energy sectors: work that has been given new urgency following the devastating collapse of the tailings mine in Brumadinho in February 2019.

Brazil is moreover an increasingly important player in international energy markets, with its abundance of traditional and renewable energy resources. As the pre-salt fields ramp up, oil and gas production is expected to hit 7.5 million barrels per day, making Brazil a top global producer. Yet senior officials, including Minister Bento Albuquerque, have openly acknowledged that the global trend is toward decarbonization, and have emphasized the need to effectively diversify the energy sector.

Much of the international community’s focus on Brazil to date has been on extraction, including the successful pre-salt auctions. The two-month-old government of President Jair Bolsonaro—who is expected to visit Washington later this month—has signaled its interest in continuing policies aimed at promoting foreign investment, not only in exploration but also in the infrastructure required to bring energy resources to market, from ports and refinery facilities to an expanding electricity grid. Recent tragedies, such as Brumadinho, and looming risks such as the impact of climate change reflect the challenges that remain for the mining and energy sectors, and for Brazil. As the country struggles to recover from a devastating recession and a massive corruption scandal that began inside energy giant Petrobras, these industries are seen as key for Brazil’s return to sustainable economic growth and global stature.
Ladies and gentlemen,

First, I would like to thank Mr. Paulo Sotero and the Brazil Institute at the Wilson Center for the honor of inviting me to make this speech and presentation to such a distinguished group of experts, but also to people in general who are interested in learning more about the new directives of the Brazilian government for the energy and mining sectors.

I consider this a unique opportunity to present how we intend to improve the energy and mining sectors for the transformation of Brazilian infrastructure.

As you all know, President Bolsonaro inherited a country in a deep ethical, moral and economic crisis. On top of that, at the beginning of his mandate, we experienced a new painful shock caused by the collapse of Brumadinho’s waste dam, causing hundreds of deaths and shaking the Brazilian and international communities.

Immediately after the tragedy took place, the new government adopted the necessary measures to mitigate the enormous suffering of the victims’ families. In addition to social and environmental measures, the Brazilian government is working meticulously on a deep reform of its legislation, with a view toward making it more severe and effective (in order to) prevent tragedies like Mariana and Brumadinho from ever happening again.

This rapid, decisive, and comprehensive response to such a terrible disaster was only possible because of the undeniable legitimacy of the government. That legitimacy, I must say, derives not only from the votes President Bolsonaro [received in] last October’s elections, but also from the criteria he has adopted to form his ministerial team. Instead of the political quid pro quo of previous Brazilian governments, President Bolsonaro chose his cabinet ministers based on their technical skills and their commitment to the public good, the reason I was picked to lead the Ministry of Mines and Energy.

Besides, along with my cabinet colleagues, I have been granted total autonomy to choose my staff at the ministry as well as the leaders of all related entities. I am aware that the biggest challenges ahead for the Ministry of Mines and Energy, in this historic moment of the country, are to coordinate and articulate, with my team, the policies for all the areas covered by our portfolio, making Brazil a more attractive destination for long-term investments. In order to make it possible, we need to attend to three major priority demands: governance, legal and regulatory certainty, and predictability.

It’s important to stress the government’s effort to implement the economic agenda, led by our Minister of Economy, Mr. Paulo Guedes, that is based upon four pillars: privatizations, social security reform, administrative reform, and commercial opening. As

* The Minister’s remarks have been lightly edited for clarity.
a matter of fact, the current Brazilian government works in a very cooperative fashion, holding weekly cabinet meetings where issues related to different ministries are discussed in an open and constructive environment, and where the strategies to deal with them are defined and refined.

Once these structural reforms are concluded, we are confident that we will be able to build a more competitive market, attracting more investments, with better services provided, and, hence, be in a position to boost economic growth and social welfare as long demanded by Brazilian society.

Ladies and gentlemen,

Let me point out some of the priorities of each specific area of my large portfolio.

With regard to the electric sector, we will work in order to:

- Lower charges and subsidies, which represent today a significant part of the energy price paid by the final consumer;
- Provide to the market, in a gradual and safe way, increasing participation in energy price formation mechanisms;
- Identify the real costs and benefits of the several sources of power generation, considering the specific roles that they perform in the national interconnected system and its externalities;
- Guarantee increasing supply security to the electric power system, at the lowest cost possible, without compromising the three pillars of its sustainability: environmental, social, and economic; and
- Adopt a pricing policy according to these principles.

