



TAX BENEFITS, COMPETITIVENESS INSTRUMENTS IN COLOMBIA'S INDUSTRIAL SECTOR IN THE FACE OF THE ENERGY TRANSITION.

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Abstract.

This article addresses the importance of objectively facing climate change through the different legal expressions, regulations, treaties, agreements and protocols in which nations have consolidated strategies to mitigate the consequences that it produces, that is why that a contextual historical tour is made of the most emblematic moments that the world has lived when to debate strategies, conditions, tactics, ways and forms that guarantee the protection of the environment, reverse or mitigate the effects of climate change on planet earth.

The Colombian economic production system based on the exploitation of natural resources threatens life and the deterioration of the ecosystem, despite not being characterized as one of the most polluting countries, therefore, that does not mean that we do not contribute to correcting this problem, that is why one of the mechanisms implemented to mitigate this problem has been the creation of articles expressed in the Tax Statute creating benefits that help the growth and strengthening of industrial companies that are sheltered under these, which, to obtain these benefits, industrial companies must choose in the implementation of Corporate Social Responsibility CSR, the development of an environmental culture, environmental management and investment and environmental projects in the territories, which with a strategic

administration based on a friendly production with the environment, innovation and investment guarantee competitiveness and a sustainable development as evidenced and even financially in the Public Companies of Medellín EPM despite the unfavorable situation with the Ituango hydroelectric project.

Keywords: Competitiveness, Tax Benefits, Climate Change, Industrial Business Sector, Ecosystems.

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Introduction.

Human beings have thought of multiple ways to contain climate change, high temperatures that generate drought and death, heavy rains that end in floods destroying crops, animals and homes, it is also worth mentioning, the polluted air that is breathed in different cities such as Bogotá, Medellín and if we go to the international level the People's Republic of China, it has suffered for several decades from the contamination of water tributaries by the mining processes of large industries and the poor implementation of their waste, last but not least greenhouse gases (GHG), responsible for the increase in the planet's temperature and deterioration of the ozone layer.

According to Olhoff, A., & Christensen, J. M. (Eds.) (2019) and taking into account the European Commission's research through the Emissions Database for Global Atmospheric Research (EDGAR), the most polluting countries are China (26.6%), the US (13.1%), EU-28 (9.2%), India (6.8%), Russia (4.5%) and Japan (2.8%). The fact of identifying some countries with higher levels of pollution and production of Greenhouse Gases (GHG), does not mean that the least polluting countries, as in the case of Colombia, do not contribute to reestablishing a healthy environment with environmentally friendly industrial production, as is well known. Climate change is a phenomenon that affects all life on planet Earth, being a global problem where we are all included in the search for solutions, which is why the implementation of environmental policies and the consolidation of a culture of industrial production that is more environmentally friendly is a great challenge in the 2030 Agenda of all countries.

Currently, Colombia has 36 páramos located in the national territory, which are producers of water tributaries and one of the most notable characteristics of the Colombian geography is its tourist attraction, which violates life in the páramos due to informal tourist activities, omitting the legal provisions issued for the protection of the life of the species that inhabit the páramos.

Mining extraction, which is the basis of the Colombian economy, as is the exploitation of coal in Cerrejón – Guajira, where it is still the largest coal mine in Latin America, the extraction of crude oil and hydrocarbons in Barrancabermeja, mining extraction (gold, emeralds, copper, among other metals) in the departments of Nariño, Cauca, Huila, Tolima, Valle del Cauca, Quindío, Risaralda, Caldas, Cundinamarca,

Antioquia, Boyacá, Santander and Norte de Santander, is an influential activity on climate change.

In 2016 the Constitutional Court of Colombia declared unenforceable those paragraphs of article 173 of the National Development Plan 2014-2018 that were in favor of mining exploitation in these natural areas, thanks to the clarification of the constitutional court there is another point in favor of the environment but at the same time, it is clearly observed that the Colombian political system promotes this type of actions against human life and nature trying to establish regulations that are in favor of mining exploitation in such a way, although it should be clarified, that this has not changed due to the intention of implementing the Fracking method to extract crude oil in Colombian territory.

