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Instituto de Energia
e Meio Ambiente

ANNUAL **REPORT**

Instituto de Energia e Meio Ambiente (IEMA)

2024

IEMA: 18 YEARS OF CONTRIBUTIONS to Socio-environmental Development in Brazil

In 2024, specifically on May 29, the Instituto de Energia e Meio Ambiente (Institute for Energy and Environment, IEMA) celebrated its 18th anniversary. Founded to address the socio-environmental demands of Brazilian cities, particularly in the transportation and energy sectors, IEMA has always sought to influence public policy with scientific rigor, independent thinking, and genuine listening. From its inception, it has dedicated itself to environmental protection combined with promoting the reduction of social inequalities and the inclusion of marginalized populations, through detailed analyses and practical solutions for challenges related to the sustainable use of natural resources with social and economic development.

Thus, one of its main contributions has been to support the formulation and implementation of public policies aimed at the transition to a low-carbon economy, with a focus on protecting the environment and traditional communities. In recent years, the organization has strengthened its activities and sought to expand its impact by participating in coalitions, collaborating with organizations in Latin America, and intensifying international dialogue. This trajectory has contributed to advancements such as improving the institutionalization of air quality monitoring in Brazilian cities, increasing access to public electricity in the Amazon, enabling civil society participation in governmental debates on transportation infrastructure, and raising public awareness of the topics researched by the organization.

The institute's "coming of age" coincided with the conclusion of a five-year strategic planning cycle that significantly contributed to the country's socio-environmental development in strategic areas, such as sustainable regional freight transport, a clean and inclusive energy matrix, clean air, and low-emission urban mobility.

Starting in 2025, IEMA begins a new cycle focused on expanding its impact and strengthening the reach of its initiatives, particularly in the debate on a just energy transition and infrastructure for transportation and electricity in the Amazon. This report presents the results and analyses of the concluding cycle, as well as the prospects outlined in 2024, which guide future goals built upon the accomplishments already achieved.

Read a summary of the actions carried out by the institute over its 18 years.

Photo: Divulgação/ IEMA

SUMMARY

iema
Instituto de Energia e Meio Ambiente

The Instituto de **Energia e Meio Ambiente (Institute for Energy and Environment – IEMA)** is a think tank founded in 2006 and based in São Paulo, with activities throughout Brazil and, more recently, working in international cooperation. Recognized for producing and disseminating technical and scientific knowledge on environmental topics, it has contributed to promoting a more socially just and sustainable environmental agenda.

PURPOSE

Qualify decision-making processes so that transportation and energy systems in Brazil ensure the sustainable use of natural resources with social and economic development.

VALUES

GENEROSITY: cooperation and knowledge sharing with society.

EXCELLENCE: appreciation for scientific rigor and independent thinking.

TRANSPARENCY: genuine openness and listening.

IMPACT: focus on long-lasting, public interest-oriented transformations.

NETWORKS IEMA PARTICIPATES IN

CClimate and Clean Air Coalition (CCAC), *Coalición Latinoamericana por el Aire Limpio* (Latin American Coalition for Clean Air), *Coalizão Energia Limpa* (Clean Energy Coalition); *Coalizão Respirar* (Respirar Coalition), *Conexão Povos da Floresta* (Forest Peoples' Connection), Global Gas and Oil Network (GGON), *GT Infraestrutura e Justiça Socioambiental* (Working Group on Infrastructure and Socioenvironmental Justice), *GT-Qualidade do Ar da 4ª Câmara de Coordenação e Revisão do Ministério Público Federal* (Air Quality Working Group – 4th Chamber for Coordination and Review, Federal Public Prosecutor's Office), *MapBiomas*, *Observatório do Clima* (Climate Observatory), Open Government Partnership (OGP) and Rede Energia e Comunidades (Energy and Communities Network).

*Active in 2024.

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Interview

THE ROLE OF IEMA IN A **just energy transition and environmental governance in Brazil**

André Luis Ferreira, executive director of IEMA, reflects on the organization's progress, challenges, and strategic priorities towards a more democratic and sustainable infrastructure in the country.

With its work guided by data, science, and network articulation, IEMA has been directly contributing to debates on the energy transition in transportation, the integration of renewables into the electricity system, the inclusion of socio-environmental criteria in transportation infrastructure projects, and the universalization of access to public electricity in traditional territories. The think tank aims to act as a link between technical knowledge and the promotion of public policies, structuring its work on themes such as energy transition, sustainable infrastructure, and socio-environmental justice, with a growing focus on the Amazon.

In this interview, André Luis Ferreira, executive director of IEMA, reflects on the main advances, institutional challenges, and the strategic role of the institution in formulating public policies in the energy, transportation, and climate sectors. He highlights the importance of qualified technical production combined with social participation as the organization's differential. Additionally, he revisits the lessons learned from the 2020–2024 Strategic Plan and anticipates the organization's perspectives and contributions towards the challenges of a just energy transition and the United Nations Climate Change Conference of 2025 (COP 30).

What were the main advances and challenges faced in implementing the five strategic objectives of the last 2020–2024 Strategic Plan?

André Luis Ferreira: The strategic objectives are fundamental for aligning the team, providing clarity on the organization's direction, and expressing its aspirations. Additionally, they support and bring more clarity and consistency to the dialogue with partners and donors, as they explicitly state where the organization wants to go and what its objectives are.

By their nature, strategic objectives go beyond the horizon of a specific plan. Therefore, even with the update for the 2025–2029 period, many are likely to remain, albeit with new goals and adjustments to activities.

The main change now is the creation of a new program with a territorial focus on the Amazon, reinforcing the activities that have already been carried out in the region. From the new cycle onwards, the strategic objectives will be organized as programs, with the Amazon being one of the priorities with actions aimed at universalizing access to electricity and transportation infrastructure in the region.

Another relevant advance is the strengthening of IEMA's role in decision-making processes regarding transportation and energy infrastructure in the country, a front that was already present in the previous objectives and will continue as a priority in this new cycle.

Can we consider the achievement of the air quality goal and the focus on the Amazon as advances?
André Luis Ferreira: Yes. The *Plataforma da Qualidade do Ar* (Air Quality Platform) was expanded, gained an English version, and now includes regional reports. We have also consolidated ourselves as a reference in Amazon infrastructure and have made significant progress in preparing inventories and producing knowledge about the energy transition in the electricity sector.

What were the main challenges in this process?
André Luis Ferreira: A major challenge was the political context. The first year of the plan coincided with the Covid-19 pandemic in 2020, and the relationship with decision-makers at the federal level was very difficult, which significantly impacted our public policy work. This scenario represented a major challenge for both IEMA and the third sector as a whole.

IEMA sought to expand dialogue with the press and strengthen institutional partnerships. What were the challenges and how did these strategies contribute to the organization's mission?
André Luis Ferreira: Many of the topics we address are considered dry by the media. Therefore, we promoted several actions aimed at this audience, which facilitated interaction and understanding.

We held online workshops and mini-courses. We also organized events focused on specific topics, such as the environmental impact of thermal power plants, air quality monitoring, and regional freight transportation infrastructure, contributing to expanding the technical capacity of the press. Additionally, IEMA maintains an active routine of sending out press releases and updates, disseminating data, analyses, and technical positions on environmental, energy, and infrastructure issues. This strategy has helped to broaden journalistic coverage with accurate and up-to-date information, strengthening our institutional presence.

In addition to direct actions with the press, IEMA actively participates in various networks and coalitions of non-governmental organizations, both national and international. This participation strengthens our institutional presence, expands our capacity for political articulation, and enhances the impact of our actions.

Being part of these networks allows IEMA to collaborate in strategic forums, exchange technical knowledge, and align agendas on crucial topics such as the environment, sustainable energy, and public policies for the Amazon. Furthermore, engagement in networks enables the collective construction of solutions, the exchange of best practices, and effective mobilization to influence decisions and promote social and environmental transformations.

All these connections also increase our visibility among partners, governments, and funders, strengthening our work and legitimacy in the socio-environmental landscape.

Regarding the Air Quality Platform, what are the main results achieved and how has it assisted in the

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formulation of public policies?
André Luis Ferreira: Air quality monitoring is the essential technical basis for formulating effective public policies. By highlighting the difference between Brazilian standards and the World Health Organization (WHO) guidelines, IEMA provided solid technical grounds to strengthen the push for advances in legislation and control mechanisms. In fact, the WHO itself uses data from our platform as a reference.

In relation to the study on the integration of renewables, how does IEMA contribute to improving public policies and reducing dependence on thermal power plants?
André Luis Ferreira: The discussion on the use of thermal power plants is directly related to the integration of renewable sources, which are naturally variable. The main challenge is to ensure the country's energy security without increasing dependence on fossil fuels. To this end, IEMA has advocated for alternatives such as improving transmission infrastructure and investing in energy storage. These positions are constantly reaffirmed by the institute in articles, public hearings, and energy auctions, in addition to serving as a technical basis for other organizations.

And what about socio-environmental justice in the energy transition?
André Luis Ferreira: The energy transition is not always just. New technologies, by themselves, do not solve existing social problems. It is also essential to promote a transformation in decision-making processes, which have historically been exclusionary. Therefore, we are beginning to analyze the impacts of wind and solar energy on local communities, reinforcing the importance of establishing safeguards to protect these groups.

How has IEMA worked to ensure social participation and risk assessment in decisions on transportation infrastructure?
André Luis Ferreira: We act directly in monitoring the construction of the *Plano Nacional de Logística 2050, PNL 2050*, (National Logistics Plan 2050), focusing on ensuring that public participation and socio-environmental risk assessment are effectively internalized in the various stages

Sunset with particulate matter in the city of São Paulo.

Photo: Paulo Pinto/Agência Brasil

> “The energy transition is not always just. New technologies, by themselves, do not solve existing social problems. It is also essential to promote a transformation in decision-making processes, which have historically been exclusionary.”

of its development. To do this, we have established constant dialogues with the Ministry of Transport, the Federal Court of Accounts and the Office of the Comptroller General, through the National Open Government Plan. Additionally, there is close collaboration with civil society organizations and affected communities through training and information sharing.

What are the main challenges to institutionalizing and bringing transparency to decision-making processes?
André Luis Ferreira: One of the biggest challenges is the low demand from society for this type of institutionalization. Furthermore, governments often resist because the formalization of these processes reduces their room for political negotiation around large infrastructure projects, which are frequently used as bargaining chips. Bringing transparency and institutionalizing them means limiting this power.

And how does IEMA work to ensure that the demands of local populations in the Amazon are incorporated into public energy policies?
André Luis Ferreira: We participate in networks focused on the Amazon and work with the government, sharing technical knowledge, visiting territories, and producing case studies. Our modus operandi is to produce qualified technical information and make it available to civil society, the media, and policymakers.

Considering COP 30 to be held in Brazil, how does IEMA assess its contribution to reducing emissions in the energy and transportation sectors?
André Luis Ferreira: In our role, we seek to produce solid technical information and act in networks. In 2025, we will participate in COP 30, which for the first time will be held in Brazil, which should allow for greater international dialogue. We will be present at events and plan to publish assessments during the second half of 2025 that contribute to the debate on the energy transition, sustainable infrastructure, and climate

policies, always with a focus on socio-environmental justice and civil society participation.

How can IEMA influence international climate debates and strengthen Brazil's leadership role?
André Luis Ferreira: Alone, it is difficult to influence the international debate. But in a network, yes. We participate in forums with NGOs and closely follow the meeting of Amazonian country presidents, where we present proposals and monitor the outcomes.

What initiatives ensure that IEMA's technical knowledge is used by civil society, the press, and policymakers?
André Luis Ferreira: We have produced several studies and analyses on the energy transition in the electricity sector, decision-making processes in transportation infrastructure, and the universalization of energy access. We share this knowledge with bodies such as the government, the *Tribunal de Contas da União, TCU* (Federal Court of Accounts), the C*ontroladoria-Geral da União, CGU* (Office of the Comptroller General), and other organizations, even if not everything is formally published. Science is the foundation that underpins all our political action.

What is IEMA's role, as a think tank, in the energy transition with socio-environmental justice?
André Luis Ferreira: IEMA plays a fundamental role by integrating two agendas that often run separately: the technical and the social. We seek to produce rigorous and qualified technical knowledge, always guided by a commitment to socio-environmental justice. This ability to connect science and equity is what makes our contribution useful, as we seek to ensure that the energy transition is not only efficient but also just and inclusive for all communities involved.

Considering the lessons learned from this cycle, what are the strategic priorities for the coming years?
André Luis Ferreira: We believe that the directions taken so far have been, for the most part, correct. There are no major changes in IEMA's strategy; what we have is an update to keep pace with the new context in which we operate. After five years of work, we already have several concrete products; we are not promoting a revolution in strategy, but rather an improvement in how we pursue our objectives.

At this moment, IEMA is reaffirming its strategic objectives, remaining aligned with its mission and purpose. What is under debate and evolving is the way to achieve these goals, adapting to the lessons learned and current needs. In summary, the main strategic lines remain the same, and the primary change lies in refining the processes to seek results more efficiently.

Is there anything else you would like to add?
André Luis Ferreira: Yes, something important I would like to highlight again is this bridge that IEMA builds between technical knowledge and social justice. Often, those working in the technical or technological field end up distancing themselves from social issues, sometimes even with a certain prejudice. And the same happens on the other side, with organizations focused on rights and public policies that may have difficulty considering the technical dimension. IEMA seeks to break down this barrier by integrating these two perspectives.

2020–2024 Cycle

RESULTS OF THE 2020–2024 STRATEGIC PLAN: **science, partnerships, and socio-environmental impact**

As part of its strategic plan for the 2020 to 2024 period, the IEMA established five priority objectives: four of a programmatic nature, Clean Air, Low-Emission Urban Mobility, Sustainable Regional Freight Transport, and a Clean and Inclusive Energy Mix and one of an institutional nature, aimed at strengthening governance, management, communication, and team capacity building.

These objectives guided the institute's actions throughout the period, even allowing for reflection on deepening and expanding these fronts. Noteworthy in this process are the progress in dialogue with the press and the strengthening of collaborations with third-sector organizations and government bodies, which were fundamental actions for achieving the established goals and generating relevant impacts.

During the period, IEMA structured its work based on these five strategic pillars. Progress on each theme was driven by interconnected fronts, such as innovation and technological development; planning and production of studies; training and capacity building; partnerships and alliances; communication and dissemination; monitoring and evaluation; applied research; social engagement; and field actions. This integrated approach provided technical depth, institutional articulation, and qualified territorial presence to the Institute's initiatives.

On the institutional level, strengthening the areas of governance, management, and communication was essential. Continuous investment in team capacity building and expanded dialogue with governments, the private sector, and civil society resulted in a solid institutional environment, prepared to promote consistent and lasting transformations.

This report presents the main results achieved in 2024, highlighting how IEMA's efforts contributed to the development of sustainable public policies, the improvement of quality of life in cities and territories of the Legal Amazon, and the construction of concrete paths towards a just energy transition in Brazil.

OBJECTIVES

1 CLEAN AIR

Adapt air quality in large Brazilian urban agglomerations, following the recommendations of the World Health Organization (WHO)

2 LOW-EMISSION URBAN MOBILITY

Promote urban mobility that is inclusive and has low emissions of atmospheric pollutants and greenhouse gases

3 SUSTAINABLE REGIONAL FREIGHT TRANSPORTL

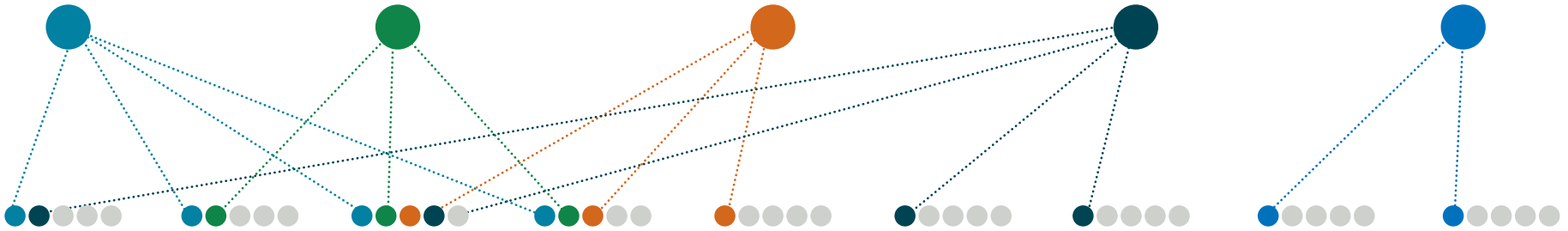
Reduce the negative social and environmental impacts of freight transport

4 CLEAN AND INCLUSIVE ENERGY MIX

Universalize access to electricity and reduce the negative social and environmental impacts of the expansion of the electricity system

5 INSTITUTIONAL DEVELOPMENT

To strengthen governance, management, and communication. To promote the team's personal development



Providing information about **air quality** to society

Supporting the strengthening and formulation of **air quality** policies

Preparing inventories of **air pollutant** and greenhouse gas (GHG) emissions

Assessing and proposing public policies for the **energy transition in the transport** sector

Improving decisionmaking processes for **transport logistics infrastructure**

Improving decisionmaking processes for the **expansion of the electrical system**

Supporting universal **access to electricity**

Consolidating communication and implementing tools for **monitoring our impact**s on society

Improving **governance and management**

Lines of action

Clean Air

Photo: Vitor Mendes Stafusa/ Unsplash

ADAPT AIR QUALITY IN LARGE **Brazilian urban agglomerations, following the recommendations of the World Health Organization (WHO)**

Air quality is still a topic that lacks attention in Brazil. Although the responsibility for controlling and monitoring atmospheric pollution falls on the states, many face budgetary limitations that hinder the effective implementation of this policy.