Still in the electric power sector, always taking into account the public interest, we will go through with the Eletrobras capitalization process, which is one of the three main items on the economic agenda of the government, together with the new pensions system and the transfer of rights bid.

We are also preparing the guidelines that the government should consider in the negotiation of the new Annex C of the Itaipu Treaty with Paraguay. The basic principles we should follow in this negotiation are predictability in the amount of energy contracted and in pricing.

As we create a more favorable environment for new investments, we will prepare Brazilian infrastructure to absorb the new technologies long needed.

In sum, we will update the framework of the electric power sector, guaranteeing energy security, and prioritizing economic rationality, in a liable, competitive and innovative environment, combining current business models, new concepts and technologies, best international practices, and other modern references.

In the mining and mineral transformation sector, first, we intend to:

- Build up the new institutional framework, strengthening in particular the structure of the new regulatory agency, the National Mining Agency (ANM), with the adoption of good practices and management resources, indispensable for the long stages of mining projects;
- Invest in geological knowledge; and
- Promote auctions of more than 20,000 available areas, as well as mineral titles.

The mineral sector was responsible for roughly 21 percent of Brazilian exports in 2018. I am confident that with an updated legal framework and the right policies, we will be able to surpass these figures. That legislative effort shall also include the regulation of the use of indigenous and border areas, according to what the Brazilian Federal Constitution states.

This conviction of mine about the potential of the mining sector was only reinforced during my recent participation at the 2019 Annual Convention of the
Prospectors and Developers Association of Canada (PDAC), held in Toronto from March 3 - 6. For the first time in history, Brazil was featured as one of the sponsor countries and I personally experienced the huge interest that the Brazilian market attracts in this area.

I would also like to highlight that we are engaging in an unarmed and pragmatic dialogue with civil society, academia, Congress and the private sector about nuclear energy.

Brazil cannot be hostage to prejudice and disinformation, and, for that reason, waste two rare competitive advantages that we have in the international scenario: the technological knowledge of the nuclear fuel cycle; and the existence of large reserves of uranium in the country.

Accordingly, we are currently examining the possibility of amending the legal framework of the nuclear sector with a view to greater flexibility for research and exploration of uranium ore and the creation of the right conditions so that private investment can help develop the sector.

In essence, the future vision for the nuclear sector requires a commitment among government, market and organized society.

Ladies and gentlemen,

In the oil and gas sector, we will hold the most relevant auction of this government: the transfer of rights of the surplus volume of pre-salt areas that will take place on October 28 of the current year. The main guidelines for this bid, defined by the National Council for Energy Policy (CNPE) on February 28, are:

- A contractual model based on a production-sharing regime;
- The areas to be auctioned: Atapu, Buzios, Itapu and Sépia;
- The winner should pay a compensation to Petrobras for the investments already made in the area and, in exchange, will acquire a share of the assets and of the production;
- The guidelines for the calculation of this compensation; and
- The need for an agreement between Petrobras and the winner in order to discipline [regulate] the operation's unification.

This auction will represent a milestone in Brazilian energy policy, due to the substantial volumes of oil and natural gas in the area and the high productivity of the fields. For those reasons, the auction has attracted great interest from the world’s most important oil companies, and could bring significant economic benefits, such as the creation of new jobs and more income. This is a window of opportunity we cannot and will not waste!

With regard to the oil and gas sector, I would also like to stress that:

- We will enhance the governance of the exploration regime in the pre-salt areas, in order to enable Petrobras to sustain an investment volume compatible to its technical and financial capacity; and
- With regard to natural gas, we will be engaged in the supply diversification system; in the guarantee of transparency and free access to the transport segment; and in the regulation of the free market based on nationwide rules.

Furthermore, it is important to highlight that we will support initiatives and enterprises dedicated to renewable energy sources like hydro, wind, solar, bioelectricity and biofuels.

As a matter of fact, it is important to note that those sources, mostly with reduced socio-environmental impacts, represent the largest share of the Brazilian energy matrix, and have been consolidated as sustainable alternatives [that are] more and more integrated to the system.

In this context, the conscious exploration of natural, mineral and energy resources [and their] contribution to the people’s quality of life and to sustainable development should be stressed, based on an honest diagnosis, which recognizes the unequivocal importance of these activities for the country.

“Brazil cannot be hostage to prejudice and disinformation... Accordingly, we are currently examining the possibility of amending the legal framework of the nuclear sector with a view to greater flexibility for research and exploration”
In order for all these commitments to become reality, we have established a democratic and transparent dialogue with all segments of the Brazilian society, including Congress, the scientific and academic community, international organizations, public and private entrepreneurs, and others. This dialogue has been providing us with valuable points of view, offered by each interlocutor, that will help us to build a true national pact. We do not fear diversity, we embrace it and [intend to] make the best of it!