For this reason, it is considered for this article to contextualize the incidence of tax incentives for investment in new technologies capable of contributing to the environment and their incidence in the economic sectors with the greatest negative externalities to Colombian ecosystems.

This will be done by identifying the articles of the Colombian Tax Statute (ET) and other regulations related to the promotion of the energy transition and environmental protection, which create guarantees for companies from various economic sectors to implement environmental policies, efficient environmental management and environmentally friendly production.

Next, the tax incentives obtained on behalf of the Public Companies of Medellín (EPM) will be taken as a reference, as a case study associated with obtaining competitive advantages with the alignment of social welfare and environmental efficiency.

Continuing, there is certainly a generalized crisis at the environmental level, which is why countries have made conventions, agreements and policies that lead to the reduction of pollution caused by human intervention through the industrial business sector, one of these is the "Kyoto Protocol (1997), which was presented as the first international instrument whose main objective was the fight against the causes that generate climate change and which was ratified by the Colombian State" Ohmen Sinisterra, Y. J. (2020).

Colombia recognizes the importance of ratifying the protocol, which contributes to the construction of environmental policies and legal tools for the protection of the environment and to contain or reverse climate change through the reduction of GHG greenhouse gases generated by the petrochemical and hydrocarbon industrial sector.

The Kyoto Protocol is not the only event worldwide that has unified nations to safeguard the environment, as is the Montreal Protocol (1989) according to Stavro Tirado, X. I. (2007) established the mechanisms for the elimination processes of ozone-depleting substances. By not having a protective ozone layer, humans and animals are

exposed to ultraviolet rays that directly impact the skin, reducing its immune capacity, thus facilitating diseases and the creation of bacterial cultures in those exposed.

"Thus the different versions of the Earth Summit in Stockholm (1972), Rio de Janeiro (1992 and 2012) and Johannesburg (2002). However, the efforts have not been enough, as countries that have signed the treaties withdraw or simply do not comply with the commitments" Rodríguez Cely, E. P. (2015). On the other hand, the different efforts made by states and international organizations to contain climate change from all possible spheres and edges have been insufficient, characterizing this complex problem, which also touches several sectors of the economy.

One of the most influential agreements is the Paris agreement, signed in 2016, its main objective is to strengthen the efficiency of the responses of all nations to the imminent threat of climate change, which constitutes a reduction in GHG Greenhouse Gases, which are the cause of increasing the temperature of planet earth. At the end of 2015, Colombia committed to the international community to take 10 concrete adaptation measures, ranging from the delimitation and protection of the 36 moorland complexes, to achieving that 100% of the national territory has climate change adaptation plans.

This contribution goes hand in hand with the National Adaptation Plan and the National Climate Change Policy (García Arbeláez, C., G. Vallejo, M. L. Higgins and E. M. Escobar. 2016). This contributes to the creation and implementation of clean energy projects, this provides the opportunity to carry out radical transformations of the extractivist economic production paradigm, safeguarding forests, preventing indiscriminate logging and having a resilient industrial production with ecosystems, reduction of greenhouse gases (GHG) and the transition from the fossil economy to green economies with the production of non-conventional energy.

To mention the significant nature of the agreement and not to overlook the importance of it, there is currently a widespread debate in Colombia about the Escazú agreement which, according to Zamora Saenz, I. (2019) is the first legally binding pact for the countries of Latin America and the Caribbean in terms of justice and environmental matters. The genesis of this agreement comes from the United Nations Conference held in 2012 in Rio de Janeiro, where Latin American countries including Mexico joined hands to build a regional operating agreement.