In this scenario, the federal government can play a fundamental role, either through the direct transfer of resources or by articulating cooperation mechanisms with the private sector. An example of this is the allocation of resources from environmental fines for the implementation or maintenance of air quality monitoring stations.

Expanding the official monitoring network is essential to understand the real situation of the air we breathe. Without reliable data, it is impossible to act effectively to reduce pollution and protect the population's health. Transparency and the integration of air quality data must be strengthened as an environmental and public health priority.

With the goal of aligning air quality in large Brazilian urban agglomerations with the recommendations of the World Health Organization (WHO), IEMA has been working on producing and disseminating data that highlight the impacts of atmospheric pollution on public health. Air pollution,

Photo: Helen Sousa/ IEMA

Air monitoring station in the city of São Paulo.

IEMA's Lines of Action for Clean Air:

Providing information about air quality to society;

Supporting the strengthening and formulation of air quality policies;

Preparing inventories of air pollutant and greenhouse gas (GHG) emissions.

Assessing and proposing public policies for the energy transition in the transport sector.

especially in metropolitan regions or areas affected by fires, significantly contributes to the worsening of respiratory and cardiovascular diseases, often exceeding the safety limits recommended by the WHO.

Since 2015, the institute has maintained the *Plataforma da Qualidade do Ar* (Air Quality Platform), which provides historical data on air quality monitoring in various Brazilian cities. Additionally, it conducts critical analyses on the topic, with the purpose of increasing the issue's visibility in public debate and informing public policies.

IEMA's work strengthens the air pollution control agenda, promoting discussion on national quality standards and encouraging integrated actions in the areas of mobility, emissions regulation, and environmental surveillance, in favor of healthier and more just cities.

Thus, in 2024, the organization consolidated significant advances in the air quality agenda by enhancing the debate on monitoring, expanding access to public data, and influencing policies aimed at updating national standards, reinforcing its commitment to promoting healthier cities aligned with WHO guidelines.

AIR QUALITY MONITORING IN BRAZIL: GAPS, ADVANCES, AND PERSPECTIVES

It is well known that air quality monitoring in Brazil is insufficient. But what is the real extent of this deficit? The technical note *Dimensionamento da Rede Básica de Monitoramento da Qualidade do Ar no Brasil – Cenários Iniciais* (Sizing of the Basic Air Quality Monitoring Network in Brazil – Initial Scenarios), launched in February, estimates the minimum number of automatic air quality monitoring stations based on population criteria used in Europe and the United States. According to the study, Brazil needs at least 138 or 46 more automatic stations, respectively, to meet the criteria of these countries.

Brasília (DF), Goiânia (GO), and Manaus (AM) are among the biggest examples of this gap: they are urban agglomerations with more than

> *"Most of the population does not know exactly what they are breathing. Often, we can see the pollution in the sky, but it is important to remember that its most serious effects are silent and cumulative, manifesting over months of continuous exposure,"*
>
> Helen Sousa,
> IEMA researcher.

IN THE MEDIA

AIR QUALITY MONITORING DEFICIT

Folha de S. Paulo
Brazil still lacks a national network to monitor air quality, envisioned 35 years ago

Globo/ G1
Only 13 states in the country have automatic air quality stations, study shows

TV Cultura/ Jornal da Tarde
Lack of air surveillance stations

TV Globo/ Jornal Liberal
Belém is among capitals without air quality monitoring stations

TV Cultura/ Jornal da Tarde
Brazil faces a critical deficit of air quality monitoring stations, warns IEMA

Projeto Colabora
Federal District and 13 states do not monitor air pollution

Zero Hora
RS has six air quality monitoring stations in operation; there were once 17

Photo: Stael Guimarães / Pexels

Buildings in Goiânia.

two million inhabitants that do not have even one automatic air quality monitoring station. Among the cities with more than one million inhabitants that also face this deficit are the capitals Belém (PA), Natal (RN), Maceió (AL), Florianópolis (SC), João Pessoa (PB), Teresina (PI), and Aracaju (SE).

ADVANCE IN AIR QUALITY REGULATION IN BRAZIL

Bill 3,027/2022, approved by the Federal Senate, which establishes the *Política Nacional de Qualidade do Ar* (National Air Quality Policy), a process that included IEMA's participation, established monitoring mechanisms and the mandatory disclosure of data to the population. The responsibility for execution will fall to environmental agencies, which must integrate the information into the federal government's Sistema Nacional de *Gestão da Qualidade do Ar, MonitorAr* (National Air Quality Management System).

André Ferreira, executive director of IEMA, at the policy launch at the *Ministério do Meio Ambiente e Mudança do Clima, MMA* (Ministry of the Environment and Climate Change), stressed that it is necessary to monitor air quality and, moreover, to prepare inventories of emission sources. These actions are fundamental for implementing emission reduction measures.

Still in the fight against atmospheric pollution, the *Conselho Nacional do Meio Ambiente, Conama* (National Environmental Council) approved a resolution that updates the national air quality standards. The new regulation adopts more restrictive values, establishing that the final standard be equivalent to that defined in the WHO guidelines, in addition to setting deadlines for the progressive implementation of these parameters. Thus, for the first time, Brazil will have an official timeline for adopting the standards. However, states will have up to two decades to adapt to the most stringent limits.

In September, IEMA released a note reporting that the states of São Paulo and Minas Gerais recorded critical levels of atmospheric pollution. In both cases, the stations indicated air quality indexes

Canção Nova Notícias
Brazil needs at least 46 more air monitoring stations

i9brasil
Manaus joins the list of cities with a deficit in air quality monitoring: the capital has no stations in operation

Portal Amazônia
Learn how to monitor air quality in the Amazon on online platforms

LAWS, PUBLIC POLICIES, AND GOVERNANCE

O Estado de S.Paulo
Law requires states to monitor air pollution and the government wants to fund stations with environmental fines

O Globo/ Um Só Planeta
New pollution limits will take effect in Brazil from 2024

O Globo
Brazil will have new pollution limits from 2025, but only 13 states monitor air quality

Nexo Jornal
Why Brazil measures its air quality so poorly

Folha de S. Paulo
Delayed and without data. Brazil suffers from a lack of pollution protocols

classified as “poor” or “very poor.” In the state of São Paulo, on the 9th, only four of the more than 60 stations showed air quality considered “good.” In Minas Gerais, on the 3rd, none of the more than 45 automatic stations in the state indicated “good” air quality, and some were classified as “very poor.”

Historically, traffic and industrial activities are the main sources of air pollution in Brazil’s metropolitan regions. However, increasingly frequent fires, both near and far from urban centers, have significantly impacted the air quality and health of the population, both in cities and in inland areas.

Tackling this problem requires coordinated action to combat fire outbreaks, reduce emissions from the transportation sector, and intensify oversight of industrial pollution sources. Furthermore, the lack of strategic planning and the absence of standardization in monitoring data compromise the transparency of information and hinder the development of consistent diagnoses and reports.

TECHNICAL NOTE

Dimensionamento da Rede Básica de Monitoramento da Qualidade do Ar no Brasil – Cenários Iniciais (“Sizing of the Basic Air Quality Monitoring Network in Brazil – Initial Scenarios”)

IMPACTS ON PUBLIC HEALTH

TV Globo/ SP1
Pollution can cause cardiovascular diseases

FAPESP Na Mídia
Pollution in SP increases the risk of heart disease in the population

Rede TVT
Lack of air quality monitoring compromises the health of the population in Brazilian capitals

TV Globo/ SP1
Return of dry weather increases concern about pollution in the capital

EVENTS

The meeting *Política Nacional de Qualidade do Ar e Lançamento do Painel Vigiar: Poluição Atmosférica e Saúde Humana* (“National Air Quality Policy and Launch of the Vigiar Panel: Atmospheric Pollution and Human Health”), which celebrated the sanctioning of the National Air Quality Policy and the inauguration of the Vigiar Panel, which gathers data from the Ministry of Health on air quality and its impacts on mortality at the municipal level, held by the MMA, featured a presentation by IEMA, which highlighted the importance of air quality monitoring.

The workshop for the development of the Brazilian Action Plan on Short-Lived Climate Pollutants, also promoted by the MMA, brought together representatives from governments, research institutions, and civil society to contribute to the construction of the national plan aimed at reducing pollutants such as methane, tropospheric ozone, black carbon, and hydrofluorocarbons.

With the participation of IEMA, the event reinforced the importance of integrating the air quality and climate agendas, highlighting the role of data, intersectoral governance, and coordinated actions to reduce emissions that simultaneously affect public health and global warming. This initiative is aligned with the international guidelines of the Climate and Clean Air Coalition (CCAC) and marks an important step for Brazil to advance in controlling short-lived pollutants with immediate impact on health and climate.

RESULTS

National Air Quality Policy is approved

Brazil has gained the National Air Quality Policy *(Política Nacional de Qualidade do Ar, PNQAr, Law No. 14,850 of 05/02/2024)*, which establishes a legal framework to monitor, control, and disseminate information about air quality in the country. This policy institutes the National Air Quality Management System *(MonitorAr)*, mandates the creation of a national network of monitoring stations with the disclosure of the Air Quality Index *(IQAr)* to the population, and establishes management instruments—such as maximum emission limits, air quality standards, emission inventories, and national, state, and district plans—in addition to providing for tax and financial incentives for adopting clean technologies and data transparency.

The periodic preparation and updating of inventories and plans is a condition for access to federal resources, and the responsibility is shared among the Union, states, and municipalities, with support from *Conama* to set standards, even with vetoes on provisions that would allow local regulations and mandatory deadlines via the Legislature. IEMA was part of this construction, providing technical support, participating in discussions with the executive and legislative branches, and acting in conjunction with other third-sector organizations such as those that are part of the *Coalizão Respirar*.

Photo: Alvaro Guerrero

Sky in Belo Horizonte, Minas Gerais.

FIRES AND POLLUTANTS

Agência Brasil
Air pollution in Brasília increased 350 times during a fire

Aos Fatos
What are the causes of the fires affecting the country and how to protect yourself from the effects

Smoglab
Pożary lasów tropikalnych duszą Brazylię. Jasna odpowiedź rządu ("Wildfires in tropical forests are suffocating Brazil. A clear response from the government")

URBAN MOBILITY AND SOLUTIONS

FGV
Study shows how mobility policies can contribute to improving air quality

Agência Pública
SP: air quality would improve with the return of vehicle inspection

Dialogue Earth
Amazon bypasses electricity grid exclusion with solar panels

ENVIRONMENTAL EDUCATION AND OPINION

Revista Gama
The paths to breathing cleaner air

Low-Emission Urban Mobility

Photo: Vanessa Bumbeers/ Unsplash

PROMOTE URBAN MOBILITY **that is inclusive and has low emissions of atmospheric pollutants and greenhouse gases**

Urban mobility should expand access to the city, reduce social inequalities, and promote inclusion. To achieve this, it is essential that transportation systems are efficient, safe, punctual, adapted to local realities, and do not generate high costs for users.

It is through inclusive, people-focused mobility, centered on walking and public transportation, that cities can also reduce environmental impacts, such as air pollution and the climate crisis. Today, transportation activity is the main source of greenhouse gas emissions in the Brazilian energy sector. Investing in active and public transportation is the way to minimize impacts per person traveling.

The challenge, therefore, is twofold: to reduce the environmental impacts of urban transportation and, at the same time, ensure that the service meets the needs of those who need it most, in a fair and accessible way. Sustainable urban mobility combines energy efficiency with social justice.

Lines of Action:

Assessing and proposing public policies for the energy transition in the transport sector;

Supporting the strengthening and formulation of air quality policies;

Preparing inventories of air pollutant and greenhouse gas (GHG) emissions.

In Brazil, individual motorized transportation, powered by fossil fuels, takes up more space than it should in passenger travel—which has direct impacts on greenhouse gas (GHG) emissions and air quality, especially in large cities. Even with the use of renewable energy sources, prioritizing cars over public transportation leads to other problems, such as

IN THE MEDIA

PUBLIC TRANSPORTATION AND URBAN MOBILITY

TV Globo/ Jornal Nacional
Brazilians use less public transport, research shows

Cidades Afetivas/ Conversa Sustentável Podcast
Climate, Mobility, and Cities – Unpacking the S in ESG

G1
Brazilians are using public transportation less, survey indicates

O Eco
Mobility: "We need to reduce the number of cars in cities," summarizes specialist

TV Globo/ Bom Dia SP
Public transport, walking, and cycling reduce CO_2 emissions

NTU Urbano
Innovation and Sustainability in public transport: challenges and perspectives for urban mobility

R7
Challenges of transportation for sustainable mobility

Photo: Antonio Cruz/ Agência Brasil

Traffic in Brasília, Federal District

traffic accidents, congestion, high socioeconomic costs, and limited access to the city for low-income people.

There are several alternatives to achieve low-emission urban mobility. In this context, IEMA understands that its role is to assess the impacts of different scenarios and public policies relevant to the transition towards inclusive urban mobility with reduced emissions of both atmospheric pollutants, which have a direct impact on the local population's health, and greenhouse gases, which impact the global climate.

The organization seeks to collaborate on advancing measures that, in addition to reducing GHG and atmospheric pollutant emissions, expand people's access to the opportunities that cities offer, in a fair and safe manner. In particular, the institute supports policies that encourage active transportation, such as walking and cycling, and the strengthening of public transportation.

> *"Public transportation, in addition to its environmental benefits, also promotes economic and social advantages. By ensuring access to rights such as education, work, health, and leisure, it contributes to a more democratic city. Affordable fares or free transport, as proposed by the zero-fare movements, reinforce this democratization,"*
>
> Felipe Barcellos e Silva, IEMA researcher.

i9Brasil
Institute for Energy and Environment advocates for a just energy transition in the country's public transport

Veja
São Paulo tries to meet its goal of non-polluting buses at a slow pace

ENERGY TRANSITION AND TECHNOLOGIES IN TRANSPORTATION

TV Cultura/ Jornal da Cultura
Green fuel bill

Nexo Jornal
What are the obstacles to electrifying public transport in Brazil

Exame
With billions promised by automakers, the marriage of ethanol and electric is the bet

DW
What Brazil has to gain by betting more on ethanol

SBT/ SBT News
With zero deforestation, controlling vehicle emissions will be the biggest challenge in the environmental area

Solutions for mobility and climate are presented in meetings with society and the press

At the invitation of ClimaInfo, the IEMA team participated in a training workshop for journalists from Folha de S. Paulo on urban mobility and greenhouse gas emissions. The meeting aimed to strengthen journalistic coverage of climate issues from a technical and qualified perspective, addressing the impacts of the transportation sector on emissions and strategies for their mitigation.

Furthermore, the institute was also present in the series of online conversations promoted by *O Eco* and the *Vote pelo Clima* (*Vote for the Climate*) initiative, broadcast on YouTube. In his participation, researcher Felipe Barcellos e Silva highlighted that sustainable urban mobility requires three main fronts of action: avoiding long-distance motorized travel, encouraging alternative modes to individual motorized transport, and adopting more efficient transportation technologies and systems. His speech reinforced the need to integrate public policies that prioritize public transportation, active mobility, and emission reduction in the sector.

Photo: Marcello Casal Jr / Agência Brasil

Public transportation in Brasília.

Sustainable Regional Freight Transport

Photo: Barco na floresta amazônica/iStock

REDUCE THE NEGATIVE **social and environmental impacts of freight transport**

The transportation system in Brazil, especially for freight, faces significant challenges related to sustainability, efficiency, and equity. Until the execution of the National Logistics Plan 2050 *(PNL 2050)*, a document that will establish the strategic vision for the national transportation network, the planning of transportation infrastructure in Brazil lacked transparency and effective public participation. It is fundamental to reformulate decision-making processes to ensure that infrastructure investments meet the population's needs and respect the principles of social and environmental justice.

Adding to this is the fact that the decision-making process for transportation infrastructure in the Brazilian Amazon still has structural flaws that compromise sustainability, social justice, and transparency. To face these challenges, it is crucial that decisions on transportation investments consider, from the initial stages, economic viability, socio-environmental risks, and the effective participation of local communities and civil society. The goal is to ensure that projects meet the real needs of the Amazonian population and respect their territories, ways of life, and the environment.

In response to this scenario, IEMA has acted on several fronts, advocating for the inclusion of technical and socio-environmental criteria in national logistics planning, with a focus on integrating less polluting modes, reducing regional inequalities, and avoiding socio-environmental conflicts. Climate change also imposes new obstacles on the sector, as extreme events directly affect logistics operations and traditional communities, generating additional costs and deepening social inequalities.

