

TERMS OF REFERENCE

Retos Econova

#SosTECnibilidad®

Apoya:



CONNECT

Organizan:



ParqueSoft®
Meta y Amazonia



ECONOVA

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Retos Econova #SosTECnibilidad Open Innovation Exercise Terms & Conditions

August 13, 2025

Before applying to the Econova Challenges open innovation call #SosTECnibilidad®, it is essential to read these Terms and Conditions in their entirety. To participate in the program, these terms must be accepted.

1. BACKGROUND

Science, Technology, and Innovation (ST+i) as a pillar of **Ecopetrol S.A.'s** 2040 strategy, "Energy that Transforms," recognizes the need to adapt, appropriate, develop, and access, through cutting-edge knowledge, the various forms of science, technology, and innovation applied to the group's major competitiveness challenges, the diversification of value sources, the acceleration of the energy transition, decarbonization, and the SosTECnibilidad® agenda, a concept that places technology at the heart of the 2040 strategy to achieve sustainable management in the environmental, social, and governance dimensions.

As a fundamental part of this effort, the **Ecopetrol S.A.** Group's network, Econova, was created in 2023 with the aim of consolidating and developing an ecosystem that seeks to enable solutions and enhance ST+i capabilities in the country, the region, and globally

With seven innovation hubs, the Econova network seeks to facilitate and strengthen access to specialized talent and technology, and ensure local and regional cohesion in the energy sector. They are transmitters of cutting-edge knowledge, articulate ecosystems, and enablers in achieving the goal of a just energy transition.

- Santander Innovation Hub in Bucaramanga for Decarbonization.
- Caribbean Innovation Hub in Cartagena for Energy Transition and Circular Economy topics.
- Antioquia Innovation Hub in Medellín for Electric Power topics.
- Bogotá Innovation Hub focused on the 4th and 5th Industrial Revolutions.
- Valle del Cauca Innovation Hub in Cali focused on Bioenergy.
- La Guajira Innovation Hub in Riohacha focused on renewable energy and gas.
- Meta Innovation Hub in Villavicencio focused on Water, Biodiversity, and Circular Economy topics, the region where this call will be held.

The **Econova Meta** Innovation Hub promotes disruptive thinking, the generation of new solutions to industry challenges, the development of innovative and technology-based ventures throughout the Orinoquia region, as well as the implementation of new and best practices in innovation.

Parquesoft Meta and Amazorinoquia (hereinafter "**ParqueSoft**") is a partner of the Econova Meta Innovation Hub and participates in CT+I initiatives aimed at strengthening the Innovation Hub. In 2024, **Ecopetrol S.A.** and **Parquesoft Meta and Amazorinoquia** consolidated a partnership for the development and execution of CT+I initiatives that incorporate the generation and application of new technological solutions in SostECnibilidad® topics.

As part of this approach, the need to promote an open innovation exercise aimed at solving water and sustainability challenges was defined. The call for proposals is both national and international in scope and seeks to identify technological proposals with a minimum maturity level of TRL ≥ 4 , ensuring an evaluation and selection process for pilot implementation and possible scaling up in operational areas of **Ecopetrol S.A.**

For **Ecopetrol S.A.**, open innovation focuses on using the Science, Technology, and Innovation ecosystem to develop new ideas, products, and/or solutions. Its objective is to boost the development of initiatives, improve competitiveness, reduce operating costs, foster creativity, and strengthen collaboration in the country's different regions.

ParqueSoft Meta and Amazorinoquia is a Technology-Based Business Incubator (IEBT) certified by the Ministry of Science, Technology, and Innovation (MinCiencias), with more than 15 years of experience promoting the incubation and strengthening of innovative ventures in Colombia. During this time, it has supported the consolidation of more than 350 initiatives, providing strategic advice, business model validation, and access to innovation networks.

Its solid track record in managing calls for proposals, coordinating with key ecosystem players, and designing specialized programs has allowed **ParqueSoft** to establish itself as a benchmark in business innovation and acceleration, leading processes that promote the adoption of technological solutions with high impact, both in the market and for the country's sustainable development.

As a result of this alliance between **Ecopetrol S.A. and ParqueSoft**, the Retos Econova #SosTECnibilidad® call was born. In this call, **ParqueSoft** will act as the executor of the resources provided by **Ecopetrol S.A.** and as the operator of the open innovation process. However, **Ecopetrol S.A.**

2. CALL DESCRIPTION

2.1 Objective of the Call

The objective of this call is to select up to three (3) innovative proposals, one for each challenge, capable of developing technological, sustainable, and disruptive solutions that solve the open innovation challenges of **Ecopetrol S.A.**

Likewise, it seeks to strengthen the innovation and entrepreneurship ecosystem by creating spaces that promote the development of innovation capabilities, establishing collaborative networks, and identifying solutions aligned with the needs of **Ecopetrol S.A.** To this end, the possibility of signing an experimentation **contract** or **agreement** with **ParqueSoft** is open.

2.2 Scope

This call seeks to identify innovative, technology-based solutions that can address existing needs at **Ecopetrol S.A.** through the open innovation model. It is expected to contribute to the maturation of proposals with high market potential (**TRL 1 ≥ 4**) and that their maturation will facilitate their projection and scaling at the industrial level, subject to the criteria and needs of **Ecopetrol S.A.**

2.3 Econova Challenges #SosTECnibilidad® Call

At **Ecopetrol S.A.**, needs are identified and, through this open innovation call Econova Challenges #SosTECnibilidad®, three (**3**) challenges are proposed to be solved with the support of the Science, Technology, and Innovation ecosystem.

This call seeks proposals for innovative, technology-based, and sustainable solutions that are applicable and appropriate to the strategic activities of **Ecopetrol S.A.'s** operations, specifically in the plains region of the Meta department, Colombia.

Ecopetrol S.A. promotes open innovation because it recognizes that its knowledge and capabilities are limited and that the ecosystem has disruptive technological alternatives that can generate multiple opportunities for continuous improvement.

3. DESCRIPTION OF ECOPETROL S.A.'S OPEN INNOVATION CHALLENGES

Each **"proponent"** legal entity may submit only one solution proposal per challenge, up to three solutions. Up to two solutions may be selected per **proponent**.

Important: Solutions must be submitted separately and meet the established requirements. If a **proponent** is selected for more than one challenge, the solutions must demonstrate that they are technically distinct and that they meet the objectives and terms of each challenge, as well as the capacity to execute both pilots.

CHALLENGE #1. Diameter of suspended particles in injection water

How could we determine the diameter of suspended particles online in injection water to make faster decisions aimed at mitigating the risk of well plugging?

- Sufficiently mature technology proposals ($TLR \geq 4$) are required to implement a prototype capable of analyzing flow rates between 3,000 and 5,000 BWPD (barrels of injection water/day) in a relevant operating environment in the Orinoquía Region. The solution is capable of determining suspended particle diameters online, thus enabling rapid operational decisions.

The solutions must determine the probabilistic distribution of suspended particle diameters in injection water online and reduce analysis time to avoid or reduce clogging of the reservoir's pores and pore throats. This will maintain well permeability and, therefore, preserve the well's capacity to receive water without increasing the pressure (and energy) requirements of the injection system.

CHALLENGE #2. Capture of suspended solids and precipitates in injection water lines.

¿How can suspended solids and precipitates be captured in the fluid in industrial water pipelines so they can be removed from the system, reducing solid carryover and sediment accumulation?

- Proposals are required for technologies with a sufficient level of maturity ($TLR \geq 4$) to allow for the implementation of a prototype capable of working effectively at injection water velocities between 1 and 10 ft/s (feet per second) and at temperatures between 50 and 85°C (degrees Celsius) in the relevant operating environment of the Orinoquía Region. The solution must capture and extract solids, precipitates, and

sediments in the pipelines without shutting down the flow systems, ensuring a minimum efficiency of 20% in reducing total solids in injection water lines. It is expected that the capture of solids will not require mechanical cleaning (pigging) since this type of solution cannot be applied to the pipelines where the technology would be tested.

