Summary of Ecopetrol's Business Risk Map

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Ecopetrol's Business Risk Map

		Hydrocarbons	Energies for the Transition	Transmission and Roads
Sustainability	Lagging on commitments to mitigate climate change, water neutrality, and biodiversity related to market and stakeholder expectations	●	●	
	Gas and power self-generation businesses that do not comply with strategic challenges	●	●	
Financial, regulatory, and compliance	Impact on financial sustainability and value creation	●	●	●
	Strategic misalignment of subsidiaries with respect to the expected value of business lines	●	●	●
	Conduct inconsistency with ethical and compliance standards	●	●	
	Changes in the legal and regulatory environment that may affect the continuity of business operations	●	●	
Operations and business environment	Constraints on the incorporation, protection, and sustainability of hydrocarbon resources and reserves	●		
	Organizational structures that do not adequately enable the execution of the corporate strategy	●	●	
	Impacts on strategic challenges due to conflict in the territories	●	●	
	Major incidents with human, environmental, and operational consequences	●	●	
Technology and innovation	Erosion of digital trust and operational disruption arising from cyber threats	●	●	

1. Lagging on commitments to mitigate climate change, water neutrality, and biodiversity related to market and stakeholder expectations

Description

Ecopetrol's lag in implementing commitments and obligations related to market and stakeholder expectations, associated with the promise to generate value with sustainability in the topics of climate change, water neutrality, and biodiversity for its business lines in the context of the energy transition, industry demands, changing environmental conditions, growing regulatory requirements, and pressure to achieve financial goals.

Causes

- Operational infrastructure with low resilience to changing environmental conditions.
- Limitations in the timely and efficient incorporation of technologies to reduce emissions and manage water by business lines.
- Lack of knowledge or limited monitoring of the issuance of new regulations, requirements, or additional demands.
- Modification and/or updating of corporate strategy that affects medium- and long-term commitments.
- Questioning from stakeholders that could affect the company's reputation and/or lower its ratings on radars.
- Lack of alignment among the areas involved in complying with the plans defined in the roadmaps.
- Lack of integration of extreme climate scenarios into strategic planning.
- Insufficient knowledge of the impacts associated with natural capital that may affect the fulfillment of goals, commitments, or expectations.

Consequences

- Reputational damage among investors, ESG rating agencies, stakeholders, and communities.
- Decreased confidence in the company's environmental management.
- Reduced competitiveness compared to peers who are advancing more rapidly in environmental commitments.
- Penalties, fines, or operational restrictions resulting from non-compliance with national or international environmental regulations.
- Loss of positioning in sustainability indices, affecting the financial market's perception and valuation of the company.
- Limitations on access to green or sustainable financing.
- Greater exposure to physical risks, which can impact operational continuity, production costs, and the resilience of critical assets.

2. Gas and power self-generation businesses that do not comply with strategic challenges

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Description

Ecopetrol's gas and energy business opportunities (new businesses, projects, and initiatives) as an electricity self-generator or to increase gas supply and maintain market position, which may not be incorporated, be incorporated in a displaced or inadequate manner, prove unprofitable or unsustainable, and/or lack strategic fit. This risk is part of an environment characterized by high uncertainty regarding the direction of the energy transition and a lack of knowledge of complex contexts for project development.

Causes

- Weaknesses or ambiguities in the regulatory and public policy framework for the implementation of electricity and/or self-supply projects.
- Regulatory obstacles to the operationalization of remote self-generation (regulation and adoption in the Ecopetrol Group).
- Lack of electrical infrastructure for the operationalization of remote self-generation.
- Obsolescence of technologies/infrastructure for centralized information management of energy supply sources.
- High CAPEX requirements to modify the energy matrix with a higher percentage of renewable sources.
- Lack of clarity regarding value propositions, guidelines, regulation, and return measurement that enable energy community projects.
- Environmental, territorial, and social unfeasibility of projects.
- Failure to manage the correct transfer of new businesses to operations.
- Weaknesses in the definitions of the relationship of the Corporate Model for the management of the business line.
- Insufficient gas supply to meet demand and lack of market development for the commercialization of gas surpluses.
- Regulatory limitations on the regasification, importation, and marketing of gas (offshore and imported).

Consequences

- Failure to take advantage of business opportunities in self-generation and energy transition.
- Financial impact on unprofitable or unviable projects.
- Difficulty in accessing financing mechanisms.
- Failure to meet decarbonization, energy transition, and energy matrix diversification goals.
- Delays in incorporating renewable energies.
- Negative perception by investors, rating agencies, and stakeholders.
- Penalties or restrictions for non-compliance with environmental, territorial, or regulatory standards.
- Rejection by communities of projects that don't meet energy justice criteria.