IEMA works to ensure that the decision-making process for transportation infrastructure in the Amazon undergoes significant structural improvements. Technical and legal analyses, carried out by the organization, aim to guide changes in logistics planning through institutional diagnoses that point out flaws and propose ways to strengthen governance, transparency, and social participation. Another central pillar of this transformation is the strengthening of community organizations in strategic areas of the

Lines of action:

Improving decisionmaking processes for transport logistics infrastructure;

Assessing and proposing public policies for the energy transition in the transport sector;

Preparing inventories of air pollutant and greenhouse gas (GHG) emissions.

Amazon, such as the Tapajós-Xingu and Madeira river transportation corridors.

It is worth remembering that, in Brazil, freight transportation is dependent on the road modal, responsible for about 62% of the national cargo movement, a percentage that reaches 85% when ores and fuels are excluded (data from the 2024 CNT Highway Survey).

In parallel, Brazil's railway infrastructure favors the export of mineral and agricultural commodities, to the detriment of domestic supply. According to Ruling 2000/2024 – TCU – Plenary, prepared by the Federal Court of Accounts, more than half of the railway network is underutilized or inactive, while domestic freight transport, which represents two-thirds of the total, is neglected.

Until recently, despite the existence of plans and guidelines for the sector, the projects that advanced were those with greater political strength, often disregarding long-term social, environmental, and even economic impacts. In the Amazon region, this scenario is aggravated, resulting in socio-environmental conflicts, increased deforestation, and inefficiency in tackling regional inequalities.

To change this picture, it is urgent to institutionalize a decision-making process that is transparent and participatory. This includes ensuring social participation from the initial stages of planning, adopting robust criteria for analyzing alternatives, and prioritizing solutions that effectively contribute to reducing social inequalities and protecting the environment.

In this context, IEMA has contributed with proposals aimed at reorienting freight logistics based on principles of socio-environmental justice and public efficiency. In 2024, the think tank managed to achieve its objective through various practical and advocacy actions.

"It is fundamental that Brazil institutionalizes good practices for planning and evaluating alternatives in infrastructure projects. This implies considering, in addition to private economic costs and benefits, the social and environmental risks associated with each option. Transparency and qualified participation of society are indispensable elements on this path. Finally, it is essential that the country clearly defines which problems it intends to address to reduce social inequalities with respect to the environment and how it will solve them,"

André Luis Ferreira, executive director of IEMA.

Photo: Anderson Riedel/PR

Bridge over the Madeira River in the district of Abunã, in Porto Velho.

6TH OPEN GOVERNMENT PLAN INCLUDES ACTIONS TO MAKE INFRASTRUCTURE DECISIONS MORE TRANSPARENT AND PARTICIPATORY

With the aim of defining the commitments that Brazil should assume under the "Open Government Partnership" – an international initiative that aims to promote transparency, social participation, and government accountability, encouraging more open government practices – the *Controladoria-Geral da União* (Office of the Comptroller General – CGU) launched, in 2024, the 6th Brazilian Action Plan. The document brings together themes prioritized by the federal government and indicated by civil society.

IEMA was one of the civil society organizations that actively participated in the process, in partnership with the CGU's Infrastructure Directorate, being one of those responsible for the first of the eight commitments established by the plan: "Instruments to improve transparency and social participation in public infrastructure policies." Among the actions of the first milestone are the mapping of good practices and opportunities for transparency, the promotion of participation and social control in the decision-making process of planning, execution, and monitoring of infrastructure investments.

The second milestone, which provides for the proposal of regulatory changes, also had the participation of IEMA, which highlighted the importance of identifying the phases of the decision-making process in infrastructure in which social participation is relevant but not yet provided for or is considered insufficient. In addition, the organization contributed to the development of the fifth milestone, aimed at creating a permanent space for dialogue between government and society on the agenda of investments, plans, and infrastructure projects.

The decision-making processes on infrastructure investments, especially in the stages preceding the inclusion of projects in the Multi-Year Plans (PPAs) and the Public-Private Partnership Investment Program (PPI), need to be improved to become more transparent and ensure social participation. In this sense, the inclusion of this theme in the 6th Open Government Action Plan can bring important benefits to the country.

THE INCORPORATION OF SOCIO-ENVIRONMENTAL ISSUES, SOCIAL PARTICIPATION, AND TRANSPARENCY IS A CENTRAL CHALLENGE

In September 2024, the think tank was one of the promoters of the workshop *Planejamento Estratégico no Setor de Transportes: Caminhos para Sustentabilidade com Transparência e Participação Social* ("Strategic Planning in the Transportation Sector: Paths to Sustainability with Transparency and Social Participation"). The meeting was also organized by *Controladoria-Geral da União, CGU*, (Office of the Comptroller General), the *Ministério dos Transportes* (Ministry of Transport – MT), the *GT Infraestrutura e Justiça Socioambiental, GT Infra*, (Infrastructure and Socio-environmental Justice Working Group), the *Instituto Socioambiental, ISA*, (Socio-environmental Institute), the *Instituto Brasileiro de Auditoria de Obras Públicas, Ibraop*, (Brazilian Institute for Auditing Public Works), and *Transparência Internacional – Brasil, TI Brazil*, (Transparency International – Brazil).

In an unprecedented manner, representatives from ministries and regulatory agencies met with civil society organizations to debate the need to rethink the current model of planning for the transportation sector policy. The group argued that strategic decisions should consider, from the outset, socio-environmental risks, analysis of alternatives, and social participation, preventing large works from being discussed only at the environmental licensing stage. The meeting took place within the scope of the Open Government Partnership, in Brasília.

For the work developed in building commitments related to the theme "Transparency and Social Participation in Large Infrastructure Works," of the 6th National Action Plan of the Open Government Partnership (OGP), the group of organizations of which IEMA is a part was recognized with an international certificate during the event *"América Aberta: Conexão sem Fronteiras* (Open America: Borderless Connection)."

Photo: Divulgação/ IEMA

River terminal in Santarém, Pará.

Photo: Sergio Mouraj

André Luis Ferreira, Executive Director of IEMA, during the workshop "Strategic Planning in the Transport Sector."

TRANSPARENCY AND ALTERNATIVES IN LOGISTICS PLANNING FOR FREIGHT TRANSPORT

As part of its actions in defense of social participation and care for the environment in relation to infrastructure works, IEMA participated in a meeting with the *Casa Civil* (Chief of Staff's Office) and third-sector organizations to discuss the criteria for including transportation projects in the Public-Private Partnership Investment Program (PPI). The meeting was held within the scope of Commitment 1, which deals with expanding transparency and social control over large-scale infrastructure projects, of the 6th National Action Plan of the Open Government Partnership.

Dialogue with control bodies also integrated the institute's agenda. In a meeting with the Federal Court of Accounts, the organization debated aspects of the ordinance of the *Secretaria Geral de Controle Externo, Segecex*, (General Secretariat of External Control), which establishes guidelines for the identification, evaluation, and registration of benefits arising from external control actions in the freight transportation area.

In a meeting with the Ministry of Transport, IEMA reiterated the need to incorporate the analysis of alternatives in national logistics planning, reinforcing the importance of a careful and sustainable approach for the sector.

The institute was also present at the National Meeting of Public Works Auditors 2024, held in the state of Piauí. On the occasion, IEMA presented the proposal of criteria for the analysis and classification of infrastructure projects carried out with partners in 2023.

IEMA REINFORCES COMMITMENT TO TRANSPARENCY AND SOCIAL PARTICIPATION AT CGU EVENT

In August 2024, IEMA participated in the event "Dialogue with Civil Society," promoted by the *CGU*, in the context of the 6th National Action Plan of the Open Government Partnership.

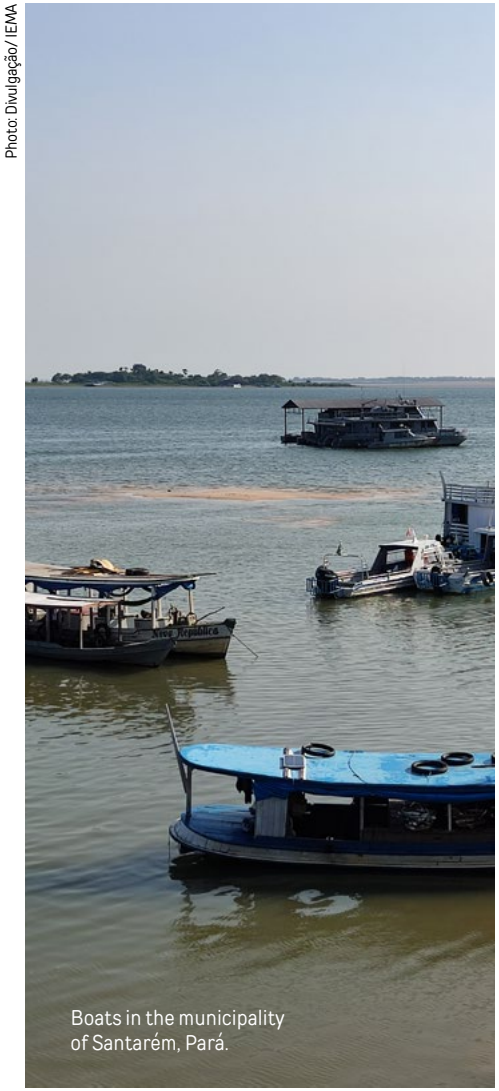
The activity aimed to strengthen the ties between government and civil society, promoting a qualified space for listening, exchanging information, and jointly building paths for transparency, integrity, and social participation in public policies. During the meeting, the

MEETINGS: AMAZONIAN AND SOCIO-ENVIRONMENTAL FOCUS

The organization was present in strategic meetings with the federal government, such as those that discussed the Open Government Action Plan (2024–2027), with the CGU, and the logistics planning of the Ministry of Transport, with a focus on incorporating social and environmental risks.

These contributions are fundamental to promote a more integrated and responsible approach in planning national infrastructure, especially with regard to the Amazon region, where social and environmental impacts tend to be more intense.

Photo: Divulgação/ IEMA



Boats in the municipality of Santarém, Pará.

advances in the execution of the 6th National Action Plan were presented, with emphasis on experiences, lessons learned, and challenges faced so far.

IEMA contributed with its technical and institutional knowledge, reinforcing the organization's commitment to expanding transparency and the strategic use of environmental data to strengthen public governance. The institute's presence in this process signals the importance of a collaborative and cross-cutting action in consolidating more open, sustainable, and people-centered policies.

AMAZON AND THE PNL 2050: LOGISTICS CENTERED ON PEOPLE AND THE ENVIRONMENT

Even as 2024 drew to a close, IEMA maintained its strategic action in the area of freight transportation, with a focus on institutionalizing more transparent and participatory decision-making processes. The institute emphasized that Brazil needed a methodology integrating the analysis of alternatives and socio-environmental risks into logistics planning.

The urgency for clear criteria is even greater in the Amazon, a region impacted by deforestation associated with export infrastructure and the absence of basic services. IEMA argued that logistics planning must go beyond the demands of foreign trade, also prioritizing the improvement of the quality of life of local populations, with access to health, education, energy, and internal transportation.

This perspective was defended in an article published in *O Globo* in December and reinforced in another publication signed by André Luis Ferreira, executive director of IEMA, and Felipe Barcellos e Silva, in *Nexo Políticas Públicas*. The experts criticized the low use of technical data in past governmental decisions on transportation infrastructure.

The elaboration of the National Logistics Plan 2050 (PNL 2050) was a decisive opportunity to reverse this scenario. In a press conference held in November 2024, the institute's executive director presented technical contributions and stressed that the PNL 2050 must incorporate technical, social, and environmental criteria. The organization's action reaffirms its commitment to public policies that integrate efficiency, socio-environmental justice, and social participation. IEMA defends that society should influence the planning of Brazil's transportation infrastructure, currently under construction to be in effect until 2050.

ARTICLES

O Globo
Does freight transport need to tear through the forest?
IEMA experts warn of the socio-environmental impacts of logistics expansion in the Amazon and advocate for projects that prioritize sustainable development, minimizing damage to the forest and benefiting local communities.

WEBINARS

These topics also gained prominence in webinars with the participation of IEMA, which pointed out the need to qualify the initial stages of planning. In one of them, promoted by the BRICS Policy Center/ Institute of International Relations of Pontifical Catholic University of Rio de Janeiro (*PUC-Rio*) and partners, the executive director of IEMA, André Luis Ferreira, reiterated the importance of transparency in defining priorities for the infrastructure sector.

Photo: Ricardo Botelho/MInfra

Port of Santos, in São Paulo.

The advancement of waterway infrastructure in Brazil is driven by the export of commodities. Waterways and river ports have been presented as logistics solutions to reduce production flow costs and expand competitiveness in the international market, but they generate socio-environmental challenges related to the protection of ecosystems, traditional territories, and social participation in decisions.

This discussion was the focus of the webinar *Hidrovias e portos para a exportação de commodities: desafios para a governança socioambiental* ("Waterways and ports for the export of commodities: challenges for socio-environmental governance"), which brought together experts and representatives of civil society organizations to debate the risks and impacts associated with the expansion of Brazilian waterways. One of the highlights was the presentation by IEMA, warning of the absence of environmental and social criteria in sectoral transportation planning and the lack of data to support a systemic analysis of the cumulative impacts of these projects.

The plans and projects for water infrastructure often disregard fundamental aspects such as the biodiversity of rivers, the ecological role of rapids and waterfalls, and the ways of life of riverside, indigenous, and quilombola populations. In addition, the logic of prioritizing logistics corridors aimed at exports ignores the cumulative territorial effects, such as deforestation, displacement of communities, loss of fishing resources, and changes in the hydrological regime. And it fails to provide infrastructure for those who are still marginalized.

The debate on water transportation infrastructure in Brazil, therefore, cannot be dissociated from a critical view of development models that prioritize the export of commodities to the detriment of environmental sustainability and social inclusion. The construction of a democratic, transparent, and evidence-based governance is fundamental to ensure that waterways and ports do not deepen inequalities or compromise the river ecosystems that sustain the life and culture of thousands of people in the country.

ARTICLES

Nexo Políticas Públicas
The urgency of a transparent process for transportation infrastructure in Brazil
Researchers advocate for a transparent, strategic, and sustainable decision-making process for transportation infrastructure in Brazil. The old model, misaligned and not very participatory, needs to evolve to integrate modes, involve civil society, and respect environmental limits, ensuring balanced economic and social development.

RESULTS

CGU PARTICIPATES IN DIALOGUE WITH CIVIL SOCIETY TO STRENGTHEN TRANSPARENCY AND SOCIAL CONTROL

In August 2024, the CGU held the event Dialogue with Civil Society, within the scope of the 6th National Action Plan of the Open Government Partnership. The meeting aimed to strengthen transparency and social control, creating a space for exchanging information with civil society, encouraging its engagement in the execution and monitoring of the actions provided for in the plan. During the event, the results achieved so far were presented and suggestions were collected for improving implementation. The full report, with the presentations used, is available on the CGU portal.

Photo: Sergio Mouraj

Representatives from ministries, agencies, and civil society during a debate on the planning of the transport sector policy in Brasília.

SOCIAL PARTICIPATION GAINS FOCUS IN THE REPORT OF THE NATIONAL OBSERVATORY OF TRANSPORT AND LOGISTICS

In this context, the content in the official report of the *Observatório Nacional de Transporte e Logística, ONLT*, (National Observatory of Transport and Logistics) was also highlighted, which can be accessed at ONTL Reports. The section deals with the strengthening of social participation and the need for greater articulation between public bodies and civil society organizations around infrastructure planning, considering the socio-environmental impacts and the promotion of a more open and democratic governance.

TCU DECISION ENCOURAGES ENGAGEMENT OF ORGANIZATIONS IN MONITORING THE PPA AND PPI

Another relevant point refers to the decision provided for in Ruling No. 2519/2023 – Plenary of the Federal Court of Accounts (TCU), which deals with the analysis and classification of infrastructure projects proposed for inclusion in the Multi-Year Plan (PPA) and the Public-Private Partnership Investment Program (PPI). According to Guideline 9 of Segecex Ordinance No. 24/2023, it is necessary to send a copy of the decision rendered, along with the report and the vote, to the organizations that participated in the elaboration of the document *Critérios para análise e classificação de empreendimentos de infraestrutura propostos para inclusão no PPA e no PPI* ("Criteria for the analysis and classification of infrastructure projects proposed for inclusion in the PPA and the PPI") The measure aims to engage institutions – *Instituto Brasileiro de Auditoria de Obras Públicas* (Ibraop), *Transparência Internacional – Brasil*, Instituto Socioambiental (ISA), *Instituto de Energia e Meio Ambiente* (IEMA) and *GT Infraestrutura e Justiça Socioambiental* – in monitoring the implementation of the ruling and in improving the mechanisms of control and transparency of public infrastructure policies.