Ladies and gentlemen,

We are working hard and with determination for the necessary and structural reforms to be taken. They are essential for the financial health and sustainability of the public accounts, and will enable us to transform the economic scenario and open new opportunities to long-term investments.

These reforms will allow us to create a virtuous cycle of the economy, which will generate the trust necessary for us to open our market for foreign trade, encouraging competition, productivity and effectiveness. All the productive sector will benefit from a business environment with less regulation and bureaucracy.

We will be prepared to listen and evaluate, with serenity and transparency, always dedicated to public interest, the multiple demands of the different sectors.

We will concentrate our efforts in order to make more and better!

Rest assured, ladies and gentlemen, we are not naive. We know the challenges ahead are enormous. However, we are also sure that we have the will, the means, and the courage to overcome those obstacles. The Brazilian government is committed, body and soul, to perform the necessary reforms that will enhance our capabilities and make it possible for the country to start a new and sustainable development chapter of its history.

Thank you very much.
Q. What is the attitude of your government towards the integrity of the Amazon rainforest—which has been called our planet’s “lungs”—as you press for investment and development?

The Amazon is essential to our country. Not only with regard to environmental preservation, but also to the values that it represents to the planet in terms of resources. Its resources must be explored in a rational, sustainable way: in a way that it does not hurt the environment. That is how the government understands investment in the Amazon. The interesting thing about this government, as I said in my presentation earlier, is that our team (and if I can’t make it, my substitute is always present) [and the] other ministries get together weekly to discuss the government’s agenda. That is when we discuss current topics and present new ones. The Ministry of the Environment is one of the ministries that interacts the most with my portfolio. It also communicates a lot with the Ministries of Agriculture, Infrastructure and Regional Development.

We are creating a new way, a new protocol, to answer more quickly pressing concerns such as Brumadinho, for example. The day of the disaster, a few hours after [it happened], I went to Brumadinho with the Minister of the Environment and the Minister of Regional Development, who is responsible for public expenditure. That is the way we intend to deal with environmental protection and new investments in Brazil.

Q. Could you talk a little about the bilateral relationship between Brazil and the United States in the energy sector, especially in the context of the upcoming visit from President Jair Bolsonaro to Washington?

I’m very optimistic about this relationship. I was thrilled and honored during my first week in office when I received a call from Secretary Rick Perry, greeting me and proposing a cooperation agenda. We have several subjects that we can work on together. I have a meeting already scheduled with Secretary Rick Perry next week [in Houston], with a common agenda: to return to the potential areas of cooperation that we [Brazil and the United States] identified in the past, and to review some other points [of cooperation], mainly in the sectors of gas and biofuels.

Q. Some of the reforms that you mentioned depend on approval by Congress. Some of them in the gas sector imply constitutional change. How do you see these reforms happening? When investors look at Brazil and see the electricity sector relying heavily on decisions from courts, this affects their sense of predictability. How do you see this changing? The World Bank has worked with your Ministry to modernize Brazil’s mining codes, but this has not happened yet. In your view, do you see this topic evolving towards good results, such as those you mentioned recently at the PDAC meeting in Toronto?

Let me see if I still remember the first question [laughs]. [Your questions are] like an agenda from the ministry. But they are very interesting, and I do not see any difficulty in answering them.

We recognize that altering constitutional precepts, constitutional norms, is very difficult. But legislation is an easier route: we can pass new laws, develop a new legal system that can better attend to the question of gas. This is already being worked on and doesn’t depend solely on the federal government. Just a reminder that we have a federal system. The twenty-seven states have a monopoly on the distribution of gas. So this question is also one [that needs] to be addressed by the states. And we have been working, principally with the states of São Paulo and...
and Rio de Janeiro, to present a new legal system to break this monopoly over gas distribution. This is just one example. This will give the private sector an opportunity, without having to alter the constitution.

This work must be done by four hands, so to speak. The Ministry doesn’t intend to formulate or direct any policy [without] the knowledge of legislators. So we are working—I have already received [in my office at the Ministry] as many as 280 legislators just in the last two months. We are working on these issues. We are creating incentives so that all initiatives come from the legislative branch. Some of these are already in progress.