3. Impact on financial sustainability and value creation

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Description

Risk of deterioration in financial sustainability due to investment decisions, cost and expense management, or financial factors (taxes, debt, macroeconomic variables) that are not aligned with the strategy or value proposition of the business. This occurs in a context of financial stress and limited cash flow to maintain operations.

Causes

- Disarticulation between corporate strategy and capital and resource discipline.
- Disarticulation between short-term and long-term financial management.
- Inadequate or untimely management of decisions regarding operational and financial performance, investment management, and operational profitability.
- Failure to have or execute contingency plans that ensure decision-making and risk management in the face of financial pressures and capacity constraints.
- Deviations from financial strategy in terms of financing management and capital optimization.
- Difficulty in obtaining loans or lines of credit due to financial market restrictions or lenders' perceptions of the company's O&G nature.
- Decrease in the country and company risk ratings.
- Volatility in the price of crude oil, derivatives, exchange rates, inflation, recession, and other economic variables.
- Changes in the demand for crude oil and derivative products.
- Political and national and international instability.
- Changes in tax, legal, labor, and market regulations.
- Opportunity and timing associated with adequate portfolio rotation (investments and divestments).

Consequences

- Reduction in the ability to generate operating cash flow.
- Loss of value for shareholders and stakeholders.
- Deterioration in the company's credit rating.
- Lack of confidence among investors, analysts, and regulatory bodies.
- Low appetite for bonds or shares issued by the Ecopetrol Group in current market conditions.
- Breach of contractual or regulatory obligations.
- Loss of competitiveness with other players in the sector.

4. Strategic misalignment of subsidiaries with respect to the expected value of business lines

Description

Misalignment in the management of subsidiaries with respect to strategic orientation, deployment, and monitoring, intensified by dynamic corporate contexts and technological acceleration, where strategic decisions require agility, consistency, and organizational resilience.

Causes

- Deficiencies in the deployment of strategic orientation from Ecopetrol to subsidiaries.
- Omissions or deficiencies and untimeliness in monitoring the performance of subsidiaries.
- Limited coordination with subsidiaries to generate synergies.
- Gaps in the competencies and skills of business line leaders and board members.
- Disarticulation between the corporate governance model and Ecopetrol's teams in relation to the expected contribution of subsidiaries.
- Limitations in the corporate governance model in terms of its structure, management, and monitoring mechanisms.
- Low capacity to adapt the corporate governance model.
- Disarticulation of the role of Ecopetrol officials on the boards of directors of subsidiaries as strategic advisors.

Consequences

- Decrease in the expected return on investments in subsidiaries.
- Negative impact on consolidated financial indicators.
- Damage to reputation and/or loss of credibility.
- Loss of positioning and decrease in the Group's perceived value in the sector.
- Loss of synergies and business opportunities.
- Risk of loss of credibility with stakeholders due to lack of alignment and results.
- Higher costs due to operational inefficiencies and duplication of efforts.

5. Conduct inconsistency with ethical and compliance standards

Description

Occurrence of behaviors that contravene legal and regulatory provisions, the Code of Ethics and Conduct, internal regulations, or compliance regulations related to: fraud, corruption, bribery, money laundering, terrorist financing, financing the proliferation of weapons of mass destruction, and violations of the FCPA.

Causes

- Failure to comply applicable regulations (Code of Ethics and Conduct and other applicable regulations on fraud, corruption, bribery (local and transnational), ML/TF/FPWMD, violations of the FCPA, and protection of free competition).
- Undue business pressure associated with performance or meeting targets.
- Personal pressures associated with economic needs.
- Employee non-compliance with manuals, procedures, guidelines, controls, and other Company process guidelines.
- Absence or weakness of controls or risk mitigation actions associated with compliance.
- Weaknesses in the protection of whistleblowers who report misconduct.
- Allies and third parties with contractual ties who engage in practices that represent a breach of applicable regulations.
- Errors, manipulation, or omission in the presentation of relevant data, or disclosures about environmental and social performance without sufficient technical, methodological, or documentary support, associated with sustainability or investment reports (greenwashing).
- Unauthorized disclosure, publication, copying, transfer, or use by an employee, partner, or contractor with legitimate access to the organization's confidential, restricted, and/or personal data for their own benefit or that of third parties.
- Absence of ethical guidelines and governance mechanisms that guarantee the transparent, fair, and responsible use of artificial intelligence.

Consequences

- Negative impact on the company's reputation and its relationship with different stakeholders.
- Impact on relationships with strategic partners or financial institutions.
- Impact on the share price.
- Cessation of trading on the stock exchange – NYSE/BVC.
- Fines, penalties (primary or secondary), decisions against Ecopetrol or individuals by national and international regulatory authorities.
- Inclusion of the company on restrictive or control lists.
- Impact on the rating issued by credit rating agencies.