IN THE MEDIA

Folha de S.Paulo
Gas terminal should triple the product's supply in the South

Nexo Políticas Públicas
The urgency of a transparent process for transportation infrastructure in Brazil

Agência iNFRA
Decentralization of electricity generation creates a historic movement in the country

G1
At COP-29, indigenous leader criticizes the construction of 'Ferrogrão', a route for grain flow in the North

Clean and Inclusive Energy Mix

Photo: Alexander Mils/ Unsplash

UNIVERSALIZE ACCESS **to electricity and reduce the negative social and environmental impacts of the expansion of the electricity system**

The transition to a clean energy matrix is a fundamental condition for tackling the climate crisis and for building a sustainable development model in Brazil. Although the country has one of the world's greatest potentials in renewable sources such as solar, wind, and biomass, its energy policy still favors fossil fuels. This contradiction compromises not only the climate commitments made internationally, but also the stability of the electricity sector and socio-environmental justice.

Repositioning the energy matrix requires strategic political choices and consistent institutional commitments. IEMA's participation in meetings with government-related bodies, in public consultation processes, and in conducting studies illustrates the efforts of organized civil society to press for a national plan that prioritizes renewable sources and discourages the expansion of the use of natural gas and petroleum derivatives. Proposals that foresee the maintenance of fossil fuel production have been criticized by organizations of which IEMA is a part, such as the *Coalizão Energia Limpa* (Clean Energy Coalition) and the e *Observatório do Clima, OC* (Climate Observatory), especially given the short deadline granted for *society's participation in the discussions*.

In addition, despite the advances of recent years, the universalization of access to quality public electricity is not yet a reality for all populations in the Legal Amazon, for example. Nearly one million people continue to live without electricity or with precarious and intermittent access, a violation of a basic right and an obstacle to the social, economic, and environmental development of the region.

IEMA has been monitoring this scenario and exchanging information with government bodies, other third-sector organizations, and the local population, reinforcing that bringing clean and stable energy to all Amazonian communities is an agenda that needs to advance with urgency. The universalization of energy must be treated as a strategic public policy, with a focus on sustainable solutions

Lines of action:

Improving decisionmaking processes for the expansion of the electrical system;

Supporting universal access to electricity;

Providing information a bout air quality to society.;

Preparing inventories of air pollutant and greenhouse gas (GHG) emissions.

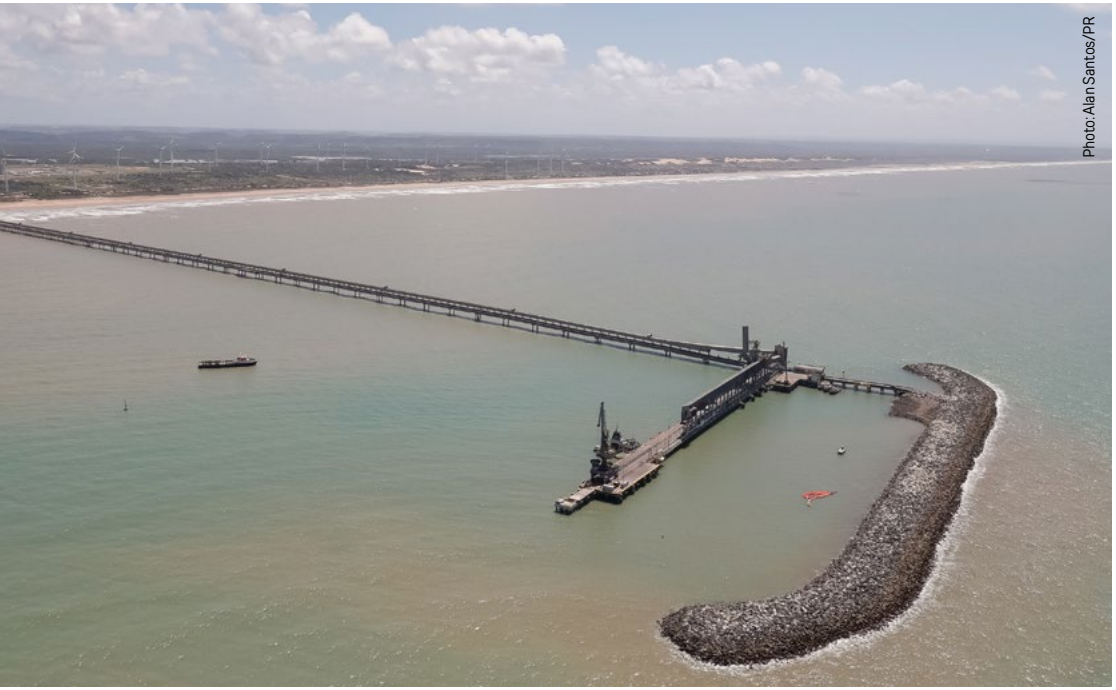


Photo: Alan Santos/PR

The Porto de Sergipe I Thermoelectric Plant, in the state of the same name.

adapted to local specificities, such as decentralized solar systems and small-scale renewable generation initiatives. Providing energy for those who live in the Amazon is to ensure dignity, access to information, education, health, and opportunities. It is also an essential step towards a just energy transition.

ELECTRICITY GENERATION AND ENERGY TRANSITION

THE WEIGHT OF THERMAL POWER PLANTS IN THE BRAZILIAN ENERGY MATRIX

IEMA launched, in December 2024, the *4º Inventário de Emissões Atmosféricas em Usinas Termelétricas* ("4th Inventory of Atmospheric Emissions from Thermal Power Plants"), which provides a detailed analysis of pollutant gas emissions from fossil-fuel power plants operating in the *Sistema Interligado Nacional, SIN* (National Interconnected System). The study covers plants powered by mineral coal, natural gas, fuel oil, and diesel, excluding isolated systems and renewable sources. Based on data from 2023, the survey gathers information on the type of fuel used, the technology employed, energy generation data, and atmospheric emission volumes, warning of the need to improve the collection and transparency of this data.

Among the main results of the inventory, the increase in the intensity of emissions per unit of energy generated stands out. In 2023, 671 tons of carbon dioxide

"Recent events, such as the curtailment of wind and solar energy and turbinable spillage, indicate that the electricity sector must adapt to the growth and generation profile of renewables, aiming to enhance them rather than limit them. The trend is for increasing pressure on the system to meet peak demand arising from heat waves,"

Ricardo Baitelo, project manager at IEMA

equivalent (tCO_2e) were emitted per gigawatt-hour (GWh), which represents a growth of 4.8% compared to 2022, when this index was 641 tCO_2e/GWh. This increase occurred despite the drop in the total energy generation by thermal plants, which went from 31.1 TWh to 26.9 TWh in the same period.

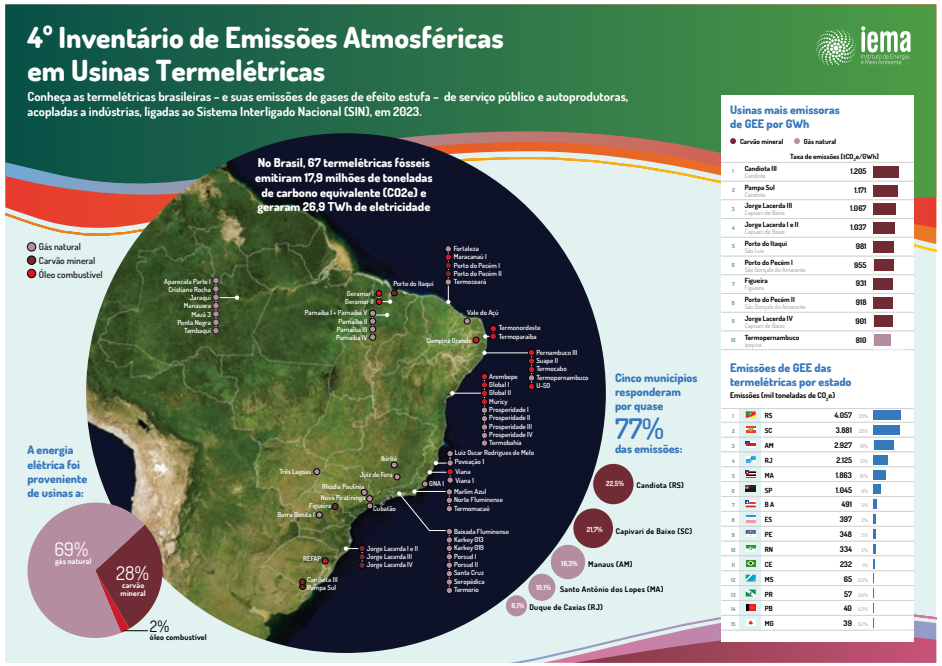
As a result, total emissions decreased by about 10%, from 19.9 million to 17.9 million tCO_2e. This paradox—less generation, but higher emission per unit—is linked to the increased participation of mineral coal in the thermal matrix, a highly polluting source, and the reduction in the use of natural gas, whose operation fell by 20%.

The infographic shows that 67 fossil-fuel thermal power plants, between public units and self-producers connected to the SIN, emitted a total of 17.9 million tons of carbon dioxide equivalent, generating 26.9 TWh of electricity. The generation matrix was composed of 69% natural gas, 28% mineral coal, and 2% fuel oil, highlighting the predominance of gas among fossil fuels.

The ten plants with the highest emission intensity per production (tCO_2e/GWh) use mineral coal: Candiota III (1,205 tCO_2e/GWh), Pampa Sul, both in Rio Grande do Sul; and Jorge Lacerda III, in Santa Catarina. Among the states, Rio Grande do Sul, Santa Catarina, Amazonas, Rio de Janeiro, and Maranhão were the ones that emitted the most, concentrating almost three-quarters of the total emissions.

At the municipal level, five municipalities were responsible for almost 77% of the emissions: Candiota (RS), Capivari de Baixo (SC), Duque de Caxias (RJ), Manaus (AM), and Santo Antônio dos Lopes (MA).

This panorama highlights the importance of monitoring thermal power plants not only by the amount of energy produced, but also by the intensity of their emissions. This is crucial for formulating policies that encourage energy efficiency, regulate the use of fossil fuels, and stimulate the mitigation of climate and socio-environmental impacts.



The inventory also points out flaws in the environmental governance of the electricity sector, such as the scarcity of standardized data, low transparency, and limited regulatory capacity. Therefore, it is essential to expand transparency, demand efficiency in thermal plants, and gradually reduce dependence on fossil fuels, especially coal.

Photo: Ricardo Stuckert/PR

Chafariz Wind Farm, in Santa Luzia, Paraíba.

ENERGY TRANSITION REQUIRES ADJUSTMENTS IN REGULATION AND INFRASTRUCTURE

In August, IEMA launched the document *Integração de energias renováveis ao sistema elétrico brasileiro* ("Integration of renewable energies into the Brazilian electricity system"). The publication addresses the main challenges for incorporating intermittent sources such as solar and wind into the national electricity matrix, and proposes measures for regulatory, operational, and economic advances, such as incentives for energy storage and infrastructure modernization.

The survey shows that between 2022 and 2024, the installed capacity of solar and wind energy almost doubled, from 35.4 GW to 66 GW, while the total matrix, including hydroelectric and thermal power plants, reached 192.8 GW. This accelerated advance, however, has not been accompanied by updates in the planning, regulation, and infrastructure of the system, which compromises the efficiency and security of integration. Among the recommendations are: redefining the role of hydroelectric plants as sources of backup power; expanding transmission planning, especially in the Northeast, which had accumulated more than 70 GW in connection requests for solar energy; and encouraging the use of storage technologies, such as batteries and pumped-storage hydropower, to deal with the intermittency of solar and wind sources.

Also pointed out as important strategies are the development of hybrid parks, which combine different sources for greater stability, the encouragement of distributed generation with storage to alleviate demand peaks, and the valuation of biomass thermal plants, such as biogas and forest residues, which can complement variable sources.

The study also highlights the urgency of modernizing the sector's regulation, with adequate remuneration for storage and flexibility services, in addition to advances in forecasting models and operating systems. That is, despite the advances in the expansion of renewable sources, Brazil needs to promote structural adjustments to ensure an efficient, safe, and resilient energy transition. In fact, IEMA

contributed with recommendations to Public Consultation Nº. 160/2024, on the Capacity Reserve Auction in the form of Power, defending that the provision of power occurs in a balanced and sustainable way. The institute's proposal sought to ensure energy security while mitigating environmental impacts. Among the points raised are the need to correct previous decisions related to the contracting of inflexible thermal energy, pointing to paths more aligned with a low-carbon electricity matrix.

COALIZÃO ENERGIA LIMPA (CLEAN ENERGY COALITION): COMBATING THE USE OF FOSSIL ENERGY IN FAVOR OF A JUST AND SUSTAINABLE ENERGY TRANSITIONL

IEMA has been part of the *Coalizão Energia Limpa* (Clean Energy Coalition) since its creation in 2021. It is a civil society articulation that brings together organizations committed to a just, inclusive, and sustainable energy transition in Brazil. The group works to qualify the debate on the electricity sector, proposing public policies that prioritize low-impact renewable sources, promote universal access to energy, and reduce dependence on fossil fuels.

As an active member, IEMA contributes with technical analyses, data on emissions and energy planning, as well as regulatory proposals. This collaborative action has strengthened the Coalition's political advocacy with regulatory agencies, public managers, and other strategic actors in the electricity sector.

As an example, in June, the Clean Energy Coalition and the *Frente Parlamentar Mista Ambientalista* (Mixed Parliamentary Environmentalist Front) launched, in the Chamber of Deputies, the report *Regressão Energética: como a expansão do gás fóssil atrapalha a transição elétrica brasileira rumo à justiça climática* ("Energy Regression: how the expansion of fossil gas hinders the Brazilian electricity transition towards climate justice"). The document warns of the risk of blocking investments in the electricity sector for up to 30 years and recommends the revision of current plans for the expansion of gas use,

> *"It may be less costly for the population, which today depends on generators powered by petroleum derivatives or lives in the dark, to provide cheap, quality energy. If the economic direction of public policy acted to reduce the cost of capital for photovoltaic systems, the price of electricity from these systems could be lower than that charged by local distributors. This action, combined with the already existing Social Electricity Tariff, could alleviate energy poverty,"*
>
> *Vinicius Oliveira, project leader at IEMA.*

Photo: Ester Cruz

Célia Xakriabá, federal deputy, during the launch of the study "Energy Regression."

considered incompatible with the country's climate commitments.

The following week, representatives from IEMA, the I*nstituto de Estudos Socioeconômicos, Inesc* (Institute for Socioeconomic Studies), and the *Instituto Arayara* (Arayara Institute) participated in the *Sacolinha Verde Virtual* (Virtual Green Bag) meeting, promoted by the *Centro de Estudos em Sustentabilidade da Fundação Getúlio Vargas, FGVces* (Center for Sustainability Studies of the Getulio Vargas Foundation). Mediated by the Foundation, the debate deepened the main warnings of the report and defended the exclusion of investments in gas-fired thermal power plants and gas pipelines provided for in current legislation, as an essential condition for a just energy transition in Brazil.

The *Coalizão Energia Limpa* (Clean Energy Coalition) reinforced

EVENTS

IEMA has been expanding its role in the debate on the transformations of the energy sector and climate policies in Brazil, actively participating in events of great relevance to the sector. Recently, it was present at three important meetings:

At the online debate on the Reform of the Brazilian Electricity Sector, during the New York Climate Week, promoted by the E+ Transição Energética (E+ Institute for Energy Transition), IEMA addressed the challenges of integrating intermittent renewable energies into the electricity grid and opportunities to reduce the use of fossil-fuel thermal power plants. The event was an opportunity to discuss the challenges and solutions needed to transform the energy sector, reduce dependence on fossil fuels, and expand renewable energy generation;

At the event *Enfrentando mudanças climáticas e acelerando a transição energética* (Facing Climate Change and Accelerating the Energy Transition) related to the G20 in Brazil, promoted by O Globo, Valor Econômico, and CBN radio, IEMA debated the challenges and opportunities of the Brazilian energy transition, as well as the country's contribution to the global transition. The panel discussed the role of the G20 in boosting the energy transition and how countries can accelerate the reduction of their emissions;

At the *Encontro Nacional ABSOLAR* (ABSOLAR National Meeting), of the Associação Brasileira de Energia Solar Fotovoltaica, ABSOLAR (Brazilian Association of Photovoltaic Solar Energy), IEMA contributed with the analysis of the United Nations Climate Change Conference (COP 29) held in Baku, Azerbaijan, and the effects of the conference's outcome on the financing of greenhouse gas mitigation.

Photo: Tânia Rêgo/Agência Brasil

Guamá River and Combú Island in the background, metropolitan region of Belém, Pará.

this position in a technical note on Bill 327/2024, which establishes the Program for the Acceleration of the Energy Transition (Paten). The articulation recognizes the importance of legislative measures that encourage the transition, as long as they are directed at renewable and sustainable sources, without passing on undue socio-environmental and economic costs to the population.

IEMA also participated in a meeting with the *Tribunal de Contas da União, TCU* (Federal Court of Accounts), at the body's invitation, to discuss the federal government's strategy in the energy transition, with an emphasis on the role of oil and natural gas. Government representatives expressed their intention to maintain the production of fossil derivatives, while acknowledging the growth potential of renewable energies and the need to prioritize the exploration of existing wells, instead of opening new fronts.

Continuing to prioritize investments in oil and gas delays a just energy transition and compromises investments in renewable forms and sources of energy in the long term. In a joint note, the *Observatório do Clima, OC* (Climate Observatory) and the *Coalizão Energia Limpa* (Clean Energy Coalition) criticized the proposal of the Ministério de Minas e Energia, MME (Ministry of Mines and Energy) on the role of fossil fuels in the Brazilian energy transition.

