



MINING  
**LAB**  
CHALLENGE

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**nexa**

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# 1 THE PROGRAM

1.1

The Mining Lab Challenge ("Program") was conceived by Nexa to support entrepreneurs and other professionals and companies in the process of developing technological innovation for the metals and mining sector.

## About Mining Lab

**Mining Lab** is Nexa's open innovation platform and has 5 programs to encourage innovation and entrepreneurship through challenges related to the mining and metallurgical sector together with partners from different sectors.

## Program Goals

1.2

The main objective of the Program is to identify, learn about and connect innovative projects, exclusively in the areas of Regenerative Economy, Positive Legacies, and Productivity and Safety, that can be used in the mining and metallurgy activities of Nexa's units in Brazil and Peru.

1.3

The program is not determined by any kind of lottery, not subordinated to any kind of chance, luck, risk or payment by the participants (in compliance to Brazilian Law 5.768/1971, article 3, paragraph II), under the terms and restrictions provided by these Rules.

## Why participate?

1.4

The following benefits may be made available, at Nexa's discretion, to the proposing companies:



Potential investment for the development of the project.



Possibility to perform tests in an industrial environment with Nexa technical support.



Promotion of partnerships for co-development of new technologies and solutions with Nexa.



Option to establish partnerships to search for funding, acquiring or distribution of the products and services of the projects developed by the vendors that were selected during the program.



Opportunity to become a supplier to Nexa and, potentially, of other company of the Votorantim Group.

## 2

## ELIGIBILITY

**2.1** The participants considered eligible for this Program are:

→ Duly constituted companies registered with the competent authorities and in compliance with the Laws and constitutive acts of their countries of residence.

→ Technical staff hired by the participant must be comprised of at least 2 (two) professionals allocated exclusively for project management and development.

## 3

## CHALLENGES

### 3.1

In this section, we present the challenges for this Program batch.



Theme: Decarbonization

### CHALLENGE 1

Reduction of diesel consumption in our operations

#### Challenge Description

One of the main contributors to GHG (Greenhouse Gas) emissions in mining is fossil diesel used in automotive fleets. We are looking for economically viable solutions that promote better energy efficiency of this fuel, reducing GHG emissions. The solutions should apply to:

- Mineral transport trucks operating on the surface and in underground mines.
- Loaders with a load capacity of up to 18 tons.

The solution should improve the performance of these vehicle engines or reduce diesel consumption without compromising their warranties or making modifications that would affect the operation or increase maintenance stops and intervals. Additionally, solutions focused on underground mining vehicles should consider the specific industrial environment with moisture, vibration, dust, and data transmission limitations.

With this, we expect a reduction in the specific diesel consumption of vehicles and, consequently, in GHG emissions.

We are not looking for solutions that pose contamination risks to internal combustion components, overload or increase the pressure drop in diesel oil filters, solutions with marginal fuel economy gains, fleet management software with AI that requires real-time communication or constant updates, and maintenance management software.

**Challenge Description**

One of the main contributors to GHG (Greenhouse Gas) emissions in mining is diesel. We are looking for transformational, economically viable technologies (or with medium-term prospects) that allow partial or total substitution of diesel by biogenic fuels without complex modifications for their use.

The proposed solutions should maintain or enable an improvement in vehicle performance and, in the case of partial substitution, be miscible with fossil diesel or not require complex modifications to the vehicles. Additionally, they should not compromise vehicle operability or increase stops and maintenance intervals. Solutions focused on underground mining vehicles should consider the specific industrial environment with moisture, vibration, dust, and limitations in data transmission. Moreover, should be observed the existing legislation for testing new fuels and the requirements for using fuels in underground mining.

The evaluation indicators in this case are specific fuel consumption and GHG emissions reduction. For solutions involving liquid fuels, quality indicators should be like fossil diesel. We are not looking for solutions that pose contamination risks to internal combustion components or solutions that overload or increase the pressure drop in diesel oil filters.