CHALLENGE #3. Capture and monitoring of hydrogen sulfide (H₂S) in natural gas.

¿How could we capture hydrogen sulfide (H₂S) diluted in gas during the hydrocarbon extraction, collection, separation, and treatment stages to protect the integrity of the equipment and the health of operators?

- Proposals are required for technologies with a sufficient level of maturity (TLR $\geq$ 4) that would allow the implementation of a prototype capable of working effectively in gas flows between 3.5 and 14 MMcf/day (millions of standard cubic feet per day) in a relevant operating environment in the Orinoquía Region. The solution must capture and/or reduce the concentrations of hydrogen sulfide (H₂S) present in the natural gas associated with production. The solution must provide a removal efficiency of $\geq$ 98% or $\leq$ 4 ppm of H₂S in the gas, ensuring optimal occupational health and safety conditions.

The detailed technical description and characterization of the challenges is available in the corresponding appendices, which can be consulted on the call for proposals website: <https://hubbioeconomia.com/>, in the Econova Challenges section.

- **Annex A:** Challenge #1. Diameter of suspended particles in injection water.
- **Annex B:** Challenge #2. Capture of suspended solids and precipitates in injection water lines.
- **Annex C:** Challenge #3. Capture and monitoring of hydrogen sulfide (H₂S) in natural gas.

4. TARGETED AT:

Proposers may apply to this call individually or as part of a national or international strategic alliance.

In either case, we are seeking legally established **proponents in Colombia and may apply with national or international allies** with science- or technology-based solutions belonging to the following types of actors, among others:

- National and international companies and ventures:** Legal entities, legally incorporated in their place of origin, whose business purpose or strategy includes implementing solutions required for the proposed challenges.

- ii. **Higher Education Institutions (HEIs):** These are academic entities dedicated to professional training, research, and the generation of knowledge in various areas of knowledge. To be officially recognized and supervised, these institutions must comply with the accreditation requirements and processes established by the Ministry of National Education and/or the relevant entity, as applicable.
- iii. **National and international research, technological development, or innovation centers or institutes:** Public or private organizations dedicated to generating fundamental knowledge for their country of origin through basic and/or applied scientific research projects in specific lines of research. A research center can provide technical and management services to its beneficiaries and can focus on generating public knowledge goods and applying them through technological development processes.
- iv. **Public or private organizations and other legal entities legally incorporated in Colombia,** with at least two (2) years of experience prior to the closing date of this call, in the topics relevant to the challenge for which they are applying, in compliance with the qualifying requirements of this call, and who may strengthen their participation through strategic alliances with international actors.

5. INCENTIVES

Legal entities that apply (the "**proponents**") to any of the challenges in this call will be eligible for the following incentives, grouped into the following categories:

Incentive I. Business Relationship

The **proponent** selected as the winner of one of the challenges will be able to begin the negotiation process with **ParqueSoft**. To do so, they must sign a contract or agreement to conduct a pilot (a test in a controlled or real environment), under the conditions established in the corresponding **contract/agreement**.

The purpose of the contract/agreement is to conduct a pilot, aimed at implementing a technical prototype of the selected solution. During the pilot's development, the functionality, benefits, and scalability that the solution can generate will be evaluated, based on the needs established in the corresponding challenge.

Incentive II. Resource pool.

A maximum incentive of up to **\$240,533,000** Colombian pesos (COP) will be awarded to each innovative **proponent** whose solution is selected. This incentive will be used to execute the pilot, including the maturation and demonstration of the technology in a controlled environment or in a real-world setting within **Ecopetrol S.A.'s** operations.

Incentive III. Promoting Relationships

This call represents a valuable incentive for **proponents** who wish to strengthen their participation and connection with the innovation ecosystem. This call encourages the construction of strategic alliances at the national and international levels, knowledge transfer, visibility, and business development.

Note: To qualify for the aforementioned incentives, you must complete all the documentation required in *Section 6: "Qualifying Requirements,"* submit a *successful application in accordance with Section 7: "Application and Requirements Fulfillment,"* and *successfully complete the entire process described in Section 8: "Call, Selection, and Pilot Process" of these Terms and Conditions.*

Incentive IV. Publication and Dissemination of Results

Proposers participating in the pilot may, if interested, generate publications derived from the results obtained, for example, academic articles, papers, or other dissemination formats, as part of their development and visibility in the innovation ecosystem.

The publication of these results will be subject to compliance with **confidentiality** conditions and an assessment of the **sensitivity of the information** for interested parties. In all cases, disclosure must be prior **authorized by the relevant departments of Ecopetrol S.A.**, who will determine the scope, content, and most appropriate form of dissemination.

6. QUALIFYING REQUIREMENTS

The following are the rules that bidders must meet to participate in the call:

I. **Qualifying Requirements for the proposal.**

- 6.1** Comply with the conditions indicated in Section 4 *"Directed A"* of these Terms and Conditions, supported by a certificate of existence and legal

representation issued by a Chamber of Commerce or an equivalent document issued after June 1, 2025.

6.2 Proposal Cover Letter (Annex 1)

This document must be signed by the legal representative of the applicant entity or by whoever is authorized by law and the bylaws. If an attorney-in-fact is appointed, they must have the corresponding legal authority and present the respective express power of attorney, stating the scope of the powers granted.

6.3 Innovative Solution Form (Annex 2)

This form must be duly completed. If the proposal is submitted by a partnership with an international actor, the form must be signed by the legal representative or by whoever is authorized to represent the national **proponent**.

6.4 National or International Strategic Partnership Letter (Annex 3)

If the proposal is submitted as a strategic partnership with a national or international actor, it must include a **letter of intent** to support the partnership, signed by the director of the corresponding institute, center, school, department, research group, or international institution.

Letters of participation must be submitted in Spanish.

It is important to note that a national or international strategic alliance is not considered a co-execution project. 2 The commitments arising from the call for proposals, as well as the respective negotiation exercises, will be the sole responsibility of the **proponent**, who must be a Colombian national entity.

Furthermore, all requirements established in these Terms and Conditions, as well as those related to the possible execution of an experimental contract, must be met exclusively by the **proponent** (national entity).

National and international strategic alliances are aimed at strengthening the transfer of knowledge and technology. Although they are not mandatory for applying to this call for proposals, they will be positively valued and considered as a tiebreaker within the evaluation criteria.

6.5 Certificate of existence and legal representation.

The certificate must meet the following specifications

- The applicant's corporate **purpose** must allow for the activity, management, and operation requested in this call for proposals.

- The applicant entity must have been established for at least two (2) years prior to the call for proposals opening date.
- The applicant must demonstrate and guarantee that its duration (or future operation) will not be less than two (2) years.
- The date of issue of the certificate of existence and legal representation must not be prior to June 1, 2025.

6.6 Accreditation of Experience in the Development of Technology-Based Solutions (Annex 4)

The **proponent** must demonstrate technological experience and at least one (1) success story in similar technologies and/or the proposal in accordance with the technological maturity levels (TRL) described in the Ministry of Science, Technology, and Innovation guide. 3 To do so, they must present at least one certification issued by the corresponding contracting entity, on said entity's stationery, which must contain a satisfactory receipt for the technology-based product or service developed and/or implemented by the **proponent**.

The **proponent's** legal representative or attorney-in-fact must sign and upload the "Accreditation of Experience" form (Annex 4), which must include a brief description of their experience in the technology to be evaluated.