The contribution sent to the consultation by the *Observatório do Clima, OC* (Climate Observatory), the *Coalizão Energia Limpa* (Clean Energy Coalition), and IEMA reinforces the need for an integrating national plan, with a strategic role for Petrobras, a focus on reducing the exploration of fossil fuels, and incentives for expanding renewable sources. The proposal also highlighted fundamental issues, such as the protection of sensitive areas, impacts of climate change, losses of public revenue, energy efficiency, and strategies for reducing demand in the oil and gas sector.

The conduct of the *Política Nacional de Transição Energética, PNTE* (National Energy Transition Policy), and the *Programa Gás para Empregar* (Gás for Jobs program) was also criticized by the (Climate and Energy WG) of the *Observatório do Clima* (Climate Observatory) and the *Coalizão Energia Limpa* (Clean Energy Coalition). The organizations denounced the contradictions between official speeches and the negative impacts caused by ambiguous guidelines, which delay the advancement of a sustainable energy matrix.

The urgency of climate mitigation with socio-environmental justice was again highlighted by the *Coalizão Energia Limpa* (Clean Energy Coalition) in a technical note published three years after the 2021 water crisis. The articulation warned of the risk of a new energy crisis in 2024 if there are no structural changes in the sector's planning model. Still, the diagnosis is optimistic: Brazil has the technical and natural conditions to expand the resilience of its electricity system, as long as public policies consistent with climate commitments are implemented, with a focus on consolidating renewable sources as the central axis of the energy transition.

ACTIONS OF THE COALIZÃO ENERGIA LIMPA (CLEAN ENERGY COALITION)

In 2024, the network strengthened, adapted to the challenges of the context, and expanded the impact of its actions. The joint work of the organizations and individual engagement were essential to reach new milestones. See:

PUBLICATIONS

>> *Report: Regressão Energética* ("Energy Regression")

>> *Technical note: Transformação Ecológica, Fundo Clima e Eco Invest: por onde caminha o financiamento climático no Brasil?* ("Ecological Transformation, Climate Fund and Eco Invest: where is climate finance heading in Brazil?")

>> *Technical note: Integração de energias renováveis ao sistema elétrico brasileiro* ("Integration of renewable energies into the Brazilian electricity system")

POSITIONINGS

>> *Programa de Aceleração da Transição Energética, Paten* (Program for the Acceleration of the Energy Transition)

>> *Note from the Coalizão Energia Limpa e do Observatório do Clima sobre a consulta pública "Transição Energética Justa, Inclusiva e Equilibrada"* (Clean Energy Coalition and the Climate Observatory on the public consultation "Just, Inclusive and Balanced Energy Transition")

>> *Posicionamento sobre o PL do Hidrogênio*, (2.308/2023) (Positioning on the Hydrogen Bill)

>> *Nova Política Nacional de Transição Energética e o Decreto do Gás para Empregar, em parceria com o GT Clima e Energia do Observatório do Clima* (New National Energy Transition Policy and the Gas for Jobs Decree, in partnership with the Climate and Energy WG of the Climate Observatory)

>> *Posicionamento crítico sobre a crise hídrica e propostas para aumentar a resiliência do sistema elétrico e o atendimento de energia no horário de ponta* (Critical positioning on the water crisis and proposals to increase the resilience of the electricity system and meet peak hour energy demand)

>> *Posicionamento conjunto do Observatório do Clima e da Coalizão Energia Limpa sobre o PL das Eólicas Offshore* (Joint positioning of the Climate Observatory and the Clean Energy Coalition on the Offshore Wind Bill)

PUBLIC CONSULTATIONS

>> *Diretrizes do Leilão de Reserva de Capacidade; em parceria com o Instituto E+* (MME; nº160) (Guidelines for the Capacity Reserve Auction; in partnership with the E+ Institute)

>> *Transição Energética Justa, Inclusiva e Equilibrada; em parceria com o Observatório do Clima*. (MME; nº163) (Just, Inclusive and Balanced Energy Transition; in partnership with the Climate Observatory)

>> *Processo de licenciamento ambiental para projetos de petróleo e gás (MME)* (Environmental licensing process for oil and gas projects)

>> *Operação em condição diferenciada de usinas termelétricas para atendimento de potência no Sistema Interligado Nacional* (MME; nº173) (Operation in a differentiated condition of thermal power plants to meet power demand in the National Interconnected System)

>> *Leilão de Reserva de Capacidade de 2025* (MME; nº176) (Capacity Reserve Auction of 2025)

>> *Aprimoramento do Plano Decenal de Expansão de Energia 2034; em conjunto com o GT Clima e Energia do Observatório do Clima* (MME; nº179) (Improvement of the Ten-Year Energy Expansion Plan 2034; in conjunction with the Climate and Energy WG of the Climate Observatory)

INSTITUTIONAL SUPPORTS

>> *Letter from the Instituto de Estudos Socioeconômicos, Inesc* (Institute for Socioeconomic Studies), on Tax Reform and Fossil Fuel Subsidies

>> *Manifesto from the Brazilian Instituto de Defesa de Consumidores, Idec* (Institute for Consumer Defense), against the installation of the São Paulo Thermal Power Plant

>> Manifesto letter from Arayara on the five years of the oil spill on the Brazilian northeast coast

>> Adhesion to the "Global Methane Pledge"

PANELS AT COP 29

>> Leveraging NDCs to transition away from fossil fuels and protect biodiversity

>> Beyond Methane Pledge: Pushing for the phaseout of LNG in COP 30

>> From land to shipping: cross-continental efforts to transition beyond LNG

PUBLIC HEARINGS

>> Review of the bidding notice and contract models for the concession of exploratory blocks and areas with marginal accumulations of the Permanent Concession Offer

>> Ideal energy matrix for Brazil by 2050

COMMUNICATION

>> Website with new visual identity

>> Instagram profile

>> 54 citations in the press

UNIVERSALIZATION OF ACCESS TO ELECTRICITY IN THE AMAZON

ANALYSES AND SCIENTIFIC STUDY OF THE CHALLENGES OF THE ENERGY TRANSITION

In July, the IEMA team published a scientific article in the prestigious journal "Renewable and Sustainable Energy Reviews" (Volume 203). Titled "Photovoltaic systems, costs, and electrical and electronic waste in the Legal Amazon: An evaluation of the Programa Luz para Todos (Light for All Program)," the study evaluated the capacity of the program to universalize access to electricity, focusing on the costs of implementation and operation, the energy tariff charged by local electricity distributors, and the waste management of photovoltaic systems in the Legal Amazon.

The study conducted by IEMA shows that the *Programa Luz para Todos, LpT* (Light for All Program) combined with the use of solar and battery technologies, represents a viable alternative to expand access to electricity in remote communities in Brazil. The research shows that this transition can be physically possible and economically more efficient than current models, based on generators powered by petroleum derivatives or the total absence of energy, a common reality in several locations in the Amazon.

Thus, the consolidated results allowed for dimensioning the challenge of energy access in physical and economic terms. The analyses indicate the need for up to 15 million photovoltaic modules, batteries, and inverters, with an estimated investment of R$ 38 billion (about USD 7.4 billion). This infrastructure, over 33 years, could generate between 58,000 and 234,000 tons of electronic waste, which reinforces the need for adequate waste management and reverse logistics policies.

In addition to reducing costs for families, solar energy can offer superior quality and reliability. With public policies aimed at reducing the cost of capital for solar systems, the value of the energy generated could be lower than that charged by local distributors. Combined with the social

Photo: Acre Solar

Meeting in Acre in a community with a photovoltaic system.

Photo: Divulgação/ IEMA

Vinicius Oliveira, from IEMA, presenting data on sociobiodiversity products to the municipalities of Amazonas.

VIDEO

Seminar "The role of municipalities in the energy transition of Amazonas"

electricity tariff, this strategy would have the potential to significantly reduce energy poverty, promoting social inclusion and sustainability.

DEBATE ON ENERGY TRANSITION WITH RENEWABLE ENERGY IN AMAZONAS

Despite the vast potential for renewable sources, the North Region still depends heavily on fossil fuels, especially in transportation and electricity generation. To discuss solutions for Amazonas, IEMA held in March, in Manaus, the seminar "O papel dos municípios na transição energética do Amazonas" ("The role of municipalities in the energy transition of Amazonas") in partnership with WWF-Brazil, the *Companhia de Desenvolvimento do Estado do Amazonas, CIAMA* (Amazonas State Development Company), the *Associação Amazonense de Municípios* (Amazonian Association of Municipalities), and the *E+ Transição Energética* (E+ Institute for Energy Transition).

The event brought together more than 150 participants, including the vice-governor of Amazonas, ten mayors, 13 municipal representatives connected online, secretaries, and other envoys from 19 municipalities, covering about 70% of the state's municipalities. Also present were experts from the third sector, the *Associação Brasileira de Geração Distribuída, ABGD* (Brazilian Association of Distributed Generation), as well as academics and companies.

During the workshop, the institute highlighted the importance of promoting a just energy transition in Amazonas, based on local solutions that respect and value the ways of life of traditional peoples and communities. The organization's speech reinforced that access to energy should be thought of not only as infrastructure, but as a fundamental right that contributes directly to improving the quality of life in communities. IEMA also warned of the risks of expanding fossil-fuel thermal power plants in the region and advocated for investments in decentralized renewable sources, aligned with the needs and priorities defined by the territories themselves.

The lack of energy in the Amazon compromises the local economy,

PUBLICATIONS

4º Inventário de emissões atmosféricas em usinas termelétricas ("4th Inventory of atmospheric emissions in thermal power plants")

Integração de energias renováveis ao sistema elétrico brasileiro ("Integration of renewable energies into the Brazilian electricity system")

Photo: Divulgação/ IEMA

Participants of the Energy & Communities Network in Brasília.

especially extractive activities, limiting production, income generation, and job supply. During the presentation, Vinicius Oliveira, project leader at IEMA, stressed that more than 11,600 agricultural establishments in Amazonas do not have access to electricity. To reverse this scenario, it is necessary to direct public policies to local production chains and promote the generation of clean and accessible energy.

The North Region has the potential to lead the energy transition, with the use of distributed renewable sources, contributing to sustainable development, green industrialization, and the strengthening of municipal economies.

REDE ENERGIA & COMUNIDADES (ENERGY & COMMUNITIES NETWORK)

ARTICULATION FOR THE RIGHT TO CLEAN RENEWABLE ENERGY IN ISOLATED AREAS

Since 2019, IEMA has been part of the *Rede Energia & Comunidades* (Energy & Communities Network), an articulation that brings together civil society organizations, research institutions, and community leaders committed to democratizing access to electricity in the Amazon. Guided by principles that defend sustainable, participatory, and locally adapted energy solutions, the network seeks to guarantee the right to energy as a vector of citizenship, social inclusion, and development.

With actions based on active listening to communities and dialogue with public authorities, the Network has been expanding in number of participants and consolidating itself as a strategic space for the collective construction of public policies.

This work gains even more relevance given the reality of about one million people, thousands of productive establishments linked to family farming and sustainable plant extractivism, and schools and basic health units in the Legal Amazon that still live without access to electricity or with precarious and intermittent supply, which compromises basic rights and regional development. The Network's mission is to contribute to reversing this scenario, boosting the transition to a renewable, just, and accessible energy matrix.

Therefore, in August, IEMA's universalization of access to electricity team participated in the first meeting focused on communication of the Energy & Communities Network. The meeting brought together representatives of organizations such as 350.org, the *Conselho Nacional das Populações Extrativistas, CNS* (National Council of Extractive Populations), the *Coordenação das Organizações Indígenas da Amazônia Brasileira, Coiab* (Coordination of Indigenous Organizations of the Brazilian Amazon), the *Coordenação Nacional de Articulação das Comunidades Negras Rurais e Quilombolas, Conaq* (National Coordination for the Articulation of Black Rural and Quilombola Communities), the *Grupo de Trabalho Amazônico, GTA* (Amazon Working Group), the *Instituto de Defesa de Consumidores, Idec* (Institute for Consumer Defense), the *Instituto de Direito Global, IDGlobal* (Institute for Global Law), IEI Brazil, the *Instituto Pólis* (Pólis Institute), the *Observatório do Marajó* (Marajó Observatory), Revolusolar, and WWF-Brazil.

Throughout the year, the Energy & Communities Network intensified its collective action, with IEMA actively participating in the construction of strategies and the alignment of actions in weekly meetings between partner organizations. The institution, in fact, became part of the network's secretariat.

This joint effort resulted in a series of articulations with traditional populations of the Legal Amazon, expanding direct listening from the territories affected by energy exclusion. In addition, the network promoted dialogues with federal, state, and municipal government bodies, as well as with energy distributors, to seek concrete and sustainable solutions to the problem. The integrated action has been fundamental to press for more effective public policies adapted to Amazonian realities, contributing to advancing the universalization of access to renewable electricity in the region.

In this same context, the IEMA team was in the field in the Vila Limeira community, located on the banks of

SCIENTIFIC ARTICLES

Photovoltaic systems, costs, and electrical and electronic waste in the Legal Amazon: An evaluation of the Luz para Todos Program

Journal: Renewable and Sustainable Energy Reviews (volume 203)

The Brazilian electricity system: an evaluation of the thermoelectric plants under the Eletrobras privatization law

Journal: Tempo do Mundo (issue 32, March 2024)

PARTICIPATIONS

Book: **Propostas para as Amazônias ("Proposals for the Amazons")**
Chapter: *Propostas para as amazônias: dados reunidos para uma visão integrada do território* ("Proposals for the Amazons: data gathered for an integrated vision of the territory")

Book: **Let Communities Lead – Community Knowledge Capacities for Local Energy Transitions**
Chapter: *Rede Energia & Comunidades: uma aliança para o pleno acesso à energia na Amazônia brasileira* ("Energy and Communities Network: an alliance for full access to energy in the Brazilian Amazon")

the Purus River, in southern Amazonas. With 90 inhabitants, the place became a reference by implementing a photovoltaic mini-grid with battery storage, becoming the first community in the region with 100% solar supply. The technical visit brought together representatives from the *Ministério de Minas e Energia, MME* (Ministry of Mines and Energy), the A*gência Nacional de Energia Elétrica, Aneel* (National Electric Energy Agency), the *Empresa de Pesquisa Energética, EPE* (Energy Research Company), the *Banco Nacional de Desenvolvimento Econômico e Social, BNDES* (National Bank for Economic and Social Development), the *Instituto Chico Mendes para a Biodiversidade, ICMBio* (Chico Mendes Institute for Biodiversity Conservation), the *Associação Brasileira de Geração Distribuida, ABGD* (Brazilian Association of Distributed Generation), and the Mott Foundation, highlighting the importance of decentralized and sustainable solutions to guarantee the right to energy in the most remote regions of the Amazon.

In September, IEMA led, in articulation with the Energy & Communities Network, the elaboration of the contribution to Public Consultation No. 021/2024, which aimed to gather subsidies and additional information to define the necessary conditions for the transfer of corporate control of Amazonas Energia S.A.

ADVANCES FOR JUST AND SUSTAINABLE ENERGY IN THE AMAZON

In June, IEMA was present at the *Conferência Internacional de Tecnologia das Energias Renováveis* (International Conference on Renewable Energy Technology), in Teresina (PI), where it discussed the role of public policies and renewable technologies for the construction of a just and sustainable energy transition in Brazil.

In September, the Energy & Communities Network, IEMA, and partner organizations – such as the *Conselho Nacional das Populacoes Extrativistas, CNS* (National Council of Extractive Populations), the

ARTICLE

Le Monde Diplomatique
The unsustainable future
Despite its climate leadership, Brazil still subsidizes fossil fuels, contradicting environmental commitments and aggravating inequalities. The text advocates for an energy revolution with a focus on renewable sources and the redistribution of subsidies to clean technologies and socio-environmental projects.

2024

JUNE

Participation in *Conferência Internacional de Tecnologia das Energias Renováveis* (International Conference on Renewable Energy Technology)

SEPTEMBER

Contribution to Aneel's public consultation.

Participation in *Oficina Diálogos da Sociobioeconomia* (Workshop: Dialogues on Socio-Bioeconomy)

Development of the national plan in the area

OCTOBER

Bill Submission Ceremony on Just Energy Transition

Public hearing, promoted by the Environmentalist Parliamentary Front

Coordenação das Organizações Indígenas da Amazônia Brasileira, Coiab (Coordination of Indigenous Organizations of the Brazilian Amazon), and the *Grupo de Trabalho Amazônico, GTA* (Amazon Working Group) – participated in a public consultation promoted by Aneel. The agenda was the transfer of control of the distributor *Amazonas Energia* (Amazons Energy) to *Âmbar Energia* (Âmbar Energy). The contributions presented sought to ensure that the interests of local communities were respected and that the process resulted in a faire and more sustainable energy supply for the region.

Photo: Jr Sardo/ Pexels

Açaí in baskets in Belém, state of Pará.