6. Changes in the legal and regulatory environment that may affect the continuity of business operations

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Description

Changes in the legal and regulatory frameworks (environmental, tax, financial, energy, labor, and/or sustainability, among others) that introduce new requirements, restrictions, or conditions for operating, impacting strategic planning, profitability, or continuity of key projects.

Causes

- Weaknesses in structured approach to anticipating, assessing, and preparing for changes in the regulatory framework.
- Lack of clarity regarding roles and responsibilities within the organization.
- Deficiency in assessing the potential impact on Ecopetrol arising from possible changes in the regulatory environment.
- Lack of or deficiencies in management before the competent entities.
- Insufficient human, technological, or budgetary resources.
- Lack of consistency criteria in the management of regulatory matters.
- Shifts in the direction of government plans in the regions of Colombia where Ecopetrol operates.
- Changes in global, national, or regional situations or phenomena.

Consequences

- Delays, redesigns, or cancellation of key projects.
- Need to adapt processes, technologies, or structures to comply with new regulations.
- Fines, investigations, or loss of confidence from authorities, investors, and stakeholders.
- Competitive disadvantage compared to peers that are able to adapt more quickly.
- Limited ability for Ecopetrol to influence the development of favorable regulatory frameworks.

7. Constraints on the incorporation, protection, and sustainability of hydrocarbon resources and reserves

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Description

Interruptions, alterations, or significant deviations in the exploration, development, and certification of hydrocarbon resources and reserves that compromise the company's capacity for their incorporation and protection, the ability to maintain production levels, the protection of strategic Upstream assets, as well as the assurance of financial sustainability and contriburion to national energy security.

Causes

- Political instability, conflicts, and actions by major oil-producing countries.
- New fiscal, environmental, or contractual guidelines and regulations associated with the energy transition that hinder project execution and operations.
- Failure to obtain or delays in the allocation and/or renewal of environmental permits and licenses.
- Social and environmental changes that compromise the social license to operate.
- Damage to the company's infrastructure caused by security incidents or delays in project execution due to territorial dynamics.
- Application of contractual penalties due to non-compliance with schedules or production targets.
- Changes in corporate evaluation criteria, increases in production costs (fixed and variable) and/or capital expenditures, modifications in macroeconomic variables (TRM, crude oil prices - Brent WTI, gas, among others.) or in the reorientation of corporate and/or business strategy.
- Changes in project maturation, execution, and economic and commercial viability of changes in the the methodological framework for project maturation.
- Deviations from execution plan for new business initiatives.
- Limitations in the generation of strategic alliances with partners.
- Postponement of investment decisions for new projects, discoveries, and/or commercial viability, or restrictions on the availability of resources for exploration and development of prospects.
- Technical and technological changes that modify subsurface models or alters their technical parameters.
- Increased field decline and/or failures in injection systems (water, gas, chemicals).
- Materialization of technical risks that were not foreseen at the time of project sanction.
- Failures in well integrity or deviations in production profiles from what was planned.

Consequences

- Lower revenues from Upstream activities, resulting in reduced profitability.
- Higher financing costs due to deterioration in credit ratings.
- Reduction in the value of the company and its assets, affecting sustainability and equity position.
- Non-compliance with regulatory requirements, leading to sanctions and legal risks.
- Loss of trust among key stakeholders (customers, government, partners, community) and reputational impact due to reduced contribution to national energy security.
- Impact on the country's energy sovereignty, reducing internal supply capacity.

8. Organizational structures that do not adequately enable the execution of the corporate strategy

Description

Organizational structure (processes, structure, and human talent) that prevents the Company from having talent with the required skills and processes capable of responding to the needs of the business lines.

Causes

- Talent planning not aligned with the corporate strategy and the needs of the business.
- Low capacity to attract and retain talent.
- Failure to identify critical positions and develop potential successors.
- Weaknesses in ensuring training actions for the development of key skills.
- Development plans misaligned with the needs of the corporate strategy.
- Lack of a work environment that promotes and facilitates people development and support strategy execution.
- Lack of actions focused on closing leadership capacity gaps related with mobilizing the corporate strategy.
- Low agility and flexibility in managing processes related to talent management.
- Organizational management processes that are not standardized or are insufficiently mature.
- Absence of clear criteria for process design and standardization.
- Weaknesses in people-related information systems and process information systems.

Consequences

- Difficulties in achieving business targets and consolidating the operating model across business lines.
- Loss of competitiveness in the market.
- Loss of positioning in rankings or certifications.
- Negative impact on the work environment and employee behavior.

9. Impacts on strategic challenges due to conflict in the territories

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Description

Impact on Ecopetrol's strategic challenges resulting from: i) conflicts arising from the interaction between Ecopetrol and its allies (Group companies, partners, and contractors) with other actors in the territory, and ii) situations in the surrounding environment that affect the Company and are not attributable to Ecopetrol, which limit the implementation and sustainability of strategic projects and operations of the hydrocarbons and energy transition business lines.