Additionally, they must upload one (1) PDF file supporting their experience. The certification must explicitly refer to the product and its technology-based characteristics.

The experience certification must include:

- Scope and explicit reference to the **proponent's** participation in the certified experience.
- Deliverables from the **proponent**.
- Value in monetary and/or in-kind resources of the contract, project, or agreement, among others.
- Identification data of the commitment under which the certification is issued
- (number, date, purpose, etc)

6.7 Certificate of police, judicial, and tax clearance issued by the corresponding entity.

The bidder must submit a police clearance certificate issued by the Colombian National Police, a judicial clearance certificate issued by the Attorney General's Office, and a Fiscal Responsibility Certificate issued by the Comptroller General's Office.

Note: ParqueSoft reserves the right to verify the information submitted.

6.8 HSE Recommendations for Bidders.

To apply for the call and participate in the selection process, bidders and their allies must prove that they have an Occupational Health and Safety Management System in compliance with Colombian law. This must be demonstrated by a certification from their Occupational Health and Safety Management System (ARL) issued within the last year. This requirement applies only to companies operating in Colombia.

II. Enabling Requirements for the Development of the Pilot Implementation and Experimentation Phase in Ecopetrol S.A.'s Operations

In addition to the requirements described above, the requirements described below must only be submitted and met by the selected **proponent** for the pilot experimentation phase.

6.9 HSE Recommendations for Selected Proponents (Annex 5)

For the execution of the **pilot implementation and experimentation** phase (*Section 8.3*) in facilities where **Ecopetrol S.A.** has operational control, the following considerations must be followed:

- a). If the pilot operation does NOT involve the execution of critical HSE tasks.

The proponent must read, follow, and comply with Annex 5: *HSE Requirements Control 2*, described by **Ecopetrol S.A.**

For the signing of the Initiation Certificate of the experimentation contract/agreement with **ParqueSoft**, the **proponent** must submit:

- I. HSE Plan consistent with the activities of the contract or agreement, which guarantees:
 - Legal compliance with HSE.
 - Risk identification and controls.
 - Hazard identification matrix.
 - Risk assessment and evaluation.
 - Promotion, prevention, and control of the health of workers linked to the contract/agreement.
 - Matrix for identifying environmental aspects and impact assessment.
 - Comprehensive emergency management.
 - Other requirements described in Annex 5: HSE Requirements Control 2.

- II. Certificate of completion of occupational entrance and fitness examinations for the workers in charge.
- III. Certification of compliance with phases I and II of the **Ecopetrol S.A.** safe, clean, and healthy work promotion course or the document that modifies or repeals it; as well as competency for the specialties that require it, issued by nationally or internationally approved institutions, in accordance with Colombian legislation.
- IV. Environmental permits or licenses required to execute the pilot project.
- V. Proof of the Company's or Workplace's Risk Level classification in accordance with the contract/agreement to be executed (ARL Certification, in accordance with Article 2 of Decree 1607 of 2002) described in Section 6.8.

b). If the pilot project includes the execution of one or more of the following activities, considered critical tasks in terms of HSE:

- Work at heights
- Confined spaces
- Excavation
- Mechanical lifting of people and/or loads
- Work in bodies of water
- Entry into or intervention in low, medium, or high-voltage electrical systems
- Intrusive activities that interfere with an operational process and may cause loss of containment of a substance.

In addition to complying with the aforementioned requirements in *sections 6.8 and 6.9*, the bidder must present the following certifications:

- i. RUC (Tax Identification Number), with a minimum score of 80%, issued by the Colombian Safety Council; or b. ISO 45001 certification issued by a certifying entity; or c. Certification under other standards recognized by the oil industry, such as IGS/ISM Code or Norsok S-006, or STOW, issued by a certifying entity.
- ii.L Read, follow, and abide by the recommendations described in *Annex 6: HSE Control 1 Requirements*, established by **Ecopetrol S.A.**

c) If the pilot operation does NOT involve execution within **Ecopetrol S.A.'s** areas of operation, the **proponent** must:

Compliance with Law: The **proponent** is solely responsible to **Ecopetrol S.A.** and to international, national, and local authorities for compliance with the HSE requirements and obligations it assumes under this call, which will be extended to its contractors and suppliers.

6.10. Risks, Considerations, and Requirements in Cybersecurity and Digital Architecture. Annexes 7 and 8

Technological solutions derived from open innovation challenges must consider comprehensive measures to ensure their safe, efficient operation, in accordance with **Ecopetrol S.A.'s** corporate guidelines. This involves ensuring the protection of information, ensuring that the data generated is consistent, traceable, and useful for decision-making, and providing a robust, clear, and well-defined technical architecture that allows for integration with the segmented network infrastructure provided by **Ecopetrol S.A.**

Within the framework of this call for proposals and solely for application purposes, the **proponent** must:

- Read, complete, and complete the form in *Annex 7: Cybersecurity Risks, Considerations, and Requirements*, in order to classify the solution's degree of vulnerability to cybersecurity issues.

If selected, and solely for the purposes of executing the pilot and the implementation and experimentation phase:

- The proponent must incorporate into their proposals the technical requirements described in Section 2. Proposed Architecture Concept of *Annex 8: Digital Architecture Concept. Cybersecurity: Open Innovation Requirements, Challenges*, and, as applicable, the corresponding technical aspects of Section 4.1 of the same attached document.

7. APPLICATION AND REQUIREMENTS COMPLIANCE

7.1 Application and compliance with requirements.

Proposers must apply in a timely manner, meeting the requirements and uploading the documentation required in *Section 6* of these terms and conditions. To do so, each **proponent** must register, complete the *Annexes* to the call for proposals, attach the requested documentation, and accept the Terms and Conditions (T&Cs) that govern this call for proposals.

Once the qualifying requirements have been met and the T&Cs have been read in detail, the **proponent** must submit their application and register according to **ParqueSoft's** instructions.

It is important to note that this form must be completed only once per proposal. If a **proponent** submits more than one version of their proposal during the call for proposals launch and closing period, only the first registration will be considered.

Note:

If deemed necessary, **ParqueSoft** may request clarification or supplementation regarding any of the required requirements. However, this power will be for clarification purposes only and will **not** imply the correction of qualifying requirements.

Therefore, the fact that **ParqueSoft** requests clarifications or additions does not imply automatic accreditation or acceptance of requirements. Such clarifications or additions must be demonstrated through issued documents or certificates, which may be submitted within an additional period after the closing date of the call. The bidder is obligated to respond to this request within the specified timeframe.

7.2 Correction of Requirements

The period for correcting the requirements set forth in this document will be carried out in accordance with the following rules:

- During the review of the qualifying requirements, **ParqueSoft** will verify that the attached documents contain the required information in terms of completeness and relevance. If necessary, it will request the bidder, electronically at the email address provided, to make any adjustments it deems appropriate.
- This request must be responded to within a maximum of three (3) business days after receiving the notification.
- During the requirements verification phase, technical aspects of the proposal, such as the objective, timeline, budget, or strategic alliances, may not be modified.
- If a bidder does not meet the requirements, they will be notified electronically once the validation phase is complete.
- The bidder is responsible for ensuring the reliability, veracity, consistency, and completeness of the information and attachments submitted in the call for proposals. Any information that does not match or is inconsistent will not be considered for further consideration in the call for proposals process.

8. CALL FOR APPLICATIONS, SELECTION, AND PILOTS

8.1 Phase 1: Proposal Selection Process.

Once the proposal is received, compliance with the requirements established in *Section 6: Qualifying Requirements of these Terms and Conditions (T&Cs)* will be validated. If necessary, adjustments or additional information deemed relevant will be requested.

Proposers who meet the qualifying requirements and do not incur any of the disqualification grounds established in these *Terms and Conditions (T&Cs) Section 10: Qualifying Conditions* will be considered and will advance to the next phase of the process.