IEMA was also present, in August and September, in three editions of the *"Oficinas Diálogos da Sociobioeconomia"* ("Sociobioeconomy Dialogues Workshops"), organized by the ministries of the Ministério do Meio Ambiente e Mudança do Clima, MMA (Environment and Climate Change), Ministério do Desenvolvimento Agrário e Agricultura Familiar, MDA (Agrarian Development and Family Farming), and Ministério do Desenvolvimento Social e Combate à Fome, MDS (Development and Social Assistance, Family and Fight against Hunger), which bring together experts and leaders to contribute to the construction of the national plan in the area.

The following month, IEMA participated in the *"Ato de Protocolo de Projetos de Lei sobre Transição Energética Justa"* ("Act of Protocol of Bills on Just Energy Transition"). During the event, the team contributed to the debate on the deadlines and challenges of implementing public policies aimed at equitable and sustainable access to electricity in vulnerable contexts.

The organization was also at the public hearing, promoted by the

IN THE MEDIA

ELECTRICITY GENERATION AND ENERGY TRANSITION

UOL/ Ecoa
What are the challenges of the energy transition in Brazil?

Folha de S.Paulo
Brazil has no defined plan to give up oil and gas

O Eco
Without planning, Brazil remains in the dark about its energy future

Nexo Jornal
The lack of plans for Brazil's energy future

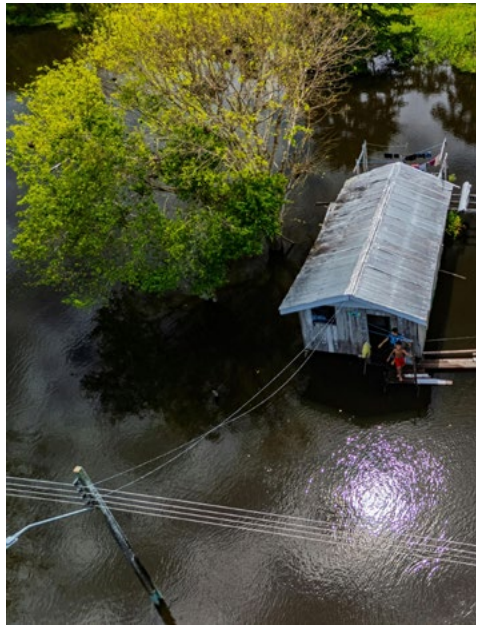
Revista Galileu
Energy country? The challenges of Brazil in the energy transition

Outras Palavras
Clean energy: the fragility of Brazilian "advances"

Correio Braziliense
Clean energy is also a space for the new industrial policy

TV RTP/ Hora de agir
Energy Production in Brazil

Photo: Eduardo Amorim/ Pexels



Aerial view of flooded houses in the Amazon

Frente Parlamentar Ambientalista (Environmentalist Parliamentary Front), where leaders and members of traditional communities gathered to discuss a just energy transition. The central question was: who is considering the impacts that energy projects cause on traditional communities? And are these communities being heard?

PROGRAMA LUZ PARA TODOS INCORPORATES SOCIO-ENVIRONMENTAL ASPECTS

IEMA has played an important role in the debates and articulations on access to electricity in Brazil, especially for isolated communities in the Amazon. The team participated in a series of meetings with, for example, the MME and Aneel aimed at qualifying policies such as the *Programa Luz para Todos* (Light for All Program). On these occasions, data and analyses produced by IEMA were presented, as well as proposals for the inclusion of energy generation in community internet systems, reimbursement for implemented systems, and universalization of access to energy in public services.

These participations reinforce IEMA's commitment to the democratization of access to energy, a just energy transition, and the valuation of the knowledge and needs of traditional communities, contributing directly to the improvement of public policies and the transparency of energy data. In the area of electricity and universalization, IEMA participated in almost 40 meetings, such as meetings, workshops, and round tables.

For example, in meetings with the *Ministério de Minas e Energia, MME* (Ministry of Mines and Energy) and the *Fundação Nacional dos Povos Indígenas, Funai* (National Foundation of Indigenous Peoples), IEMA contributed to the debate on energy service in communities without public access to electricity. The agenda addressed the specificities of the *Programa Luz para Todos, LpT* (Light for All Program) and communication systems, considering the different uses of electricity in indigenous territories and traditional communities.

Also in September, the institute received an official letter from the MME requesting support in the active search

TV Globo/ Jornal da Globo
The role of renewable energy in trying to reduce the climate catastrophe

Correio Braziliense
Energy transition is in step with electricity transmission

Valor Econômico
What are the dilemmas that Brazil faces for the energy transition?

Podcast InovaSocial
From fossil to future – The electricity transition in Brazil

O Eco
Electricity sector needs "tidying up" to absorb renewable sources

Canal Solar
Brazil can lead the energy transition, but will need to tread a long path

O Globo/ Um Só Planeta
With still underexplored potential, renewable energy can lead Brazil to be a global example in the energy transition

Nexo Jornal
7 ways to expand the use of renewable energies in Brazil

for beneficiaries of the *Programa Luz para Todos* (Light for All Program) with the aim of accelerating the inclusion of families without access to electricity. The demand reaffirms the recognition of the institute as a relevant technical partner in the construction of inclusive solutions for the universalization of access to energy.

At the *Departamento de Universalização e Políticas Sociais de Energia Elétrica, DUPS/ MME* (Department of Universalization and Social Policies for Electric Energy), the organization presented an unprecedented mapping of schools and productive establishments without access to energy in the Legal Amazon. The survey was discussed with the aim of informing public policies that prioritize regions in greater situations of energy vulnerability.

International articulation was also part of the actions of the period. In August, it participated in a meeting with representatives of Catalyst Advisors, Mozambican Renewable Energy (AMER), and the World Bank, discussing financing instruments and execution of public policies for renewable and accessible energy. The exchange of experiences pointed to the possibility of replicating the model of the Light for All Program in African countries.

Within the scope of the *Programa Luz Para Todos* (Light For All Program), it proposed in Public Consultation Nº. 161/2024, *Novo Manual de Operacionalização do Programa Luz Para Todos* (New Operationalization Manual of the Light For All Program), adjustments aimed at valuing regional specificities, especially of the Amazon. Among the suggestions are the creation of training programs adapted for the local workforce, the definition of indicators for continuous monitoring, and integration with other public policies. The contributions also reinforce the importance of ensuring social participation in all stages of the program.

Finally, the MME presented the new design of the Programa *Luz para Todos, LPT* (Light For All Program), which explicitly mentions the role of IEMA as a strategic partner in the construction of policy improvements. Among the advances incorporated into the program are: the valuation of waste management and reverse logistics, themes whose inclusion was strongly defended by the institute throughout the technical discussions. The reference to IEMA's work in these initiatives is a sign that the seeds planted are flourishing and contributing to more sustainable and integrated public policies.

DIALOGUES FOR THE SOCIOBIODIVERSITY-BASED ECONOMY

IEMA has been expanding its action on the sociobiodiversity agenda, with a special focus on ensuring that access to clean and adequate energy is a strategic part of strengthening sustainable production chains and the transportation of the products of this chain. This action involves the production of data, diagnoses, and proposals aimed at energy justice in traditional territories. Thus, the institute actively participated in the Dialogues of the National Plan for the Sociobiodiversity Economy, coordinated by the *Ministério do Meio Ambiente e Mudança do Clima, MMA* (Ministry of the Environment and Climate Change), contributing with technical evidence and recommendations on local energy governance.

Canal Energia
Iema study points out challenges and proposals for the integration of renewables

Canal Energia
The urgency of integrating renewable energies into the Brazilian electricity system

THERMAL POWER PLANTS

Estadão
Thermal power plants generated less energy, but polluted more in 2023, says Iema study

Eixos
Thermal power plants increased emissions per GWh in 2023, with greater use of coal

Canal Energia
Coal generation increases and impacts SIN emissions, points out study

Agência Pública
Natural gas advances in Brazil in the hottest year in history

Estadão/ Blog do Fausto Macedo
Amazon threatened and the leniency with climate pollution

Central da COP
Own Goal – Pará may house the largest thermal power complex in Brazil

The *Ministério do Meio Ambiente e Mudança do Clima, MMA* (Ministry of the Environment and Climate Change), in partnership with the *Ministério do Desenvolvimento Agrário e Agricultura Familiar, MDA* (Agrarian Development and Family Farming) and the *Ministério do Desenvolvimento Social e Combate à Fome, MDS* (Development and Social Assistance, Family and Fight against Hunger), coordinated the *"Diálogos do Plano Nacional da Sociobioeconomia"* (Dialogues of the National Plan for the Sociobiodiversity Economy), a collaborative process that included five regional workshops (Northeast, Center-West, Southeast/South, North I, and North II) and a national sectoral workshop, bringing together about 300 participants, including indigenous peoples, quilombolas, riverside dwellers, family farmers, civil society, experts, and government representatives – in which IEMA contributed with evidence and proposals aimed at local energy governance and energy justice.

In the workshops, the participants collectively built timelines of the sociobioeconomy, highlighting milestones such as the struggle of Chico Mendes, the creation of conservation units, and the regulation of indigenous territories. The main thematic axes of the Plan were identified and discussed – such as productive arrangements of the Territories and Poles of Sociobiodiversity – in addition to delimiting priority production chains: plant extractivism, artisanal fishing, agroecological systems, agroforestry, and community tourism, among others.

With the support of the United Nations Development Programme (UNDP) through the *Floresta + Amazônia* project, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), The Nature Conservancy (TNC), the UK Pact, and the Green Climate Fund, the process also included a formative stage in bioeconomy in the North Region, aiming to strengthen the protagonism of traditional communities in the formulation of the policy. In Belém, the regional workshop, in September, reinforced the importance of ensuring that the plan reflects local realities, generating family income and promoting the sustainable use of natural resources.

IEMA participated in the *Oficina Nacional de Construção da Política Nacional da Sociobiodiversidade* (National Workshop for the Construction of the National Sociobiodiversity Policy), promoted by MMA, which brought together representatives of *Povos e Comunidades Tradicionais, PCTs* (Traditional Peoples and Communities) and various civil society organizations. The meeting aimed to discuss guidelines, proposals, and strategies for the formulation of the new policy, with a focus on valuing traditional ways of life, strengthening sociobiodiversity, and guaranteeing the rights of these peoples. The institute's participation contributed with technical and institutional perspectives aimed at socio-environmental justice, reaffirming the commitment to collective construction processes and to expanding social participation in public policies.

The National Plan for the Sociobiodiversity Economy, an instrument derived from the National Bioeconomy Strategy (Decree 12.044/2024), seeks to promote inclusive economic, social, and environmental development, recognizing traditional knowledge and expanding the

TV Cultura/ Jornal da Cultura
Brazil breaks record in energy consumption

O Eco
Incentive for fossil gas could delay energy transition by 30 years, says report

Nexo Jornal
How natural gas compromises the energy transition

Eixos
Reforms could reduce dependence on thermal plants and give new prominence to hydroelectric plants, defend environmentalists

Folha de S.Paulo
Senate may vote on a project with the potential to increase electricity sector emissions by 25%

Agência Pública
Bill that regulates offshore wind farms advances in Congress with 'pork' for coal and gas

participation of indigenous peoples, quilombolas, communities, and family farmers in the markets.

CONEXÃO POVOS DA FLORESTA (CONNECT FOREST PEOPLE)

2024, the organization joined the Conexão Povos da Floresta (Connect Forest People) network, which aims to bring quality, low-cost broadband internet to more than one million people in the Legal Amazon. In the same year, Vinicius Oliveira, a researcher at IEMA, became the coordinator of the project's Technical Group (GT) on Energy. IEMA works to contribute with technical criteria for the insertion and reimbursement of these energy systems.

In June, it was present at the "I Encontro da Rede Conexão Povos da Floresta" ("I Meeting of the Connect Forest People Network"), in Alter do Chão (PA), debating the challenges to ensure quality electricity for Amazonian communities, considering the geographical barriers and the need for internet connection.

In November, in articulation with Aneel, it led a meeting with the Agência Nacional de Energia Elétrica, Aneel (National Electric Energy Agency), WWF Brazil, and Conexão Povos da Floresta (Connect Forest People), to address the reimbursement for the anticipation of access to electricity – when the beneficiary himself installs his electrical system and later requests reimbursement for the investment in the infrastructure from the local electricity concessionaire – to isolated communities.

On the same day, it coordinated a technical meeting with the Ministério do Meio Ambiente e Mudança do Clima, MMA (Ministry of the Environment and Climate Change) and a second one, with the Ministério do Desenvolvimento da Indústria, Comércio e Serviços, MIDIC (Ministry of Development, Industry, Commerce and Services).

At the end of the month, it led a third meeting with the MDA with the aim of presenting data on the Amazonian sociobioeconomy and informing the formulation of the "National Plan for the Sociobiodiversity Economy." This is the implementation instrument of the National Bioeconomy Strategy, instituted by Decree 12,044/2024.

STRATEGIC CONTRIBUTIONS AND TECHNICAL PARTICIPATION OF IEMA IN DEBATES ON ENERGY AND PUBLIC POLICIES

In March, IEMA presented the lecture "Acesso aos serviços de energia elétrica nas comunidades isoladas da Amazônia: mapeamento jurídico-institucional" ("Access to electricity services in isolated communities of the Amazon: a legal-institutional mapping") during the International Workshop on Energy Resilience in the Amazon, held in Belém and Barcarena (Pará). The event, organized by the University of Bristol and the Federal University of Pará, brought together experts to discuss the challenges and paths for energy resilience in the region.

In May, it participated in the Design Workshop of the Amazon Programa Áreas Protegidas da Amazônia, ARPA Comunidades (Protected Areas Program, ARPA Communities), in Brasília, which brought together 37 representatives from communities, civil society organizations, state governments, Funbio, and federal ministries, including the MMA and the MME. The meeting focused on strengthening the sociobioeconomy and community organizations in Conservation Units of the Amazon.

UNIVERSALIZATION OF ELECTRICITY

The Guardian
Solar power to the people: how the sun is bringing light – and TV – to Amazon villages

O Eco
The sun is for everyone – and so light reaches isolated communities

O Globo/ Um Só Planeta
Communities without access to electricity are still obstacles to the energy transition in the Amazon

Canal Solar
International Day of the World's Indigenous Peoples: the need for clean energy

Climate Tracker Latam
Solar panels bring hope to isolated regions in Brazil

UOL/ Ecoa
Solar energy transforms a riverside community in the Amazon

CNN
Community gets daily light with renewable energy

Canal Energia
Luz para Todos should demand 15 million modules and R$ 38 billion, says IEMA

Revista Piauí
"If everything gets wet, it's over"

RESULTS

CLEAN ELECTRICITY MIX ADVANCES WITH DATA INTEGRATION AND NEW INSTITUTIONAL PARTNERSHIPS

In 2023, IEMA maintained an active dialogue with the *Empresa de Pesquisa Energética, EPE* (Energy Research Company), the *Ministério de Minas e Energia, MME* (Ministry of Mines and Energy), and the *Câmara de Comercialização de Energia Elétrica, CCEE* (Chamber of Electric Energy Commercialization), focusing on the consolidation and qualification of data from the Information sistema de Informações de Geração Distribuída com Fontes Renováveis, Sisol (System for Distributed Generation with Renewable Sources). The meetings highlighted the institute's technical capacity to integrate different databases and facilitate the reading and analysis of information.

Thus, in March 2024, the *Empresa de Pesquisa Energética, EPE* (Energy Research Company) launched the *Portal de Acompanhamento e Informações dos Sistemas Isolados, PASI* (Portal for Monitoring and Information on Isolated Systems), a platform that systematizes data from Sisol, now including emissions from the plants in these systems. The *Câmara Comercialização de Energia Elétrica, CCEE* (Chamber of Electric Energy Commercialization), in turn, incorporated new columns into its database based on suggestions presented by IEMA.

The organization's leading role was also recognized in the reformulation of the *Programa Luz para Todos, LpT* (Light for All Program), currently in the relaunch phase by the *Ministério de Minas e Energia, MME* (Ministry of Mines and Energy). The new design of the program now incorporates guidelines related to waste management and reverse logistics, themes that had been advocated by IEMA. The institution now officially integrates the efforts to improve the *Programa Luz para Todos, LpT* (Light for All Program) as a technical partner of the ministry.

VIDEOS

O Globo
Webinar "From Baku to Belém": Brazil raises doubts by seeking energy transition while expanding oil exploration, say analysts

Entrando no Clima
Institute for Energy and Environment and Clean Energy Transition Part 2

O Globo/ Um Só Planeta
Cemetery of power plants: without specific laws, Brazil will have problems disposing of wind turbines and solar panels

Ciclovivo
How much needs to be invested to bring solar energy to the Amazon

Rede de Notícias da Amazônia
Energy poverty in the territories of the Amazon

O Globo
G20 in Brazil: Climate and combating energy poverty are among the challenges of decarbonization

Valor Econômico
Reversing energy poverty challenges Brazil and G20 countries

Dialogue Earth
Solar power is turning the tide on energy inequality in the Amazon

A Tribuna
Amazonas should invest in a just energy transition to improve quality of life based on local solutions

Special Projects

Photo: Lucas Marcomini / Unsplash

IEMA acts collaboratively, providing data and technical analyses, and building solutions in partnership with different actors. Its work is marked by dialogue, knowledge exchange, and support for the formulation of evidence-based public policies.