Causes

- Lack of coordination in the actions of Ecopetrol and its contractors, subsidiaries, and affiliated companies operating within the same territory.
- Rejection of Ecopetrol’s activities and the Group´s activities, expressed through narratives disseminated in mass media and alternative communication channels.
- Demands and expectations from local actors regarding the hiring of goods and services and the strengthening of local workforce capabilities.
- Community dissatisfaction due to the reduction of activities in the hydrocarbons sector, impacting demand for labor, goods, and services.
- Claims arising from the alleged failure to comply with prior consultation processes or consultation procedures for reparations by ethnic communities.
- Community dissatisfaction among ethnic communities due to failure to comply with commitments outside of prior consultations, due to demands for differential treatment.
- Demands from local actors regarding the hiring of goods and services.
- Community dissatisfaction due to alleged non-compliance with commitments by institutions of the national, regional, or local goverment.
- Demands from local actors due to perceived impact on the environment arising from Ecopetrol's operations and activities.
- Demands to equalize the wages scales for energy transition activities with those of the hydrocarbons sector.
- Actions by armed groups, organized crime, and/or common delinquency.
- Inadequate management of human rights risks for Ecopetrol and the Group's companies.
- Demands from leaders, community representatives and civil society organizations regarding respect for human rights by Ecopetrol and its subsidiaries.

Consequences

- Deferred or reduced production.
- Suspension of contracts.
- Damage or loss of products or assets.
- Loss of man-hours.
- Project or operational infeasibility, delays, or modifications in the scope, schedule, and costs.
- Reputational impacts on the company in relation to its stakeholders.
- Impact on the integrity of people, the environment, and communities.
- Sanctions.
- Reputational, financial, and legal impacts arising from human rights violations.

10. Major incidents with human, environmental, and operational consequences

Description

Accidental events resulting from operational causes or natural origin that generate HSE impacts with intense, severe, and/or widespread effects, resulting in losses or damage to human life, livelihoods, habitat, and/or business continuity.

Causes

- Lack of awarenesss of, or failure to integrate, the effects of climate change on Ecopetrol's critical assets.
- Insufficient coverage of training and verification of technical HSE competencies in operations, assets, facilities, and other activities related to direct and indirect operations.
- Low internalization of HSE culture at all levels of the organization, with tolerance for unsafe behavior and weakness in incident prevention.
- Gaps in the management and supervision of contractors in relation to the company's HSE standards.
- Lack of integration of emerging technologies to prevent or mitigate HSE risks.
- Insufficient mitigation actions against external threats.

Consequences

- Interruption of critical operations.
- Impact on the health and safety of workers and communities.
- Environmental damage with legal and reputational consequences.
- Loss of trust among stakeholders and authorities.
- Misalignment with strategic goals and ESG commitments.
- Reputation and operating licenses at risk due to poorly managed HSE incidents or incidents perceived as negligence.

11. Erosion of digital trust and operational disruption arising from cyber threats

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Description

Possible impact on or weakening of Ecopetrol's digital trust, resulting from its exposure to cyber threats or incidents that could cause interruptions in the operation of Information Technology and/or Operational Technology (IT/OT), with severe impact, leakage or loss of classified or confidential strategic information, digital fraud, system manipulation, regulatory sanctions, and/or reputational damage. This is framed within a global digital environment characterized by the rapid emergence and evolution of emerging technologies such as artificial intelligence, quantum capabilities, data analytics, among others.

Causes

- Absence of corporate governance in the convergence between IT (Information Technology) and OT (Operational Technology).
- Technological obsolescence of operational technology (OT) and information technology (IT) cyber assets.
- Sophisticated attacks (unknown, based on the use of new technologies), difficult to detect, which overcome existing defenses and/or knowledge.
- Growth in threats or risks generated by the incorporation of new technologies into the digital ecosystem without adequate levels of cyber protection.
- Breaches in privacy management that compromise the protection of personal data in the business group.
- Absence of comprehensive data governance and program.
- Limited efforts to incorporate cybersecurity and cyberdefense practices in the implementation of new digital capabilities and/or key IT/OT third-party contracts without incorporating cybersecurity requirements at Ecopetrol.
- High levels of dependence and cyber exposure of key third parties in our supply chain.
- Deficiencies in the management of employee and/or third-party behavior, identity, and access.
- Gaps in cybersecurity and cyber defense governance that limit the function and relationship with senior management.
- Low level of opportunity in identifying and responding to incidents.

Consequences

- Financial losses
- Partial or total loss of information classified as: classified or confidential.
- Operational disruptions to critical infrastructure.
- Theft of intellectual property and/or trade secrets.
- Penalties or fines.
- Lawsuits and/or legal liabilities for breach of commitments.
- Loss of trust among stakeholders.
- Damage to the company's reputation.
- Environmental impacts.

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