Theme: Circular Economy

### CHALLENGE 3

Local and social development

#### Challenge Description

Our mining units process the ore into zinc, copper, and lead concentrates. To obtain the concentrate it is necessary to process the ROM (run of mine), which is the ore before beneficiation, through several stages, including particle comminution, concentration, and finally thickening and filtration.

During these processes, water use is essential and must be treated subsequently. However, we face difficulties reusing the generated effluent due to the characteristics of the beneficiated material originating from volcanic massive sulfide, deposits with recurring carbonates, and quartz.

The generated effluent contains various metals in solution that must be reduced before disposal. In this challenge, we are looking for solutions that treat the effluent to promote water recirculation, reducing water intake and maintaining the parameters established by the regulations (reference standard: CONAMA Resolution No. 357/2005).





## Theme: Productivity and Security

### CHALLENGE 4

#### Monitoring operational conditions in underground mines by leaky feeder

##### Challenge Description

At Nexa, we are committed to safety in our operations. Consequently, we are constantly looking for more efficient ways to monitor and track the conditions of all our industrial processes.

Currently, we have a level-by-level access control system in the mine through the leaky feeder network, where we transmit 120 kbps in a 20 kHz channel.

We are looking for solutions that can use this data transmission infrastructure. The bandwidth is limited, and communication applications should consider this restriction. We want to add value and create other opportunities, such as monitoring geotechnical parameters, air quality (in all its parameters), temperature, noise, etc.

The solution should impact safety or productivity (e.g., optimizing the execution of preventive actions, reviewing ventilation systems, mine planning, team allocation, etc.). If the measured parameter is regulated, the solution must at least meet the standard criteria, with the potential to be accepted in an eventual inspection.

## CHALLENGE 5

## Accessible solutions for geomechanical monitoring

### Challenge Description

Geomechanical stability in underground mining is fundamental to ensuring safety and the continuity of operations. This stability is ensured through measurements of seismic activity, fracture position, rock quality and strength, and rock mass stresses, among other parameters. Measurements are made regularly, but there are opportunities to improve their precision and data granularity.

The challenge, therefore, is to capture geomechanical information and ensure the availability and accessibility of this information for decision-making. Due to difficult access and limited connectivity, solutions that are portable, widely deployed, fast and locally processed, ergonomic, continuous, low-cost, and reliable are desired.

The project aims to allow the prediction of potential incidents, reduce the occurrence of unforeseen events, and increase the efficiency of our operations.

# 4

## PROGRAM STAGES

### 4.1

The main stages of the **Mining Lab Challenge** are presented and detailed below.



**Disclosure and Application**



**Selection**



**Formalization**



### DISCLOSURE AND APPLICATION

### 4.2

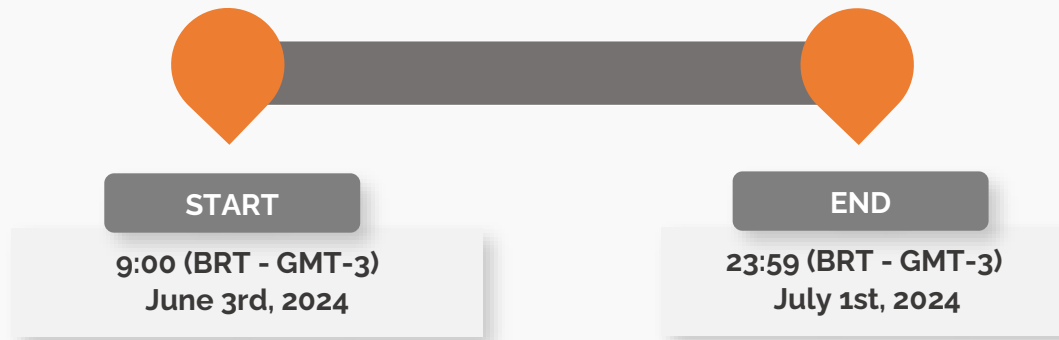
Proposing companies must submit their projects through the online form available on the Mining Lab Challenge website. [Click here](#) to access it.