Photo: Divulgação/ Oceana

Meeting regarding the bill "Stop the Plastic Tsunami."

"The drop in emissions in 2023 is certainly good news, and it puts the country on the right track to meet the national climate plan for 2025. At the same time, it shows that we are still excessively dependent on what happens in the Amazon, as mitigation policies for other emitting activities are still timid,"

David Tsai, project manager.

SEEG 2023: BRAZIL'S NET EMISSIONS HAVE THE LARGEST DROP IN 15 YEARS

The *Sistema de Estimativas de Emissões e Remoções de Gases de Efeito Estufa, SEEG* (Greenhouse Gas Emission and Removal Estimation System), coordinated by the *Observatório do Clima, OC* (Climate Observatory), and with IEMA's participation in calculating and analyzing emissions from the energy and industrial processes sectors, revealed a historic drop in Brazil's emissions in 2023, the largest in the last 15 years. According to the report released in November, gross emissions fell by 12%, from 2.6 gigatons of carbon dioxide equivalent ($GtCO_2e$) in 2022 to 2.3 $GtCO_2e$ in 2023. Net emissions, which discount carbon removals, decreased by 15%, reaching 1.7 $GtCO_2e$.

This significant reduction was mainly driven by a 43% drop in net emissions associated with land-use change, especially deforestation, which accounts for almost half of Brazilian emissions. The reduction of deforestation in the Amazon was the decisive factor for this result.

On the other hand, the energy sector registered a small increase of 1.1% in emissions, driven by higher consumption of fossil fuels, such as diesel oil, gasoline, and aviation kerosene. This increase is related to the 3.2% rise in transportation emissions, an activity that reached its historical record of 224 million tons of carbon dioxide equivalent ($MtCO_2e$) emitted. This growth offset the 8% drop in emissions from electricity generation by fossil-fuel thermal power plants,

resulting from the absence of a water crisis that would impact hydroelectric generation during the year.

In total, energy and industrial processes were responsible for 22% of national emissions, equivalent to 511 $MtCO_2e$.

Since the end of 2022, IEMA has been at the forefront of *SEEG's* technical coordination, with the institute's project manager, David Tsai, taking over the position after ten years of leadership by Tasso Azevedo. Under Tsai's coordination, *SEEG* consolidates detailed data by sector – energy, industrial processes, agriculture, waste, and land-use change – and by region, supporting the monitoring of Brazilian climate goals.

These results are fundamental to guide the formulation of more effective public policies, reinforcing the importance of data transparency as an essential tool for complying with the country's environmental commitments.

PERSPECTIVES ON THE ENERGY TRANSITION IN THE COUNTRY

Brazil has the potential to reduce its carbon dioxide emissions in the energy sector by 2050 to the same levels it had in 1970. This is one of the main conclusions of the *Futuro da Energia* ("Future of Energy") report, prepared by the *Observatório do Clima, OC* (Climate Observatory) with technical co-coordination and projections by IEMA. The study supports the proposal for a Nationally Determined Contribution (NDC) from Brazilian civil society, showing the feasibility of a robust and sustainable energy transition in the country.

The document was prepared with technical and feasible data for a just energy transition. This vision includes firm commitments to correct inequalities and avoid negative social and environmental impacts, considering the growth in energy demand in different economic scenarios and the specific challenges of each sector. This study is part of the *Estratégia Brasil 2045* do *Observatório do Clima* (Climate Observatory's Brazil 2045 Strategy), which argues that the country can become the first major economy in the world to capture more greenhouse gases than it emits, becoming carbon negative by that year.

IN CONJUNCTION

IEMA also contributed to the review of a scientific article focused on the carbon-footprint of meat transportation in Colombia, expanding its work in technical and inter-regional studies on emissions.

Still in the climate field, the institute participated in a meeting with representatives of 19 organizations that are part of the *Pare o Tsunami de Plástico* ("Stop the Plastic Tsunami") campaign, which brings together 80 entities. On the occasion, the executive secretary of the *MMA*, José Paulo Ribeiro Capobianco, reiterated support for Bill 2524/2022. This bill, built collectively, proposes a new model of production and consumption focused on reducing disposable plastic and valuing reuse and recycling.

In the field of education and awareness, researcher Felipe Barcellos e Silva (IEMA) participated in the *"Congresso Internacional de Sustentabilidade para Pequenos Negócios"* ("International Congress on Sustainability for Small Businesses"), promoted by Sebrae in Cuiabá. On the panel "SDGs and their strategies," he addressed Sustainable Development Goal 13 – Action Against Global Climate Change, reinforcing the importance of integrating the SDGs into public policies and entrepreneurial initiatives throughout the country.

COP 29: IEMA REINFORCES TECHNICAL ROLE IN DEBATES ON ENERGY TRANSITION, METHANE, AND THE AMAZON

Photo: Divulgação/ IEMA

Launch of SEEG data during COP 29 in Azerbaijan.

Since its first in-person participation in the Conference of the Parties (COP), in 2019, IEMA has been expanding its presence and influence at the annual United Nations (UN) meetings to discuss climate change. Before each edition, the IEMA team holds internal discussions to align strategies and define the priority objectives of its participation, such as disseminating work and research, articulating with international networks, institutional strengthening, mobilization and advocacy, presenting local realities, and exchanging technical information. Over the years, IEMA has gained relevant spaces in these forums, strengthening its role in the national and international climate agenda.

At the 29th Conference of the Parties to the Climate Convention (COP 29) of the United Nations Framework Convention on Climate Change (UNFCCC), held in Baku, Azerbaijan in November, IEMA participated actively. The delegation was composed of project managers David Tsai and Ricardo Baitelo, project leader Felipe Barcellos e Silva, and communication coordinator Isis Nóbile Diniz.

COP 29 took place in a country historically marked by fire, both for its natural gas and oil reserves and for its cultural symbolism. In this scenario, the debate on climate finance gained prominence, with countries from the Global South pressing for public and non-reimbursable resources. However,

IN THE MEDIA

Estadão
Did Brazil manage to reduce greenhouse gas emissions?

G1
Level of greenhouse gas emissions in Brazil falls 12% in 2023

TV Cultura/ Jornal da Cultura
CO_2 emissions in energy production fall

Valor Econômico
Targets presented by countries are insufficient to curb warming

Folha de S.Paulo
See in 6 graphs which are the countries that pollute the most

Gas Outlook
Even after intensifying flooding in Brazil, little change to climate policies

Agência Pública
How the "exit" from the fossil era signaled by COP28 can happen in practice

TV Cultura/ Jornal da Cultura
Construction industry increases CO_2 emissions

Photo: Divulgação/ IEMA

Felipe Barcellos presents Brazil's energy and industry sector emissions at COP 29.

the final result was disappointing, proposing an annual fund of only US$ 300 billion until 2035, with mixed contributions (public and private), including loans, contrary to the demand for financial climate justice.

Brazil played a leading role by presenting its new climate target (NDC) for 2035, but was criticized by the *Observatório do Clima* (Climate Observatory) for its lack of ambition. During the event, *SEEG*, with IEMA's participation, released preliminary data on fires in Brazil in 2024, revealing that 27% of the affected area was native vegetation.

Among the topics discussed, the role of methane also gained prominence, with the potential for a rapid reduction in emissions, and international maritime transport, with little attention to local impacts. IEMA participated in a debate with representatives from Latin America, Asia, and Africa on the socio-environmental effects of LNG and warned of the Brazilian contradiction in expanding oil and gas exploration in the Amazon River Mouth, contrary to the climate commitments of the energy sector.

The energy transition was one of the central axes of IEMA's work at COP 29, with a focus on opportunities such as expanding access to clean energy in the Amazon and warnings about the installation of a mega thermal power complex in Barcarena (PA), near the future headquarters of COP30. Throughout the conference, the institute reinforced its role as a qualified technical source, contributing with data and analyses in debates on energy, transportation, and emissions, and defending a just, inclusive, and evidence-based energy transition.

The preparation for COP 30 was addressed in several events and meetings as a strategic opportunity for Brazil to assume exemplary climate leadership, articulating an integrated agenda with the participation of governments, the private sector, and civil society.

TV Cultura/ Jornal da Cultura
Brazil reached record energy consumption

TV Cultura/ Jornal da Cultura
Electricity sector accounted for 10% of GDP growth

TV Cultura/ Jornal da Cultura
Biofuels break record in Brazil

TV Globo/ Jornal da Globo
The role of renewable energies in climate change

TV Gazeta/ Jornal da Gazeta
About the risk of an energy crisis

Context
Brazil mega dams promised a green future. Then came climate change

Globo Esporte
Manchester City promises to transform training center into a renewable energy "plant"

InfoMoney
La Niña is coming: which sectors and segments of the Stock Exchange can win and lose?

HOT CLIMATE FROM BAKU TO BELÉM

Two analyses sought to situate IEMA's monitoring and positions at the end of the first week and of the meeting:

What IEMA saw in the first week of the world meeting on climate change

Brazilian NDC, emissions in general, oil exploration, freight transport, and socio-environmental impacts are highlighted by the organization.

During the first week of COP 29 in Baku, IEMA debated the strategic importance of methane, with the potential to reduce emissions by up to 40% by 2030. The organization drew attention to contradictions in the Brazilian position, which combines advances in renewable energies with plans to expand oil and gas in the Amazon River Mouth, and raised concerns about the lack of prominence of traditional populations and discussions on the local impacts of freight transport, even with international proposals such as taxing maritime emissions.

Just transition, emissions, and methane in the Land of Fire

See IEMA's impressions of the meeting that defined how the financing of the energy transition and the mitigation and adaptation of climate change will be.

During the two weeks, IEMA participated in debates that highlighted the energy transition as a central theme, focusing on the impacts of energy and transportation infrastructure in the Amazon and on inequalities in access to basic services. The organization drew attention to the Brazilian contradiction between promoting climate commitments and expanding oil and gas projects, especially in the Amazon River Mouth and in Barcarena (PA), where the country's largest thermal power complex is being installed. Methane, by the way, was a highlight in the climate debates. Emissions of the gas grew by 6% between 2020 and 2023, contrary to the commitment made at COP 26 to reduce it globally by 30% by 2030. In preparation for COP 30, to be held in Belém, Brazil, the expectation was to advance in the implementation of a just energy transition and the abandonment of fossil fuels, that is, themes pointed out, but not deepened, at COP 29 in Azerbaijan.

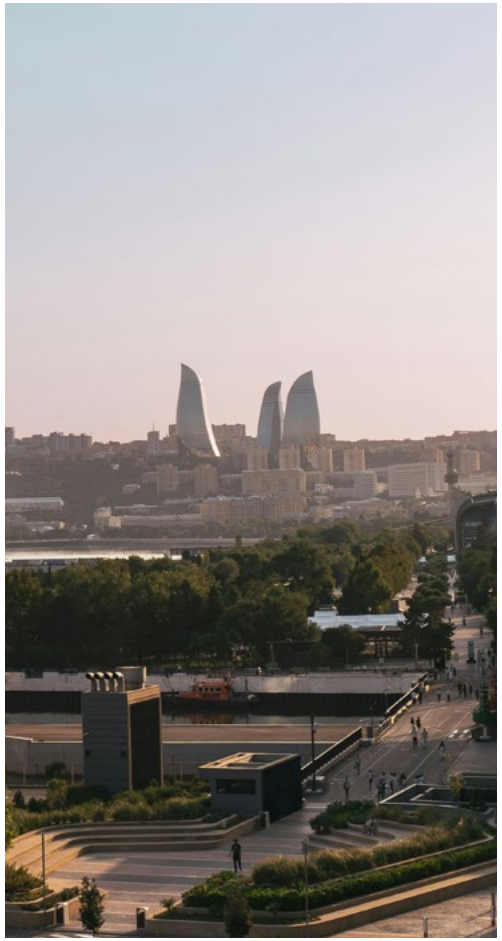


Photo: Ravil / Unsplash

Baku, Azerbaijan.

TV Globo/ SP1
Growth of GHG emissions in transportation

O Globo/ Revista Casa e Jardim
Is it possible to zero out the consumption of fossil fuels?

O Globo
Rio is the state with the most methane emissions in the energy sector

Deutsche Welle
Brazil wants to be an environmental leader while investing in oil

Revista Pesquisa FAPESP
Greenhouse gas production grows 1.3% in the world, but falls 12% in Brazil

Mídia Ninja
Brazil announced a new climate plan, but there are still doubts about the energy transition

SEE THE DEBATES THAT **INCLUDED IEMA'S PARTICIPATION:**

Contradictions between emission reduction and expansion of fossil fuels in Brazil
At the side event, an official UN event, "Leveraging NDCs for the Gradual Transition from Fossil Fuels and Protection of Biodiversity," IEMA highlighted Brazil's contradiction between advancing in oil and gas exploration, mainly in the Amazon River Mouth, and its commitment to reducing emissions and protecting the environment.

Infrastructure for the Amazon can help adapt to the already present climate changes
Host of COP 30, Belém will have as its neighbor the probable largest thermal power complex in Brazil – something that highlights the challenge of the energy transition. On the "Methane Pledge" panel, experts criticized LNG (used in this type of plant) as a sustainable solution, warning of its environmental and social impacts.

Brazil is the fifth largest methane emitter in the world
On the panel "Towards transparency of emissions data," it was debated that Brazil occupies a critical position in methane emissions, with projections of reaching 23.29 Mt CH4 by 2030. However, if the NDC recommendations formulated by the Climate Observatory are implemented, emissions should be reduced by 40%.

Country increased methane emissions by 6% between 2020 and 2023
The agricultural sector is responsible for 76% of total methane emissions in Brazil, according to data from SEEG. These also point to the city of Rio de Janeiro as the largest emitter of the gas, due to the lack of indicated waste management. In energy, the burning of firewood for cooking remains relevant.

Infrastructure for the Amazon can help adapt to the already present climate changes
Despite being a generator of energy for the country, the Amazon faces difficulties in meeting the basic needs of its own population. During the meeting, issues were debated with a focus on the need for a just energy transition, that is, one that respects and includes traditional communities.

Complaints of fossil gas exploitation in the Global South for export to the North increas
LNG, mostly exported to the Global North, leads countries in the Global South to face socio-environmental impacts. In Brazil, gas is linked to oil exploration, and other renewable alternatives such as solar and wind energy provide more sustainable solutions to demand.

Ethanol represents 17% of fuel consumption in transportation in Brazil
On the "Renewable Synergies" panel, the country's challenges in the energy transition were addressed, even with a relatively renewable matrix. Highlights included the increase in wind and solar sources, leadership in the use of ethanol, and reduction in the use of fossils.

In 2024, 27% of the area in Brazil that caught fire was native
SEEG researchers highlighted that the country faced unprecedented devastation in 2024, with 27 million hectares burned by October. If it continues in this direction, Brazil will not meet the goals established in the Paris Agreement.

Eixos
Proposal for NDC shows how Brazil can replace 42% of its fossil consumption

Revista Pesquisa FAPESP
Financing agreement closed at COP29 is considered insufficient

O Globo
Climate conference in Baku, Azerbaijan, is marked by geopolitical tension

Gas Outlook
Brazil hosts major oil and gas event as Climate Week NYC unfurls

RESULTS

Photo: Gustavo Nacht / Unsplash

São Paulo, Brazil.

SEEG IS THE BASIS FOR A NEW INDICATOR OF THE CAIXA SUSTAINABLE MANAGEMENT SEAL

The *SEEG* platform (Greenhouse Gas Emission and Removal Estimation System) has also started to integrate new strategic uses. It is now the database for calculating the score of the 5,570 Brazilian municipalities in the Carbon Footprint indicator, one of the 21 components of the Caixa Sustainable Management Seal.

GOVERNMENT OF PARAÍBA WILL USE SEEG DATA

In another milestone, the government of Paraíba signed a Technical Cooperation Agreement with the *Observatório do Clima, OC* (Climate Observatory) to formally start using data from the *SEEG* platform. With this partnership, from *SEEG*, the state can prepare its inventory of greenhouse gas emissions and removals, a basic instrument for the development of climate action plans.

Photo: Thiago Japyassu / Unsplash

João Pessoa, Paraíba

Institutional Development

Photo: Tadeu Jnr / Unsplash

In the last year, IEMA maintained the solidity and regularity of its governance and administrative and financial management processes, characteristics that reflect the institutional maturity of the organization, which has completed 18 years. With a team working mostly remotely and with physical presence only in sporadic and non-mandatory situations, the administrative and financial routines remained organized.

The physical infrastructure remains adequate for the remote work model, and the team is adjusted according to the entry of new projects. Thus, the institutional area maintains its commitment to the stability and proper functioning of the organization, ensuring the conditions for fulfilling IEMA's mission and expanding its positive impact on society.

Regarding transparency and accountability, the organization maintains a rigorous and systematized flow. Financial information is checked and shared monthly with the board and project managers. In addition, the organization undergoes an independent audit, as provided for in its bylaws.

In the field of governance, the renewal of the presidency of the board of directors in December 2024 stands out, after a long period of management by the previous leadership. The change was considered timely and strategic for IEMA's planning, signaling a new cycle and the possibility of updates in institutional dynamics. Moreover, the beginning of the review process of the organization's Strategic Plan, focused on the 2025–2029 cycle, was another important milestone.