Preselected applicants will be notified of their progress to the next phase of the process via the email address provided, along with the notifications and results corresponding to this stage of the call.

Notification of Non-Compliance

If the submitted proposal does not meet the requirements established in the Terms and Conditions (T&C), **ParqueSoft** will notify the **proponent** via the email address provided in the application.

I. Expert Workshop for Shortlisted Proposers.

Shortlisted **proponents** will be invited to an **expert workshop (in person or online)** with technical support from **Ecopetrol S.A.**, where each challenge of the call for proposals will be explained. During this session, detailed technical information will be shared, and any concerns that may arise will be addressed. The objective is to prepare and refine the presentation of the **proponents'** solution proposals for **Pitch Day**.

Note: In addition to the expert workshop, **ParqueSoft**, which will be the operator of the call for proposals, may offer opportunities to resolve any questions regarding the process, which will be communicated through various dissemination channels.

II. Signing of Confidentiality Agreements.

To participate in the call for proposals' **Expert Workshop**, shortlisted participants must sign the document entitled: "*Confidentiality Agreement for the Econova Challenges Call for Proposals #SosTECnibilidad®*," which will govern the relationship between the shortlisted proponents, **ParqueSoft**, and **Ecopetrol S.A.**

If a shortlisted **proponent** does not sign the Memorandum of Understanding, **ParqueSoft** may select another participant to replace them for the Expert Workshop.

III. Pitch Day

Shortlisted **proponents** must present their proposals at the Pitch Day (in person and/or virtually), following the guidelines and recommendations previously defined at the Expert Workshop. For this stage, the following will be requested:

Certification of the legal representative: A certification signed by the **proponent's** legal representative must be submitted, certifying, under oath, that the person responsible for presenting the pitch is of legal age in Colombia (>18 years old, through a valid ID card and/or passport) and has a formal relation with the entity (employment contract or service provision). This document must be submitted no later than the same day as the pitch presentation.

Oral presentation and pitch report: The **proponent** must present the proposal, highlighting its unique attributes and business model, ensuring that it meets the challenge defined in the call for proposals.

Updating the Innovative Solution Sheet (*Annex 2: Innovative Solution Sheet - Version 2*): The proponent may update this document within a maximum of three (3) business days after the pitch presentation, incorporating observations and recommendations received during the event.

During this period, **ParqueSoft** may request clarifications, additional information, or call for additional demonstrations from one or more **proponents**.

With the updated proposals, the juries will advance the evaluation process, in accordance with the criteria defined in Section 11. Evaluation Criteria, and will select a single winner for the pilot project for each challenge. These results will be notified electronically, and the winning proponents will be notified through the channels provided by **ParqueSoft** for this purpose.

8.2 Phase 2: Legalization of selected bidders.

After notification of the call winners, **ParqueSoft** will initiate the negotiation processes and pre-contractual procedures necessary for the launch of the pilot implementation and testing phase. For this phase, the budget submitted by the **proponent** in the "Innovative Solution Form" format will be used as a reference.

At this stage, the proponent must sign a technical confidentiality agreement according to **Ecopetrol S.A.** guidelines.

ParqueSoft reserves the right to continue or not proceed with the negotiation with one or more of the solution providers if it finds inaccurate, incomplete, and/or unverified information.

The pilot execution will be technically monitored by **Ecopetrol S.A.**, which will allow **ParqueSoft** to guarantee the relevance of the planning and execution of the associated activities, in accordance with the requirements of the operation. In addition, **ParqueSoft** will ensure compliance with the administrative and financial aspects related to contract supervision.

8.3 Phase 3: Pilot Implementation and Experimentation

The development of this stage may be divided into three phases, although these phases do not constitute a limitation or mandatory condition for its execution.

- **Conceptualization:**

The experimental area will be defined, and the characteristics and conditions of the location where the pilot will be implemented and executed will be reviewed. The applicable procedures, guidelines, and regulations will also be defined.

In addition, the plan for pilot implementation will be designed and disseminated, including awareness-raising and guidance for the team in charge of the operation at the location, to ensure its proper execution. Awareness-raising and community outreach activities may be included, where appropriate.

- **Pilot Implementation and Startup:**

Pilot implementation refers to the physical installation of the technology in the field, technical preparation of the technology, compatibility verification, prior technical documentation, permit management, regulations, HSE training, among others. The necessary permits must be obtained and processed for personnel entry into **Ecopetrol S.A.** operations, and compliance with the regulations applicable to the execution of activities, installations, and adaptations must be ensured.

The **proponent**—with the support of the **Ecopetrol S.A.** technical team—must arrange with the operators of the field where the pilot will be located all necessary certificates (mechanical, electrical, and process) to ensure the safe operation of the proposed system.

In addition, the proponent must comply with the requirements of Section 6.9.

HSE Recommendations (*Annex 5 and/or Annex 6*) regarding Industrial and Process Safety, Occupational Health and Environment (SG-SST), taking into account the regulations described by **Ecopetrol S.A**

Likewise, the required location adjustments for the pilot will be made, as well as the installation of necessary equipment or software, taking into account the previously agreed-upon cybersecurity prevention, correction, and containment measures according to *Annex 7: Cybersecurity Risks, Considerations, and Requirements* and *Annex 8: Digital Architecture Concept. Cybersecurity: Requirements, Challenges, and Open Innovation*.

- **Pilot Experimentation and Operation:**

Experimentation refers to the initiation of testing to evaluate the technology's performance in systems under real-world conditions; data collection, performance evaluation, adjustments, and technology validation, among others. In this phase, the minimum products and/or deliverables defined in the call for proposals will be refined, as well as the specific elements of the innovative proposal, in compliance with the contractual commitment to experimentation

Functional tests will be conducted, and the corresponding modules or parts of the solution will be delivered to **Ecopetrol S.A**, based on the results generated in this phase. Execution reports and results analyses will also be prepared, a business case analysis of the implemented pilot will be conducted, value drivers will be identified, and the investment per unit will be projected.

8.4 Phase 4: Project Settlement.

The process of termination and settlement of the commitments associated with each pilot will be carried out in accordance with the internal operating regulations of **Ecopetrol S.A.** and the guidelines established by **ParqueSoft**.

The total, partial, or null transfer of the prototype to **Ecopetrol S.A.** will be negotiated, in accordance with the negotiation model or contractual vehicle established, as established in *Section 16.4 of Paragraph 16. Intellectual Property* of these Terms and Conditions

Note: The proponent must guarantee compliance with these phases previously described in the times and schedules stipulated by **Ecopetrol S.A.** and **ParqueSoft**.

9. ETHICS AND TRANSPARENCY.

One of the foundations of the credibility of **ParqueSoft Meta and Amazorinoquía** is the independence of its decision-making processes.

To foster this independence, we have agreed on several measures:

1. Definition and scope: We understand a conflict of interest to be any situation or event in which the direct or indirect personal interests of any member of the team, regardless of their level, or those of their family members or associates, are or may come to be in conflict with those of the Foundation, interfere or may interfere with their duties to the Foundation, or lead or may lead them to act for reasons other than the proper and loyal fulfillment of their responsibilities to the Foundation. The interests of people associated with the Foundation include the interests of any of the people with whom they have close personal relationships: spouses, permanent partners, and relatives up to the second degree of consanguinity

2. For our collaborators:

2.1. Managing conflicts of interest

- Any potential, perceived, or actual conflict of interest must be avoided or appropriately managed and acknowledged.
- Individuals involved in a potential, perceived, or actual conflict of interest must refrain from participating in any decision-making or voting process on matters involving such a conflict.
- Everyone associated with the Foundation must be highly cautious and perceptive regarding potential conflicts of interest that could threaten the Foundation's good name, autonomy, and capacity for action.
- Conflicts of interest must be identified and declared by the individual with the potential conflict, or reported by other members or staff members of the Foundation, as soon as they become aware of the existence of such a conflict of interest.
- Conflicts of interest must be reported to the Board of Directors if they involve members of the governing bodies, including the Executive Board; and to the Executive Board if they involve Foundation employees, consultants, and volunteers.
- Follow the Foundation's conflict of interest policy, defined for its collaborators, in all its guidelines.