As for the electricity sector, as you mentioned, and its dependence on court cases, we understand that. Potentially in the next few weeks, a piece of legislation in final stages of drafting may be approved in the Lower House [of Congress] and the question of hydrological risk can be set aside. And we already have a piece of legislation, also coordinated with Congress, in the drafting process which will resolve this problem for good. That is, there will be a restructuring measure which will end this “judicialization” in matters like GSF [Generation Scaling Factor] and hydrological risk. And this will represent a guarantee of security to private investment.

It might also be good to mention that in Brazil, I haven’t heard of any instances of breach of contract. This is a form of credibility that the country displays with regard to the investor, not only the domestic investor but the foreign investor as well.

As for mining, I think that was your last question, my observation upon assuming the Ministry is, as I said, that the President does not want anyone involved in party politics to run the Ministry. I think everyone knows the reason why. All the scandals in Brazil over the past ten or twelve years were started in the Ministry of Mines and Energy or entities attached to it. For this reason the President didn’t want anyone linked to party politics or with a political mandate to run the Ministry. Neither did he want the Ministry to be furnished, so to speak, with people who bear these same characteristics.

He has kept his word: I have complete autonomy to choose my subordinates, and I have used this autonomy. I have proceeded with calm in choosing my secretaries, the presidents of our affiliated companies and attached entities—in part because I was not familiar with many of them before we met. Now, [regarding] mining: I assumed the Ministry, familiarized myself with the mining sector and saw that it was a sector that merited close attention on behalf of the Ministry, despite being perhaps the only segment of the Brazilian economy that is almost totally privatized. The only mining enterprise under state control is uranium mining, which for constitutional reasons must be done by the federal government. And, however incredible it may seem, this was the most recent government agency to be
created, in December of 2018. One of my goals, as I said in my inaugural address, is to provide all the support needed for the National Mining Agency to fulfill its mandate of oversight and control.

And then the sad disaster at Brumadinho happened. The silver lining is that we have excellent professionals both in the Brazilian Geological Service and in the National Mining Agency itself, which derives from the former DNPM [National Department of Mineral Production]. But evidently, the Department had neither adequate personnel nor the budget to fulfill its mission. This is now being corrected, [and we] are aiming to prevent accidents like the one that occurred in Brumadinho.

I decided to name as my Secretary for Geology, Mining and Mineral Transformation, a federal judge. I thought we needed a federal judge at the forefront of the secretariat, with all his judicial knowledge and experience, principally in mediating conflicts—and in this realm there are many conflicts of interest—so that he can direct this important sector of the economy of Brazil. And it is in this way that we are working to reexamine the mining code, to perfect the regulation of the National Mining Agency itself. I don’t know if I answered your question, but I at least said everything I wanted to say! [Laughs.]

Q: When will we see action to promote privatization and attract foreign investment?

The simple answer is: as fast as possible. But it’s not so easy. I think we have to give clear signals that we are moving in the right direction. This is the most important thing; this is what attracts investors. In the electricity sector, we have already made great strides. Investors now know when we will carry out the next set of auctions [for energy investment rights]. For example, we have scheduled an auction for June, for investments which will reach fruition within the next four years, and one in September for the following six years, all in accordance with our Energy Development Plan, which will be published annually. This year we already have a date, December 10. It is our ten-year plan, to be revised annually. This way investors will know exactly where we are and where we’re headed, and how we want to diversify our energy grid. These are all actions we will carry out to give investors a great sense of predictability.

We are working, as I said, on capitalizing Eletrobras, which produces 30 percent of energy in Brazil, and 50 percent of energy transmission. It is a business of great importance, and is attached to other important energy companies: for example, Itaipu Binacional, Chesf, Eletrosul, Furnas, Eletronorte and many other smaller electricity generation and transmission companies. We’ve started a process, beginning with restructuring the company—a company which, forgive the expression, was broken—but which is now achieving a degree of stability and is becoming attractive for new investments. So we will carry out the capitalization of the company, which will not be privatized but rather capitalized in a similar way to the process which occurred in the past with Embraer, for example. We have to resolve other concerns over Eletronuclear [Eletrobras’ nuclear energy division] and Itaipu Binacional, as the latter is not a normal company but is, as the name indicates, a bilateral effort and part of a treaty [with Paraguay]. We’re negotiating addendums to this treaty as

“I have not the slightest doubt that if the legal framework had been followed and the [regulatory] bodies had carried out their legal and administrative responsibilities, [Brumadinho] would not have occurred...