It is essential to fill in all the information related to your project following the guidelines of the application platform on the program website.

Any mistakes in completing the form, such as inaccurate content and partial fulfillment, will be the sole responsibility of the participant, and no rectification will be accepted after finalization and submission.

**The acceptance of the terms of these Rules and the Confidentiality Agreement is required for the registration to be successful.**

4.3 The application period for the Program is:



## SELECTION

4.4 The selection of projects will be carried out in four main steps:

### 1. Evaluation

At the end of the application period, all registered projects will be evaluated in the Classification Phase, based on the Evaluation Criteria **(Topic 5)**.

Innovative projects and businesses will proceed accordingly to the propositions of each pre-established area and that, at Nexa's sole discretion, have synergy with Nexa's activities and have the potential to solve the challenges faced in the chosen areas of interest.



Pre-approved projects for the next phase must comply with Nexa's standard **Non-Disclosure Agreement (NDA)**, not subject to change, which the parties must sign before the start of the Bootcamp stage. [Click here](#) to check the model.



Proposers who do not carry out this procedure within the stipulated period or refuse to sign the document will be disqualified, thus making it an elimination phase.

## 2. Bootcamp

This step aims to align the pre-selected projects and refine the proposed solution.

At the end of the phase, participants will deliver materials and information previously requested for analysis and evaluation by the Nexa's team.

The projects will be evaluated once more according to the Evaluation Criteria and will be selected for the next stage at Nexa's sole discretion.

## 3. Immersion

In this step, the final alignment of the projects will be carried out with Nexa's technical and management mentors, to revise the value statement for each project, which will be presented to Nexa executives during the next stage.

From that stage, the documentation listed in the [Annex](#) to this regulation may be requested, with the proposing company being subject to disqualification if not presented.

The projects will be evaluated once more according to the Evaluation Criteria and will be selected for the next stage at Nexa's sole discretion.

## 4. Demoday

The Demoday is the opportunity for the proponents to present their proposals to the Program's evaluation panel. This panel is composed of independent and reputable judges whose decisions will be sovereign and unappealable.

The projects will be evaluated once more according to the Evaluation Criteria and will be selected for the next stage at Nexa's sole discretion.



## FORMALIZATION

4.5

Following the Demoday, alignment meetings will be held between Nexa and the participants on a case-by-case basis to identify and draw up the most appropriate agreement for both parties,

4.6

At this point, the commercial and licensing conditions for each of the projects will be defined, which will strictly follow the terms of these Rules.

4.7

If the parties do not reach an agreement, there is no obligation to sign a partnership contract and such a decision will not result in damages for which Nexa can be held responsible, nor will Nexa bear any indemnities in this regard, whether for direct or indirect damages.

### Non-competition

4.8

Proposers and approved projects that sign a contract with Nexa are subject to any non-competition clause that will be analyzed on a case-by-case basis, according to the extension and scope of the project.

# 5

## EVALUATION

### 5.1

At each stage, the proposed projects will be evaluated according to the following criteria:



Adherence to the Challenge:

Evaluate whether the proposed solution appears to be able to solve the problem.



Operational Feasibility

Evaluate the effectiveness of the technologies used in the solution and their degrees of maturity.



Economic Feasibility

Evaluate if the value of the financial proposal presented for the pilot is adherent to the benefit of the solution.



Scalability Potential

Evaluate if there is potential to scale the solution to more Nexa units after pilot validation.



Implementation Period

Evaluate if the development of the proposed pilot is feasible in up to 12 months.

### 5.2

The purpose of these evaluation criteria is to analyze the solution and the evolution of the proposal with new alignments done through the program. However, the selection will be made exclusively according to Nexa's interests.

## 6

## PROGRAM SCHEDULE

### 6.1

The schedule and expected dates for each stage of the **Mining Lab Challenge** program can be consulted on the official website: [www.mininglab.com/challenge](http://www.mininglab.com/challenge)

### 6.2

Any changes to this regulation will be published on this same website.