2.2. Paid Employment Contracts and Consulting Assignments

- Foundation staff may be performing paid work or be employed by other organizations; this work may be undertaken: (i) in the case of work related to corruption, only with the express authorization of the Foundation's Executive Director, and (ii) in all other cases, only if the work is declared as soon as possible.

- Experts working for the Foundation may apply and compete for paid employment or consulting contracts with TI and all its national chapters. However, it is established that no advantages will be offered for awarding such work.
- Staff, experts, and interns associated with the Foundation will accept a confidentiality clause or sign a confidentiality agreement to ensure the proper use of all information the Foundation handles in each of its work.
- Prevent our decisions from being unduly influenced by the prospect of future work with others..

2.3. Gifts and invitations to recreational and cultural activities

No person may accept gifts, donations, invitations to recreational or cultural activities, loans, or any other item of value from any organization or individual if it can be interpreted or perceived that the motivation for these gifts is a desire to influence the Foundation's actions and decisions.

3. For the Foundation:

- Maintain independence from our donors so that the Foundation's decisions and actions do not respond to their particular interests.
- Promote independence in its relationships with state entities or public oversight bodies, encouraging the adoption of objective positions regarding them.
- Accept funds that do not compromise our ability to address issues freely, in-depth, and objectively..
- Obtain resources from various legal sources such as donations, international technical cooperation, contracts for the sale of services, and contributions from members and benefactors to the endowment fund, taking care not to be vulnerable due to dependence on a single source of funding.
- Comply with the Foundation's Conflict of Interest Policy in cases where bidding and contracting processes for services are carried out that involve collaborators or the Board of Directors.
- The Foundation will be transparent in its decision-making processes when contracting for paid work and will follow transparent procedures for conducting competitions.
- In line with its contract and consulting policy, the Foundation reaffirms its commitment to developing quality work that conforms to the principles and values of the movement and is aligned with its mission, with due seriousness, responsibility, transparency, independence, and accountability.

- The Foundation does not guarantee the absence of corruption and will refrain from awarding seals of good conduct to the organizations with which it works.

Proposers, including their members, legal representatives, partners or shareholders, or their close relatives, must assess whether there may be any conflict of interest, ineligibility, or incompatibility that could impact their participation in this open innovation call if they are selected and meet all requirements. Please note that this assessment will be an integral part of the call and that it is the proponent's duty to promptly disclose any potential conflict of interest, ineligibility, or incompatibility.

Conflict of Interest: There must be no family, employment, commercial, or corporate relationship between **ParqueSoft/Ecopetrol S.A.** and the beneficiary applicant company. If a potential conflict of interest is identified, the applicant company and **ParqueSoft Meta/Ecopetrol S.A.** must inform the technical evaluation committee, which will determine whether the application can be accepted. If the conflict cannot be resolved and a cause exists that affects the impartiality of the process, the application will be rejected.

10. DIQUALIFYING CONDITIONS

Disqualifying conditions are considered to be any factors related to the manner, time, and place, whether objective or subjective, as well as background or circumstances related to the applicant registered for the call, that prevent them from continuing in the selection process or, even if they have obtained the corresponding benefit, make it impossible for them to enjoy it.

ParqueSoft reserves the right to evaluate or include on the shortlist for the Pitch those applicants who present any disqualifying condition.

I. Disqualifying Conditions for the Bidder and/or Strategic Partners:

10.1 Failure to meet the requirements and guidelines established in these Terms and Conditions of the call, or failure to correct observations within the established deadlines.

10.2 2 Failure to meet the minimum experience requirements established in *Section 6.6: Proof of Experience in the Development of Technology-Based Solutions*.

10.3 Failure to timely submit, and within the established deadlines, the documents required in these Terms and Conditions.

10.4 Altering any of the required documents requested in *Section 6: Qualifying Requirements*.

10.5 Submitting false information and/or having legal charges or proceedings open against them for such a situation.

10.6 Failure to comply with the legal requirements for signing the experimentation **contract/agreement** if the Bidder is a beneficiary of this call.

10.7 Failing to comply with any of the grounds for disqualification or incompatibility established in the Constitution, the law, and regulations, which prevent contracting with **ParqueSoft**.

10.8 Attempting to intervene, influence, or improperly access information within this process, or submitting the application by any means other than those provided for in this document.

10.9 Failing to comply with the provisions of the Code of Ethics in these Terms and Conditions.

10.10 Using information without legal authorization or without complying with current copyright regulations.

10.11 Carrying out actions that violate the conditions of fairness, equality, and free competition that govern this Call for Proposals.

10.12 Having a police, judicial, or tax record. The presentation of a police, judicial, and tax record certificate issued by the corresponding entity will be required.

10.13 Violation of anti-corruption and bribery regulations, anti-money laundering regulations, and anti-terrorist financing regulations.

II. Conditions Disqualifying the Proposal:

10.14 Failure to comply with the minimum conditions and requirements established in these Terms and Conditions.

10.15 Including conditions other than those established in these Terms and Conditions

10.16 Failure to meet the minimum requirements of the PDS (Product Design Specifications) and restrictions defined in the technical characterization sheet for each challenge.

10.17 The technology proposed as an innovative solution is below TRL 4 (Technology Readiness Level), that is, the technology is not a technologically

developed prototype and does not have a history of proof of concept, component validation in laboratory testing, and/or small-scale development.

10.18 Submitting a proposal value—in terms of financial resources—that exceeds the maximum funding amount for the pilot (approximately COP 240,533,000).

11. EVALUATION CRITERIA

Proposals submitted within the deadlines established in this call and that meet all the requirements will be evaluated based on the following criteria.

Description of the Criterion	Score
1. Relevance of the proposal: The consistency between the challenge and the proposed solution will be evaluated, considering the methodology, expected results, budget, and timeline.	15
2. Technical quality of the proposal: The quality and trajectory of the innovation process that led to the development of new products (goods and services) or value-added processes (new or significantly improved) will be assessed. The proposal's relevance and technical consistency for the pilot's implementation will also be analyzed.	20
3. Level of innovation of the proposal: The differentiating elements with respect to the market and the state of the art will be evaluated, as well as the degree of innovation of the proposal in relation to new products (goods and services) or value-added processes (new or significantly improved).	15
4. Proponent's experience: The proponent's experience in activities specific to the sector and the specific experience with the technology that will be evaluated in the pilot will be analyzed.	10
5. National or international strategic alliances: This score will only be assigned to bidders who participate in a strategic alliance with national or international players in the sector. The degree of assurance and support in the technical quality of the proposal will be assessed, under the conditions established in these Terms and Conditions.	5
6. Proposal's technical team: The professional profile and experience level of the technical team and their partners proposed for the pilot's execution will be evaluated.	10

7. Business model: The business model associated with the proposal must demonstrate not only its market potential, but also the cost-effectiveness of the technology relative to existing offerings.	10
8. Environmental Sustainability: Proposals must consider minimal environmental impact relative to the challenge, based on the proposed technology. The sustainability of the associated inputs and processes will also be assessed.	10
9. Job Creation: These points will only be awarded to proposals that generate at least one new job within the corresponding pilot (whether through an employment contract, provision of services, among others). One (1) new job: 2 points. Two or more new jobs: 5 points.	5
Total	100

Tiebreaker: In the event of a tie in the final score, preference will be given to those bidders who participate in strategic alliances with national or international actors.