Compared to other countries, including Canada, our judicial system is as rigorous when it comes to licensing. What is perhaps lacking are efforts on our part to improve governance, oversight, and responsibility. So we are working on making these efforts.”
regards the distribution and price of electricity from 2023 onward.

We must resolve this question, and also the question of generation and transmission of energy outside of Itaipu and Eletronuclear. This is all being worked on. Some aspects will have to be decided on by Congress. We are having conversations on this subject with legislators, with committees in the Senate and House, so that we can create the best legal framework to deal with these issues.

Q: You mentioned that the environment licensing is to be simplified, but if there is not sufficient oversight, tragedies such as Brumadinho and Mariana seem likely to happen again. Could you tell me what you mean by less bureaucracy?

Our respect for the environment is complete. There is no doubt: we do not intend to alter any of our commitments. What exists is excessive bureaucracy. For example, there is a planned transmission line which has waited twelve years to receive its installation license, which will be issued soon. This Manaus–Boa Vista transmission line, the so-called linhão (“big line”) will connect Brazil’s integrated national electric grid to Roraima [a remote northern state]. Only Roraima, of our twenty-seven states, is not currently connected to the integrated national electricity grid. This line has waited twelve years, because of bureaucracy: this is something we must change. [Currently] a [planned] investment in mining can take fifteen or twenty years to receive its installation license, and this does not guarantee there won’t be accidents later.

The Brumadinho accident did not happen because the license was or was not granted. I do not want to judge hastily, but I have not the slightest doubt that if the legal framework had been followed and the [regulatory] bodies had carried out their legal and administrative responsibilities, this accident would not have occurred. It was not due to a lack of proper legislation. It was due to other reasons, which are being investigated by the proper authorities within their respective jurisdictions.

So the question is not whether licensing should be one way or another. Compared to other countries, including Canada, our judicial system is as rigorous or more rigorous when it comes to licensing for tailings dams. What is perhaps lacking are efforts on our part to improve governance, oversight, and responsibility. So we are working on making these efforts. We must understand and distinguish between environmental protection, licensing, and the process for making investments. [The current process takes] too much time, so we are seeking to work in a more coordinated fashion. In mining licensing, sometimes the investor has to go through five agencies before receiving an installation license. Why not do this in a more integrated fashion, so that this entire administrative process, which sometimes takes a long time, can be avoided [and made more efficient]?

Q: Which kinds of energy are more competitive? Does the government has plans regarding solar energy?

As far as solar energy goes, as well as wind, hydro, nuclear, or whatever it may be, we have an energy plan, and we have also our thirty-year plan: we are working on this plan, which should take us to 2050. Brazil has some of the greatest diversity in sources of energy in the world. We have solar, wind, uranium reserves, as I mentioned in my speech. We must diversify [our sources of energy] so that we may take advantage of energy security, and we must employ sustainable development to achieve a reasonable cost for energy.

Our energy is currently considered among the most expensive in the world. This is not due to a lack of sources of energy, nor even sources of cheap energy—solar, wind, etc.—it is rather due to subsidies, as I mentioned, and aggregated taxes, which reach as high as 60 percent of what you pay on your energy bill, for example. All this needs to be rethought.

As far as sources of energy go, we review our plan every year, with projections for the next thirty years.

Q. Could you explain why the Ministry wants to invest in nuclear energy, considering that other countries plan to reduce their use of nuclear energy? What is the percentage of the energy grid you plan for nuclear? Do you believe in hydrogen energy?

I will start with the end [of your question]. There have already been studies on this subject [of hydrogen energy] and I believe in this source of energy.

Now, let us return to the beginning of your question. Look at Germany, [which] is reviewing its attitude and thinking of investing in nuclear energy again. This is actually a proposal that originated from the German
Green Party, because it reached the conclusion that nuclear energy is one of the cleanest types of energy in the world. Germany is currently in a difficult position because it invested so much in renewable energy—for example, solar and wind—which could, in a way, compromise its energy security, because depending on climate conditions you may not have security. But nuclear energy is very good in this sense.

Today, only 1.2 percent of Brazil’s energy matrix comes from nuclear, which I think is very little for a country with great reserves of uranium and, as I said in my speech, one which dominates in nuclear technology and nuclear fuel cycle [technology]. We are able to harness this power which, in my view, is clean and secure, and which also provides energy security within an integrated system in a continental country like Brazil.