# 7

## OBLIGATIONS AND RESPONSIBILITIES

The obligations of Nexa and of the participants are to:

**7.1**

Comply with all the terms of the present Rules, as well as those contained in any documents that may be signed between Nexa and the participant.

**7.2**

Actively participate in the events and actions planned for each stage of the program and provide all the information and documents necessary for each program stage.

**7.3**

Authorize Nexa to use the brand, name, and image of the proponents, as well as its partners, employees, and collaborators, for dissemination in internal and external means of communication, free of charge, without limitation of time or territory, for any purpose to be determined by Nexa. The bidder must ensure and submit to Nexa the proper terms of use of the image, which are their exclusive responsibility and competence.

**7.4**

Grant an exclusive, non-revocable, global, and indefinite license to Nexa, relating to all the applicant's image rights, as well as its partners, employees, and collaborators, for Nexa to disclose and expose such images freely with any third parties and for any purposes relating to the program, in any form, material or medium in which such right may be registered or maintained.

**7.5**

Nexa guarantees the confidentiality of all the information and documents provided by the projects, which will only be used for the purposes described in this Regulation.

**7.6**

Nexa is not responsible or liable for any damages or losses arising from the participation in this program, eventual disqualification, or from the eventual acceptance of the benefits by the participants.

**7.7**

Any taxation on the remuneration, investment, or financial transactions to be carried out by Nexa related to the program will be exclusive responsibility of the participant, even if collected by Nexa as determined under Brazilian law. In that sense, the participant shall reimburse Nexa or write off its credit if Nexa has collected tribute on their behalf.

**7.8**

It is hereby established that the acquisition of equity interest in the corporate entities incorporated by the participants to develop the projects is not included in the scope of this program.

## 8

## PROGRAM TERMINATION

### 8.1

The program will be considered terminated for any participant in the following cases:

- ▶ End of the duration of the program.
- ▶ If there is a breach of any clause of the present Rules or of the Confidentiality Agreement or of the final Agreement.
- ▶ In case of insolvency, bankruptcy, or receivership of the participant.
- ▶ If the intellectual property developed within the scope of the project is granted to a third party, even temporarily.
- ▶ On Nexa's initiative, at any time, without the obligation of justification.

### 8.2

Without prejudice to the previous provisions, the program will be considered automatically terminated if the participant is not selected by Nexa to continue in the next steps of the program.

### 8.3

Participants who commit any type of fraud will be summarily excluded and will still be subject to criminal and civil liability, in addition to being held responsible for the damage caused.

## 9

## ADDITIONAL INFORMATION

### Auditing

#### 9.1

Nexa shall have the right to audit or examine, to verify the compliance with the terms of the present Rules or the partnership contract, when appropriate, the faithful execution of the terms set forth in this instrument and in the contract, as well as the books and accounting records of participant. Nexa expressly reserves the right to hire an independent auditor or expert to conduct said audit or examination to the extent that such independent auditor wishes. In a reasonable time after the audit or examination, Nexa may provide the participant with a copy of the report of such audit or examination.

If it is concluded that the participant did not comply with this instrument, the participant will be immediately disqualified from the program. The participant's failure to cooperate, regarding such audit or examination, shall constitute a violation of this instrument, justifying the immediate exclusion of the participant from the program.

### Anti-Corruption, Anti-Money Laundering, and Anti-Trust Statements and Warranties

#### 9.2

The Parties declare that they observe and comply with the "Compliance Laws", as well as maintain internal rules and procedures that ensure full compliance with these laws. For purposes of this provision, it is understood as "Compliance Laws" any laws, domestic or foreign, to which the Parties are subject and that have the purpose of restraining from the practice of corruption or harmful acts to the public administration, money laundering and terrorism, promoting the defense of competition and that deal with economic and commercial sanctions, such as, but not limited to, the Brazilian laws: Law No. 12.846 of August 1, 2013, as amended, Law n°9.613 of March 3, 1998, as amended, Law n°8.429 of July 2, 1992, as amended, Law n°13.260 of March 16, 2016, Decree-Law n°2.848 of December 7, 1940, as amended, Decree n°5.640 of December 25, 2005, Law n°12.529 of November 30, 2011, and also including the U.S. Foreign Corrupt Practices Act of 1977 and UK Bribery Act 2010.