12.DURATION AND FINANCING

A total of up to TWO HUNDRED FORTY MILLION FIVE HUNDRED THIRTY-THREE THOUSAND THREE HUNDRED THIRTY-THREE (240,533,333) COLOMBIAN PESOS (COP) is available per challenge, earmarked to fund each of the technology-based solutions selected in this call. These resources are provided by **Ecopetrol S.A.**, through a partnership with **ParqueSoft**, the call operator.

The purpose of this incentive is to ensure that resources are used strategically in key areas for the pilot's consolidation. Therefore, 100% of the capital granted must be allocated to one of the following lines, all focused on product improvements.

Approved uses:

Approved uses:

- Development and optimization of prototypes.
- Technical validations, certifications, and quality testing.
- Incorporation of technologies for industrial scalability.
- Implementation of improvements in the pilot's efficiency, design, or sustainability.

Each selected bidder must submit an investment plan that justifies the use of the allocated resources.

The investment plan must include the investment concept, amount, investment objective, justification, and associated deliverables.

The funds allocated must be invested during the period established for the pilot project.

Monitoring will be conducted to ensure the investment has a strategic impact.

Evidence of the use of resources will be required through invoices and corresponding documentation.

12.1 Duration of the Pilot Implementation and Experimentation Phase (Section 8.3)

This phase is divided into two stages. The first stage is Pilot Implementation, which refers to the physical installation of the technology in the field of operation, technical preparation of the technology, compatibility verification, prior technical documentation, permitting, regulations, HSE course, among others. The maximum duration for the implementation of the pilot in **Ecopetrol S.A.'s** fields of operation is **(01) MONTH**, counted from the date of signing the experimentation contract/agreement with **ParqueSoft**.

The second stage is Experimentation, which refers to the initiation of testing to evaluate the technology's performance in systems under real-life conditions; data collection, performance evaluation, adjustments, and technology validation, among others. The maximum duration for this experimentation process, including the closure and liquidation of the pilot, will be up to **(06) SIX MONTHS**, starting once the pilot is implemented in the field.

Once the experimental phase is complete, administrative, legal, and financial closure must be ensured, where the results obtained will be evaluated based on the existing legal framework.

13. CONFIDENTIALITY CLAUSE

13.1 All content, documentation, and information of any kind submitted or sent by the proponents, whether as Disclosing Party or Receiving Party (reciprocally), their representatives, and their work teams, within the framework of the call for proposals and the execution of the pilots, will be treated confidentially by ParqueSoft and its team. Furthermore, the information submitted will not be used or published for purposes other than those agreed upon in the Call for Proposals and the pilots.

- 13.2** Confidential Information is considered to be any information submitted in written, visual, verbal, or analogous, electronic, or digital format, belonging to the Disclosing Party or over which any type of right is detected. Confidential Information may include, but is not limited to, concepts, worksheets, compilations, comparisons, studies, summaries, recordings, and records, whether partial or complete, that have been prepared with information provided by the Disclosing Party or for the benefit of the Receiving Party and that contain or reflect such information and state that it is confidential.
- 13.3** The proponent teams voluntarily and expressly agree that all information submitted and sent for their participation in the Call for Proposals will be used and analyzed for the purpose of selection, participation in the process, and statistical analysis. The information received will be handled under computer security and confidentiality measures to ensure its integrity and prevent unauthorized disclosure.
- 13.4** The Parties, meaning the proponents, **ParqueSoft, and Ecopetrol S.A.**, agree to maintain strict confidentiality and not to make improper or unauthorized use of any Confidential Information, whether documented or not, that they receive from each other during the development of the Call for Proposals. This obligation extends to information that is their property or that of third parties, except with prior, express, and written authorization from the owner.
- 13.5** The **Proponents** shall guarantee that, during all phases of project execution, they will only provide access to confidential information to the work team and to the sections where it is essential, and that they will implement technical and operational measures to ensure the confidentiality of the information submitted by **Ecopetrol S.A.** and **ParqueSoft**. These measures must include the signing of confidentiality agreements by all collaborators. If requested by **Ecopetrol S.A.** and **ParqueSoft**, the Proponent must demonstrate compliance with these aspects.
- 13.6** The Parties understand and accept that the obligations established in this clause will be enforceable even after the closing of the call for proposals and the completion of the pilot projects. However, the confidentiality obligation will remain in effect as long as the Confidential Information continues to be considered as such by the Owner Party, regardless of the time elapsed since the expiration of the term agreed in this clause or any extensions. If the Parties wish to extend the validity of this obligation, they may do so by mutual agreement and in writing, providing notice at least two months prior to the termination of the pilot experimentation contract or agreement, through a contractual addendum.
- 13.7** Failure by the bidders to comply with this obligation will result in their immediate withdrawal as candidates from the process and an obligation to

compensate for any damages caused. Furthermore, the penalty clause will be applied in accordance with the Confidentiality Agreement signed with Ecopetrol S.A. for the purposes of legalization and execution of the pilot project.

13.8 This obligation extends to the bidders' employees, subcontractors, suppliers, and allies who have access to confidential information. The Receiving Party shall be responsible for ensuring that subcontractors, employees, suppliers, or allies make appropriate use of the Confidential Information received. To this end, the Proposer undertakes to have confidentiality agreements signed with said personnel.

13.9 Upon termination of the Confidentiality Agreement signed for the Expert Workshop, the Parties shall immediately and, as appropriate, destroy or return all confidential information disclosed by their counterpart that is in their possession, if requested by the Disclosing Party.

13.10 Confidential Information may only be disclosed or disseminated in the following cases:

- i. With the prior written approval of the Disclosing Party.
- ii. When the disclosure and/or release of the Confidential Information is required by legal mandate, court order, or competent administrative authority in the exercise of its functions. In this case, the Receiving Party must immediately notify **ParqueSoft** upon becoming aware of this obligation, so that the Disclosing Party can take the necessary or appropriate measures to protect the Confidential Information. Furthermore, the Receiving Party undertakes to adopt measures to mitigate the effects of such disclosure and to limit itself to disclosing only the information strictly required by the competent authority.
- iii. When the Confidential Information is or becomes public domain due to a cause other than an act or omission of the Receiving Party.
- iv. When the Confidential Information was in the possession of the Receiving Party prior to receiving it from the Disclosing Party, or if it was acquired from a third party who was obligated to maintain confidentiality with respect to the Disclosing Party.
- v. When the Parties expressly state that the information is no longer confidential.

The confidentiality obligation stipulated in this clause shall be understood without prejudice to information exchanged between the Parties for the purpose of disclosure for commercial, administrative, technical, operational, logistical, or advertising purposes inherent to the normal fulfillment of the process.

14. OBLIGATIONS OF THE PROPOSERS

By participating in this call for proposals, applicants agree to:

- 14.1** Participate in good faith in the open innovation call for proposals with the aim of developing the proposed challenges.
- 14.2** Carefully study these Terms and Conditions, the challenge, and any additional information generated within the framework of this open innovation call. They must also exercise due diligence to comply with the established conditions.
- 14.3** Conduct the studies and verifications they deem necessary for the formulation of their application, including, among others, technical, accounting, tax, and travel studies. Proposers will assume all expenses, costs, taxes, and risks involved, without the possibility of reimbursement under any circumstances.
- 14.4** Comply with the regulations and procedures established by **ParqueSoft** during all stages of the call for proposals, as well as with the guidelines of **Ecopetrol S.A.** during the pilot experimentation phase.
- 14.5** During the pilot implementation and testing phase, strictly follow and comply with all HSE and cybersecurity considerations and recommendations applicable to **Ecopetrol S.A.** assets and operations.
- 14.6** Attend all activities, meetings, work sessions, and events scheduled within the process, whether in person or virtual.
- 14.7** Designate an authorized representative to act as the primary contact throughout the entire process.
- 14.8** Maintain the confidentiality of the information shared, as well as that of any other participant in the process.
- 14.9** Collaborate actively and constructively with the other participants or any other stakeholders involved in the process.
- 14.10** Inform **ParqueSoft** of any relevant changes in its legal, financial, or operational situation that may affect its participation in the process, both during the call for proposals and during the pilot experimentation and execution phases.