An in-person meeting with the entire team in the second half of the year, dedicated to strategic planning, marked the beginning of the evaluation of the 2020–2024 cycle and the construction of the plan for the 2025–2029 cycle. The review of the strategic plan is ongoing, with future stages planned with the participation of the board of directors.

> *"In regional projects, there is a concern to bring in service providers who are from the territories, such as specialists or suppliers,"*
>
> *Mônica Takeda, administrative and financial manager.*

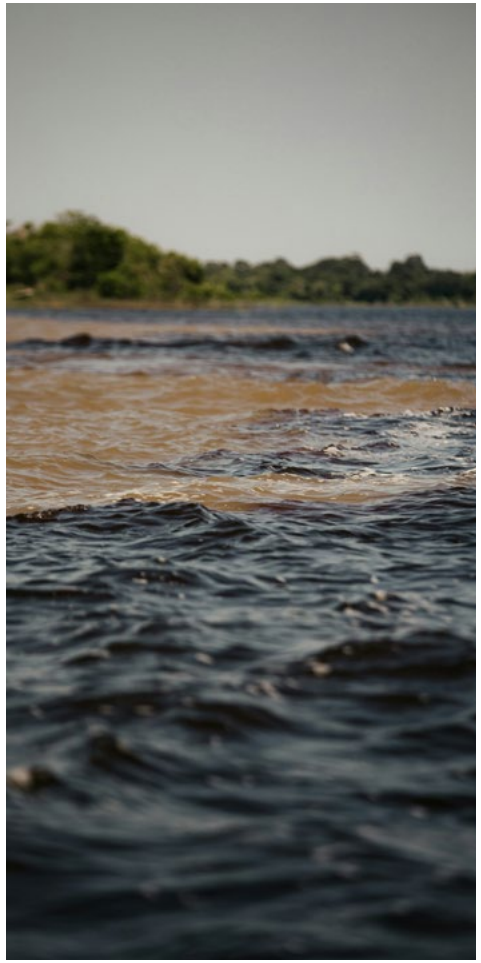


Photo: Andrew Varnum/Unsplash

The meeting of the Solimões and Negro rivers in Manaus.

Mônica Takeda, administrative and financial manager of IEMA, joined the audit committee of the *Instituto de Defesa de Consumidores, Idec* (Brazilian Institute for Consumer Defense), expanding the institutional presence in relevant civil society spaces.

For the first time, IEMA applied a performance evaluation for the team. The unprecedented experience was introduced seeking to foster a more transparent and participatory organizational culture. Based on the lessons learned from this process, new training and development actions are being designed for the next cycle.

IEMA also continues to reaffirm its commitment to the professional development of the team. Many members began their journey in the organization as interns. Regarding the promotion of diversity and inclusion, the institute seeks to be a pluralistic organization. In 2024, it began to formalize internal policies on diversity, inclusion, and harassment prevention.

COMMUNICATION AS A STRATEGIC AXIS TO TRANSFORM PUBLIC POLICIES

In 2024, IEMA's communication area continued to be an essential strategic component for achieving the institutional objectives and those of its projects. Throughout the year, institutional communication advanced significantly, increasing IEMA's visibility among partners, civil society, and public policymakers. This evolution is reflected both in the strengthening of its own channels, such as the website and the institutional newsletter, and in the ability to translate complex technical content into various engaging and advocacy-oriented narratives.

With the recognition of communication as a structuring and articulating axis among the different components of the organization, the permanent team has now expanded. There are two people dedicated to the area and, for the first time, a specialized agency was hired to handle communication for a project under the "Sustainable regional freight transport" objective. Specialized professionals in the areas of arts and communication, for example, in design, infographics, and writing, also continue to be hired, forming a support network to qualify and diversify the formats and strategies adopted.

To ensure consistency and effectiveness, IEMA follows its communication plans that strategically guide the area's actions at its different levels. This plan defines narratives, schedules, key messages, target audiences, activities, in addition to monitoring indicators, risks, and mitigation measures. Communication is integrated from the development of each project and maintains direct dialogue with the board, reinforcing its relevance as a tool for institutional strengthening and for supporting the formulation of evidence-based public policies.

EVENTS

The institute was present in important spaces for institutional articulation, such as the Annual Meeting of the *Observatório do Clima, OC* (Climate Observatory) and the Meeting of the Instituto Clima e Sociedade, iCS *(Institute for Climate and Society)*. These moments are fundamental to strengthen partnerships, align collective action strategies, and expand the impact of proposals aimed at the energy transition and tackling the climate crisis in Brazil.

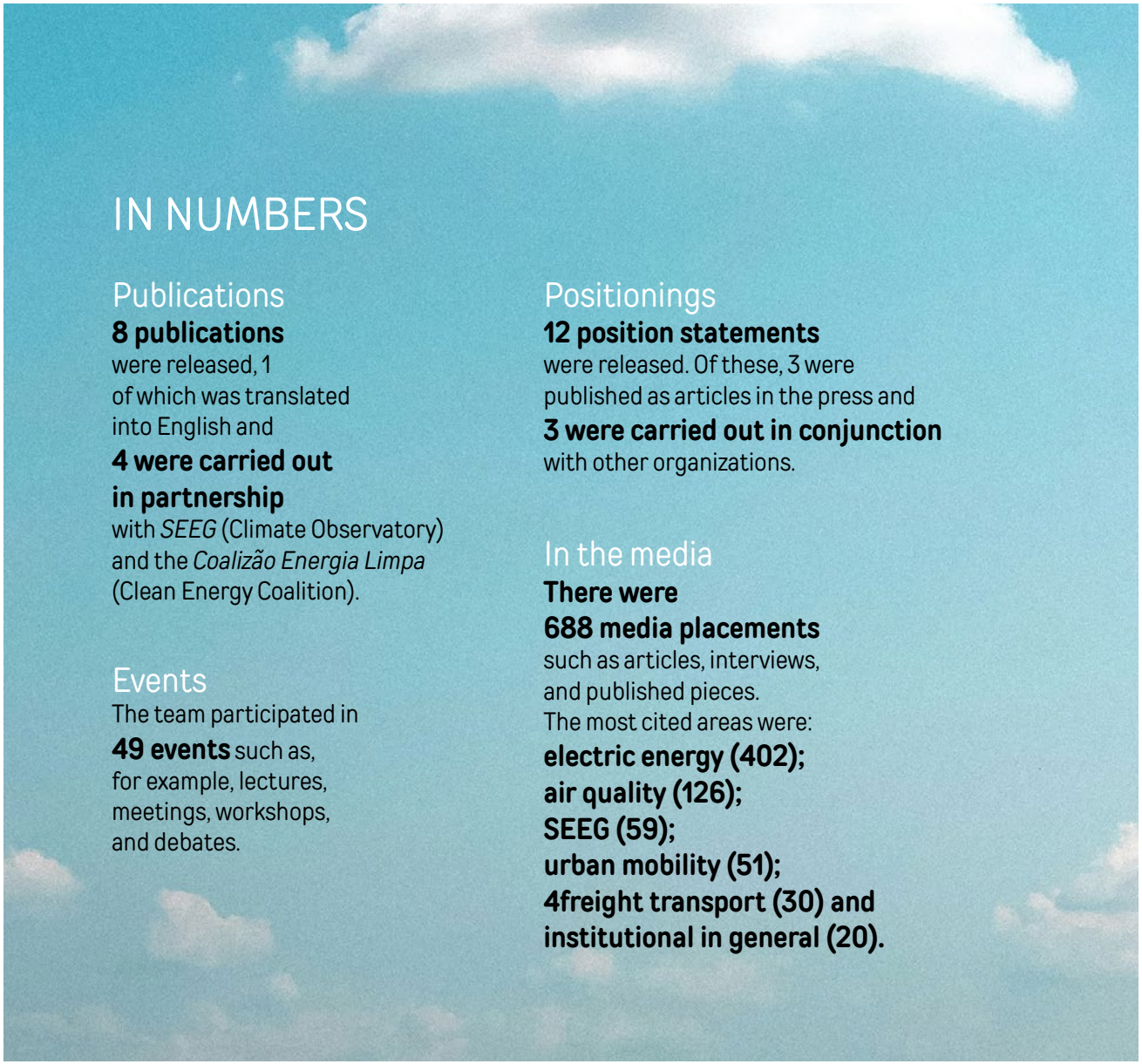


Photo: Anurag Challa / Unsplash

IN NUMBERS

Publications

8 publications
were released, 1
of which was translated
into English and
4 were carried out
in partnership
with *SEEG* (Climate Observatory)
and the *Coalizão Energia Limpa*
(Clean Energy Coalition).

Events

The team participated in
49 events such as,
for example, lectures,
meetings, workshops,
and debates.

Positionings

12 position statements
were released. Of these, 3 were
published as articles in the press and
3 were carried out in conjunction
with other organizations.

In the media

There were
688 media placements
such as articles, interviews,
and published pieces.
The most cited areas were:
electric energy (402);
air quality (126);
SEEG (59);
urban mobility (51);
4freight transport (30) and
institutional in general (20).

EVENT

In April, Isis Nóbile Diniz, representing IEMA, participated in the debate *"Conhecenças: navegando entre formas de comunicar ciência"* ("Conhecenças: navigating between ways of communicating science,") promoted by the Brazilian Network of Science Journalists and Communicators *(RedeComCiência)* and the Science and Technology Communication Network of Portugal *(SciComPt)*. In this first edition of the meeting, the challenges, possibilities, and importance of journalistic coverage on climate change were discussed, with a focus on building narratives that bring science closer to society.

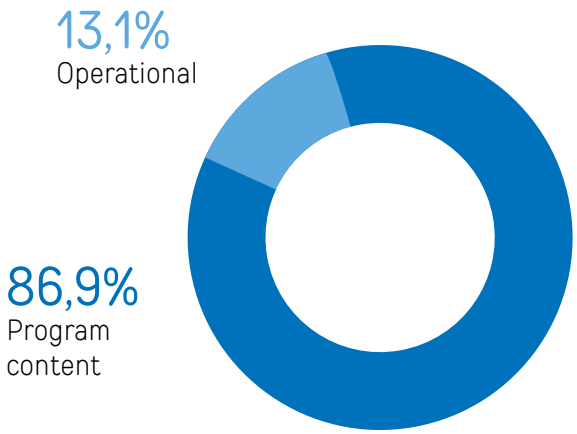
SUPPORTERS AND FINANCIAL INDICATORS

SUPPORTERS (2024)

Climate and Land Use Alliance (CLUA)
Charles Stewart MOTT Foundation
Energy Transition Fund (ETF)
Fundação de Apoio à Universidade de São Paulo (FUSP)
Gordon and Betty MOORE Foundation
Instituto Clima e Sociedade (ICS)
Observatório do Clima (LabOC)

RESOURCE ALLOCATION

(in BRL)	
Team	3.917.185
Third Parties	950.253
Travel / Conferences	270.300
Occupation / Infrastructure	143.713
General / Taxes	119.430
	5.400.881



BALANCE SHEET

December 31, 2024 and 2023 (in BRL)

ASSETS	2024	2023
CURRENT		
Cash and cash equivalents	11.877.856	6.144.769
Prepaid expenses	650	–
Other accounts receivable	9.945.254	2.041.193
	21.823.760	**8.185.962**
NOT CIRCULANT		
Immobilized	69.801	66.782
	69.801	**66.782**
TOTAL	**21.893.561**	**8.252.744**

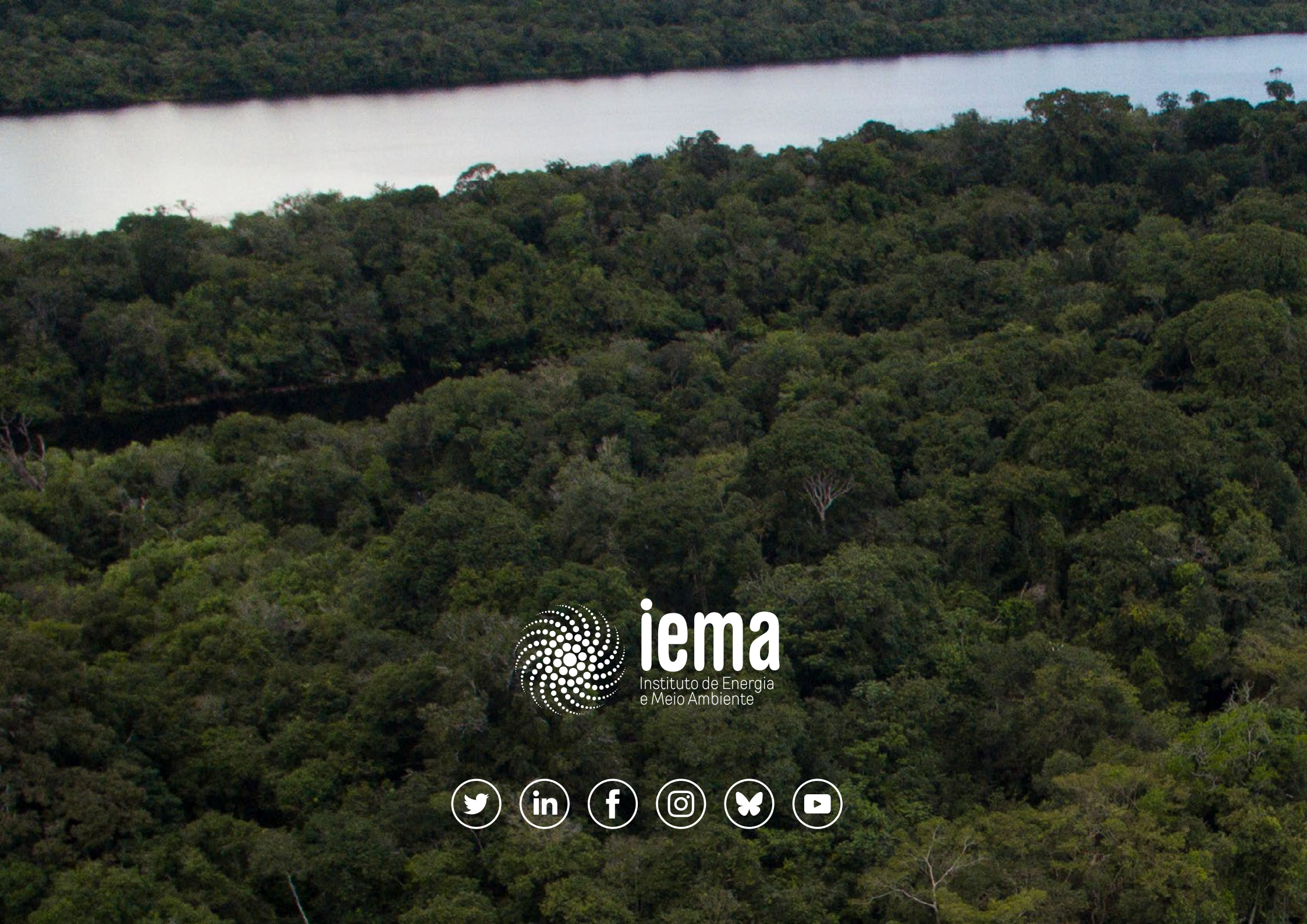
LIABILITIES AND NET ASSETS	2024	2023
CURRENT		
Suppliers	27.542	15.251
Tax obligations	189.786	167.375
Employment and social security obligations	429.112	379.277
Advance donations	16.805.504	4.781.027
	17.451.944	**5.342.930**
NET ASSETS		
Social Assets	2.864.190	2.460.583
Investment donations	45.625	45.625
Surpluses for the year	1.531.802	403.606
	4.441.617	**2.909.814**
TOTAL	**21.893.561**	**8.252.744**

STATEMENT OF INCOME

Years ended December 31, 2024* and 2023 (in BRL)

OPERATING REVENUE	2024	2023
WITH RESTRICTION		
Donation revenue	5.253.407	4.898.083
UNRESTRICTED		
Service Provision	-	1.400
Other revenues	13.222	145
Voluntary donations	6.616	5.007
	5.273.245	**4.904.635**
PROJECT COSTS		
Personnel expenses	(3.917.185)	(3.614.737)
Contractors	(950.253)	(509.273)
Travel	(270.300)	(200.613)
General	(246.852)	(490.473)
Tax	(16.291)	(15.606)
	(5.400.881)	**(4.830.701)**
GROSS OPERATING SURPLUS	**(127.637)**	**73.934**
OPERATIONAL EXPENSES		
Volunteer activities	(6.616)	(5.007)
General and administrative expenses	(19.025)	(26.475)
Depreciation	(17.559)	(16.546)
	(43.200)	**(48.028)**
RESULT BEFORE FINANCIAL INCOME AND EXPENSES	**(170.837)**	**25.906**
Financial expenses	(170.614)	(178.741)
Financial revenue	1.873.253	556.441
	1.702.638	377.700
SURPLUS FOR THE PERIOD	**1.531.802**	**403.606**

* The year 2024 was audited by Audisa Auditoria e Consultoria and is available on the website (http://energiaeambiente.org.br/transparencia)


iema
Instituto de Energia
e Meio Ambiente