9.3

The Parties are in full agreement and are fully aware that the fulfillment of the provision above mentioned comprises, without limitation:

Abstain from practicing acts of corruption and from acting in a harmful way to the public administration, national or foreign, as applicable, in the interest or for benefit, being it exclusive or not.

Abstain from practicing private corruption acts of any nature.

Act with pro-competitive objectives, promoting the economic interests of the sectors in which they operate.

Assure that the funds used for the execution of their activities have a suitable origin and destination.

9.4

Once the violation of the Compliance Laws by any of the Parties is proven, in any of its aspects, the innocent Party will have the prerogative to immediately, without any burden or penalty, and at its sole discretion, suspend or terminate the object of this instrument or any negotiations, joint projects and/or potential businesses to which it has bound itself with the breaching Party.

9.5

The Parties commit to making their best efforts to protect and preserve the environment, as well as to prevent and combat any aggression, danger, or risk of environmental damage, performing their services in compliance with the laws, regulations, normative acts, and administrative acts related to the environmental area.

The Parties commit to complying with all mining regulations issued by the National Mining Agency, when applicable.

The proponent will make all commercially reasonable efforts to comply with the applicable laws and regulations regarding environmental, social, and corporate governance ("ESG") issues and must anticipate any known or expected future changes related to these topics and take all reasonable actions to ensure their compliance.

## 10 GENERAL PROVISIONS

**10.1** The actions that shall be taken to determine the future capability of the implementation of projects supported by this program will be discussed on a case-by-case basis, timely with all interested parties.

**10.2** All issues related to the protection and/or transfer of intellectual property rights inherent to the projects supported by this program will be subject to individualized analysis.

**10.3** Any changes to these Rules will be posted on the program's website: [mininglab.com.br](http://mininglab.com.br).

**10.4** Throughout the program, communications should be conducted exclusively via email: [mininglab@nexaresources.com](mailto:mininglab@nexaresources.com)

**10.5** Omissions shall be decided exclusively by Nexa, at the discretion of the Board, with no reasoning required.

**10.6** The present document may be altered, suspended, or canceled without prior notice by force majeure or any other unforeseen factor or reason that is outside the control of Nexa and jeopardizes the program to prevent or substantially modify its operation as originally planned.

**10.7** Merely participating of this program implies full knowledge and unrestricted acceptance of these Rules.

**10.8** Any tolerance or concession by Nexa or the program evaluation panel regarding the rights, obligations and responsibilities contained in this regulation shall be interpreted as a mere liberality and does not imply the modification or novation of the terms and conditions stipulated herein.

### Documents that must be presented to Nexa

Below is the list of documents that must be presented by the companies participating - both Brazilian and foreign - when requested<sup>1</sup>:

1. Company's bylaws or incorporation act, according to local law.
2. Shareholders Agreement or equivalent proving the administration's powers and the company representatives.
3. Shareholders registry.
4. Document evidencing the tax good standing of the company in the country of residence.
5. Debt Clearance Certificate issued by the Internal Revenue Service or other competent authority of the jurisdiction of residence.
6. Bank information document for payment procedures.
7. Valid passport for the representative coming to Brazil, for foreign company companies or with a foreign representative.
8. Passport picture, in color.
9. Entry Visa issued by Brazilian Federal Police.
10. Criminal records check for the partners and administrators of the company.



<sup>1</sup> Documents must be handed as requested, in the form of an apostille, according to the Hague Convention, if the company is constituted outside of Brazil.

### Model of Non-Disclosure Agreement (NDA)

[Here](#) is the standard NDA template to be signed by approved Bootcamp participants.