- 14.11** Comply with the legal, regulatory, and ethical provisions applicable to its participation in the process, including, but not limited to, those related to intellectual property, data protection, and fair competition.
- 14.12** Immediately report any conflict of interest that arises during your participation in the call for proposals and follow the instructions provided by **ParqueSoft** for its resolution.
- 14.13** Comply with **ParqueSoft's** decisions and recommendations regarding your participation in the process, including, but not limited to, the selection of solutions, the implementation of pilots, and the evaluation of results.
- 14.14** Accept that final decisions regarding the selection of solutions, the implementation of pilots, and any other activities related to the process will be subject to **ParqueSoft's** sole discretion.
- 14.15** Comply with any other obligations or requirements established by **ParqueSoft** within the framework of this call for proposals.

15. SCHEDULE

Following the publication of this Econova Challenges #SosTECnibilidad® call, the activities detailed in the schedule will be moved forward. **ParqueSoft** may introduce changes to the schedule, which will be published on the dissemination channels provided by **ParqueSoft**. Proposers will act diligently and remain attentive to any developments.

SCHEDULE		
Milestone	Description	Date
opening of the call	launch of the call for applications.	Thursday, August 28, 2025
1st Resolution of Doubts	The challenges will be presented, and any questions regarding documentation, management, and/or requirements associated with them will be addressed. The call for the session will be published on the available dissemination channels	Monday, September 8, 2025
2st Resolution of Doubts		Friday, September 26, 2025

3st Resolution of Doubts		Thursday, October 9, 2025
4st Resolution of Doubts		Thursday, October 23, 2025
5st Resolution of Doubts		Monday, November 3, 2025
Correction of applications and qualifying requirements	demonstrated by issued documents or certificates. The proponent is obligated to respond to this request within the specified period.	September to November 10, 2025
Closing of the Call	Deadline for bidders to submit their applications..	Friday, November 21, 2025 at 4:00 PM
List of shortlisted candidates	The participation requirements are verified, and the applicants who continue in the selection process are published.	Wednesday, December 3, 2025
Expert workshop	The technical experts associated with each challenge will present and clarify the technical concerns of the proponents, associated with the challenges and/or proposed solutions. In-person or virtual.	Friday, December 5, 2025
Pitch Day	Sessions are scheduled and held to present innovative proposals before juries selected for this purpose..	From December 11 to 12, 2025
Evaluation process	Proposals will be evaluated based on the evaluation criteria.	Wednesday, December 17, 2025
Publication of Winners	The submitted proposals are evaluated according to the defined criteria, and the final results are published.	Friday, December 19, 2025

Note: ParqueSoft, whenever it deems appropriate and without justification, reserves the right at any time to declare this call void, suspend, or terminate it, or modify the above schedule and/or terms and conditions, without giving rise to any claim or compensation for the bidders. Should any of these situations arise, this will

be published via an addendum on the dissemination channel provided by **ParqueSoft** for this purpose.

16. INTELLECTUAL PROPERTY

16.1 Prior Rights and Obligations:

The Proposer represents and warrants that:

- 16.1.1 They have sufficient rights to the technologies that are part of their application and/or that are incorporated, directly or indirectly, in the execution of this initiative, as applicable.
- 16.1.2 Consequently, they hold the intellectual property rights that may be required for this purpose and/or have the license or authority over them, and that such rights are sufficient to allow them to comply with the obligations arising from this call.
- 16.1.3 They guarantee that, at the time of executing the proposal, they have all the licenses and authorizations required to carry out the respective developments. This includes, but is not limited to, having the licenses or authority that allow them to use the computer systems, software, images, and other aspects that are part of their exercise. Likewise, they declare and guarantee that the proposals they will formulate are their property or that they will adequately cite their source, and they undertake not to violate any third-party rights.
- 16.1.4 They will hold **ParqueSoft and Ecopetrol S.A.** harmless from any claims received from authorities or third parties related to intellectual property that is required for their participation and continued participation in the Call for Proposals and the execution of the pilot projects.
- 16.1.5 By submitting to this Call for Proposals, they are not violating the intellectual property of third parties, including, but not limited to, copyrights, related rights, trademarks, slogans, logos or trade names, designs, patents, integrated circuit layout designs, industrial or trade secrets, privacy, or the image of a third party.
- 16.1.6 They recognize that this is a space for open and collaborative innovation, in which **proponents** present their solutions to the challenge posed. The aspects presented therein do not necessarily acquire the character of intellectual property rights, so each **proponent** is responsible for selecting the information they will disclose within the framework of the exercise.

16.2 Existing intellectual property rights:

- 16.2.1 Participation and selection in this call does not imply the transfer of intellectual property rights over which the **proponent** has proven ownership.
- 16.2.2 All intellectual property rights existing prior to the start of the implementation of the challenges funded by this call for proposals are and will remain the property of the owner.
- 16.2.3 The **proponent** respects and protects the intellectual property rights of **ParqueSoft and Ecopetrol S.A.** In this regard, it undertakes to take the necessary steps to prevent these rights from being infringed by its personnel or third parties related to its activities. It also undertakes to promptly report any situation or event that may involve a violation of these intellectual property rights, related to the implementation of the projects funded under this call for proposals, of which it becomes aware.
- 16.2.4 **Ecopetrol S.A.** will respect the existing intellectual property rights of the **proponents** and undertakes to take the necessary steps to prevent such rights from being infringed by its personnel or third parties related to the **proponent's** activities.
- 16.2.5 By issuing or submitting to this call for proposals, no ownership rights, and in general no rights of any kind, are granted over the intellectual property owned by the **proponent** and/or **Ecopetrol S.A.** Consequently, no participant may use the intellectual property of others without their prior express written authorization.
- 16.2.6 The **proponent** must disclose the intellectual property rights currently in force or in the process of being protected regarding the proposed technology at the time of submitting its application to this call for proposals. This does not imply an obligation to reveal trade secrets or intellectual property that has not been disclosed, nor does it imply the evaluation of technologies.

16.3 During the implementation and testing of the solution, the proponent must:

- 16.3.1 Ensure that the technological solutions developed during the implementation and testing phase of this call are original creations whose intellectual property rights belong to the proponent.
- 16.3.2 Maintain an inventory of the intellectual property generated within the framework of the execution of the allocated resources. This inventory must

include a list of inventors and/or authors (individuals involved) and associated creations.

16.3.3 Respect the moral rights of authors and/or creators.

16.3.4 Comply with the obligations established in this section regarding Intellectual Property. The proponent acknowledges that, if it fails to comply with any of these obligations, it will not be possible to access the financing mechanism; therefore, it must return the entire amount allocated, applying the rate provided in *Section 12: Duration and Financing*.

16.4 Finalización de la fase de experimentación de pilotos y cierre:

16.4.1 The completion of the pilot experimentation phase by the **proponents** does not automatically imply the transfer of intellectual property rights or prototypes over which they have accredited and/or registered ownership.

16.4.2 At the end of the pilot experimentation phase by the **proponents**, and if this generates new creations during the execution of this call for proposals that are susceptible to protection as intellectual property, **Ecopetrol S.A.** will have the option to acquire the proprietary rights to the technology if it deems it appropriate. Therefore, the **proponent** agrees to partially assign the proprietary rights to said intellectual property to **Ecopetrol S.A.**, if the latter expresses interest in doing so.