But it is not for me to decide how much or how little [nuclear energy] there should be. This is done based on research. [The Ministry of Mines and Energy] has a public research company—and of course it’s not the only entity which carries out these studies—that is part of a process [to determine energy policy]. Our company, the Energy Research Company, known in Brazil as Empresa de Pesquisa Energética (EPE), works with other research institutes, including ones that handle questions of weather modeling—there is the National Institute of Space Research – INPE in São José dos Campos. These various institutes are part of the process of determining what the Brazilian energy matrix should look like. For example, we do not put wind [farms] in the South, instead we should put them in the Northeast. With solar, the same thing. But this [decision] is not because of what someone thinks, it is based on environmental conditions.

As for nuclear energy, it’s important for the South and Southeast regions of the country, which is where the greatest levels of energy generation and low cost of transmission are needed. This is what happened with Angra [Brazil’s only nuclear power plant]. To give you an idea of the situation, look at the cost of nuclear energy generation at Angra 1 and Angra 2 measured against their performance, which reaches about 96-97 percent [of capacity]; while hydropower, with the risks we discussed, generates around 50 to 70 percent [of capacity]. The upfront costs of nuclear power are of course higher in terms of installation and maintenance, but compared to other types of energy that [provide] less energy security, it ends up [being] more or less equivalent. It is important to have this diversity of [energy] sources. It is in this sense that we work within the framework of the 2013 plan, which envisions eight nuclear plants by 2050, though we are reexamining whether this number should increase or decrease as we reassess investments over the next thirty years.

I’m not sure if I answered your question. Ask Germany. Perhaps they, as well as Japan, can explain why they are looking at increasing investment in nuclear energy once more.

Q: Does the Minister have a message for foreign investors, especially American investors, who are thinking of investing in Brazilian energy?

My message is, of course, a positive one. I believe that investments in Brazil will come. It is important that investors feel that what is being done gives them a sense of calm with regards to their investments in Brazil. In the electricity sector, as well as the oil, gas, and biofuel sector, we already enjoy a great amount of predictability for investors. The largest energy companies in the world have invested in Brazil: I have reached agreements with all these companies, have met with all their executives, whether Chinese, Italian, French, Spanish, or Portuguese. They are all satisfied, are increasing their investments in Brazil, and are eagerly awaiting the next set of energy auctions [of exploration rights], all with a high level of predictability.

Now, we do have to improve our governance, our regulatory bodies, so that investments may yield higher returns for Brazilian society and, principally, for those who invest in Brazil. This is the message I leave, and I hope it becomes concrete and people do not simply listen to it but rather have a real sense that all this is happening.

“I believe that investments in Brazil will come ... In the electricity sector, as well as the oil, gas, and biofuel sector, we already enjoy a great amount of predictability for investors ... Now, we do have to improve our governance, our regulatory bodies, so that investments may yield higher returns for Brazilian society and, principally, for those who invest in Brazil.”
Q: Seeing that ten of the world’s twenty biggest rivers are to be found within Brazil, are there plans to more fully capitalize on this potential for hydroelectric energy production?

Brazil is currently among the top countries in the world in terms of hydroelectric resources. We might compare ourselves to China, also a very interesting country with great hydroelectric resources, enormous dams—including one of the largest in the world, the Three Gorges dam, if I’m not mistaken. However, in China as in Brazil, these hydroelectric resources are far from the industrial centers that demand the highest quantities of energy. Hence the problem with these resources, the majority of which, in Brazil, are located in the Northern part of the country, very distant from the South and Southeast, where there is a greater concentration of population and industry: this makes harnessing these resources a more gradual process. But investment will continue. And there will be a greater role over the next five years in the Brazilian energy matrix [for hydropower]. The hydropower at one point made up 85 percent of the Brazilian electricity matrix; it is now around 62 percent, if memory serves; and should remain above 50 percent for the next fifty years.

Now, there are also climatic variations which have reduced the energy security of [hydroelectric] investments, a subject we are now reviewing as a cause for concern among those who make these investments. We have to do something known as descotização [removal of quotas]. In Brazil today, electric companies are obliged by contract to supply a certain type of energy, but [some] are no longer able to do so for climate-related causes. So this is now being reworked.

Another problem that has occurred in recent times, with regards to environmental preservation, is that the majority of hydroelectric investment projects used dams, in order to stockpile the “fuel,” which [in this case] is water. For environmental reasons, over the last twenty years more and more investment projects are instead what we call fio de água [run-of-the-river]. That is, it is the movement of water [in the river], rather than the storage of water [behind a dam], which produces energy. Climate-related changes have also greatly reduced the return on these investments. This is being studied and analyzed—but hydroelectric power will remain of great importance to Brazil.