16.4.3 The percentage transferred will correspond to that defined in any intellectual property agreement between Ecopetrol and the proponent. This acquisition will be expressly agreed upon in other contractual documents with **the proponent** once the pilot experimentation phase is completed.

16.4.4 In the event of a transfer of intellectual property rights, the **proponent** must ensure that the personnel involved in the generation of such rights sign the necessary transfer agreements. The formats defined by **Ecopetrol S.A.** must be used, and the signed documents must be sent to the proponent.

16.4.5 In the event that **Ecopetrol S.A.** is not interested in the generated intellectual property, it will continue to belong to the **proponent**, and **Ecopetrol S.A.** does not undertake to enter into any subsequent contract or agreement based on this call for proposals.

17. RESERVATIONS AND LIMITATIONS

- 17.1** The information provided by the applicant and their team for the purpose of participating in this call for proposals will be used solely for evaluation and use in the selection process. This document is limited to establishing the conditions and terms of the Call for Proposals and therefore does not constitute, under any circumstances, an employment, commercial, or contractual relationship with the participants, beyond what is expressly provided herein. Consequently, it should not be considered a promise to initiate business or establish commercial relationships.
- 17.2** The **bidder** must participate in the call freely and voluntarily, exonerating **ParqueSoft** and **Ecopetrol S.A.** from any liability for the information provided and understanding that it must be correct, truthful, and complete. The bidder assumes full responsibility for any lack of truthfulness or accuracy of the information, and in such cases, **ParqueSoft** may deny, withdraw, or suspend the bidder.
- 17.3** Selected **bidders** must assume all costs associated with their participation in the call, including travel, accommodation, and other expenses. Expenses exceeding the amount provided for the call must be borne by the bidder.
- 17.4** The bidder acknowledges and agrees that they may not use the call website to upload, publish, or share illegal content that violates the legal terms, public order, or morality, or that may cause harm.

Any content that is disrespectful, defamatory, vulgar, obscene, racist, xenophobic, or that causes harm or damage to ParqueSoft, its equipment, or third parties in any way is prohibited. Likewise, no advertising or commercial content may be uploaded, nor may content that infringes the intellectual property or copyright rights of third parties, nor may any material be uploaded without the authorization of the rights holders. Content that contains viruses, harmful files, or any other element that affects the operation of the software, hardware, or telecommunications systems is also prohibited.

- 17.5** **ParqueSoft** may, at any time, automatically disqualify or exclude, without prior notice, any bidder who alters or affects the operation of the call website or violates the established terms.

18. CONSIDERATIONS

- 18.1** This document constitutes solely an invitation to apply for an exercise aimed at promoting innovation. Under no circumstances may it be considered as an offer or proposal for a contract by ParqueSoft, nor will it

generate any contractual liability. ParqueSoft is not obliged to select any of the solutions presented or to advance contractual procedures that are only activated after the completion of the innovation process.

18.2 ParqueSoft reserves the right to modify the schedule, terms and conditions (T&Cs), or close this invitation early, as well as to reject any participation proposal if it deems it appropriate. This may be done without any explanation to the interested parties and without giving rise to any right to indemnification, compensation, or any claim.

18.3 ParqueSoft will not be liable for any damages that the **proponents** may suffer during the activities associated with the invitation.

18.4 This invitation does not constitute a partnership, joint venture, consortium, commercial agency, or any other type of relationship between the proponents and **ParqueSoft**. Any agreement entered into must be in writing and signed by an authorized representative of **ParqueSoft** or the corresponding partner, if applicable.

19. PROCESSING OF PERSONAL DATA .

ParqueSoft Meta y Amazorinoquía:

Privacy notice and express authorization for the processing of personal data. FUNDACION PARQUE TECNOLOGICO DE SOFTWARE, CIENCIA, TECNOLOGIA E INNOVACION DEL META Y LA AMAZORINOQUIA, in compliance with the provisions of Law 1581 of 2012, Regulatory Decree 1377 of 2013, and our personal data protection policy, informs you that the personal data you provide by virtue of the transactions you request or enter into with FUNDACION PARQUE TECNOLOGICO DE SOFTWARE, CIENCIA, TECNOLOGIA E INNOVACION DEL META Y LA AMAZORINOQUIA will be processed through the use and maintenance of technical, physical, and administrative security measures to prevent unauthorized third parties from accessing the data. This is in accordance with the provisions of the Law, the performance of public functions delegated by the State, and those inherent to its trade union activity.

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20. PROPOSAL DOCUMENTS

Annex A	Challenge #1 data sheet. Particle diameter.
Annex B	Challenge technical sheet #2. Solids capture
Annex C	Challenge #3 Fact Sheet. H ₂ Sulfide in Gas.
Annex 1	Proposal cover letter
Annex 2	Innovative solution sheet
Annex 3	National or international strategic alliance letter
Annex 4	Proof of experience in developing technology-based solutions
Annex 5	Requirements in HSE Control 2
Annex 6	Requirements in HSE Control 1
Annex 7	Risks, Considerations, and Requirements in Cybersecurity
Annex 8	Digital Architecture Concept. Cybersecurity: Requirements and Challenges of Open Innovation
Annex 9	Call schedule.

Technology Readiness Levels (TRL)¹

- **TRL 1** - Basic principles observed: This corresponds to the lowest level of technological maturity. Basic scientific research begins. The transition to applied research begins. In this development phase, there is no commercial application yet.
- **TRL 2** - Technology concept formulated: In this phase, potential applications of the technologies and analytical tools for simulation or analysis can begin to be formulated. However, there are no tests or analyses to validate this application yet.
- **TRL 3** - Experimental proof of concept: This phase includes research and development (R&D) activities, including analytical testing and laboratory-scale testing aimed at demonstrating the technical feasibility of the technological concepts. This phase involves the validation of the components of a specific technology, although this does not result in the integration of all components into a complete system.
- **TRL 4** - Validation of components/subsystems in laboratory tests: In this phase, the components that make up a given technology have been identified, and the goal is to establish whether these individual components have the capabilities to act in an integrated manner, functioning together in a system.
- **TRL 5** - System/subsystem/or component validation in a relevant environment (or industrially relevant in the case of key enabling technologies):

¹ Ministerio de Ciencia, Tecnología e Innovación, convocatoria número 914 anexo 9 niveles de madurez tecnológica (TRL) y de manufactura (MRL) Disponible en: https://minciencias.gov.co/sites/default/files/upload/convocatoria/anexo_9_niveles_de_madurez_tecnologica_y_de_manufactura-trl_y_mrl.pdf

The basic elements of a given technology are integrated so that the final configuration is similar to its final application. However, the operation of the system and technologies still occurs at the laboratory level.

- **TRL 6** - Demonstration/validation of a system, subsystem, model, or prototype in an environment with relevant conditions close to real-life/operational conditions: In this phase, it is possible to have pilot prototypes capable of performing all the necessary functions within a given system, having passed feasibility tests under real-life/operational conditions. Components and processes may have been scaled up to demonstrate their industrial potential in real systems
- **TRL 7** - Complete system/prototype demonstrated in an operational environment: The system is in or close to operating at a pre-commercial scale. It is possible to carry out the manufacturing aspects identification phase, life cycle assessment, and economic evaluation of the technologies, with most of the functions available and tested.
- **TRL 8** - Complete and qualified system through testing and demonstrations in operational environments: In this phase, the technologies have been tested in their final form and under assumed conditions, having, in many cases, reached the end of system development.
- **TRL 9** – Operational system: Technology/system in its final phase, tested and available for commercialization and/or production.