On the one hand, in Colombia, the particular political interests that affect the Escazú agreement bill mean that in the period of government of Iván Duque Márquez (2018 – 2022) the congress of the republic was urged to approve and ratify it, most parties, including the governing party had looked the other way, Finally, it is necessary to mention that, although the former president insisted to Congress for such approval, he does so with "the complicity of a languid political will of the government" as expressed by Susana Muhamad, former Minister of Environment and Sustainable Development (Revista Semana, 2023)

All the aforementioned agreements have been ratified in Colombia, including the Escazú agreement, which was approved in the Government of Gustavo Petro, this means that policies have been created in favor of the environment, that is, that there is a regulation with constitutional bases for the protection of the same, this implies that the Colombian industrial sector must assume a position of change, adaptability to regulations and resilience with the environment. (Ministerio de Ambiente y Desarrollo Sostenible, 2022)

Corporate social responsibility, environmental management, innovation in clean energy and tax benefits with a view to business competitiveness.

In Colombia there are three central axes that are in favor of obtaining environmental tax benefits, which are, *clean production and acquisition of equipment and systems that control pollution, forestry activities, environmental research*, which are regulated in the Tax Statute (ET).

Next, the articles expressed in the Tax Statute that favor companies that adopt environmental policies, forestry activities and investment and environmental activities will be cited.

- **Clean production.**

Article. 158-2 of the Tax Statute, Amended by Article 92 of Law 1819 of 2016: Deduction for Investments in Environmental Control and Improvement.

Legal entities that directly make investments in accordance with Article 74-1 of the Tax Code, related to the control and improvement of the environment, will have the right to deduct annually from their income tax the value of such investments that they have made in the respective taxable year (Article 143-1), subject to accreditation by the Ministry of Environment and Sustainable Development. in which the direct environmental benefits associated with such investments must be taken into account.

The value to be deducted for this concept is fifty percent (50%) of the investment, provided that in no case may it exceed twenty percent (20%) of the taxpayer's net income, determined before subtracting the value of the investment.

Article. 424 -5, numeral. 4 of the Tax Statute: The following goods are excluded from sales tax.

National or imported equipment and elements intended for the construction, installation, assembly and operation of control and monitoring systems, necessary for compliance with the environmental provisions, regulations and standards in force, for which such condition must be accredited to the Ministry of Environment and Sustainable Development.

Article 428-1 of the Tax Code: Imports of Assets by Education Institutions and Research Centers (Amended Article 35, Law 1450 of 2011).

The importation of equipment and elements on behalf of research or technological development centers recognized by the Ministry of Science, Technology and Innovation (Minciencias) and that are intended for projects of a scientific, technological or innovation nature according to the criteria of the National Council of Tax Benefits in Science, Technology and Innovation, will be exempt from Sales Tax (VAT).

- **Forestry activities.**

Article 207-2, Paragraph 1 of the Tax Code: Other Exempt Income.

Exempt income is generated by the following concepts, with the requirements and controls established by the regulations: Sale of Electric Energy generated based on wind resources, biomass or agricultural waste, carried out only by the generating companies, for a term of fifteen (15) years, provided that the following requirements are met: a) Process, obtain and sell carbon dioxide emission certificates, in accordance with the terms of the Kyoto Protocol; b) That at least fifty percent (50%) of the resources obtained from the sale of said certificates be invested in works of social benefit in the region where the generator operates.

- **Investment and environmental activities for the energy transition.**

Regarding the energy transition, it is worth mentioning that Law 1715 of 2014 grants tax benefits to promote investment in the production of non-conventional renewable energies. In Chapter III, of this regulation, incentives can be highlighted for:

- i. Special deduction in income tax: Taxpayers who invest in the production and use of energy from non-conventional energy sources (FNCE) or in the efficient management of energy can deduct up to 50% of the total value of the investment, without exceeding 50% of the taxpayer's net income.
- ii. Accelerated depreciation of assets: Assets acquired for investment in FNCE or efficient energy management can be depreciated in a shorter period, up to a maximum of 33.33% per year.
- iii. Exclusion of goods and services from VAT: Goods and services related to the use of electricity from non-conventional sources of energy and efficient energy management are excluded from value-added tax (VAT).
- iv. Duty Duty Exemption: Holders of new investments in FNCE projects do not have to pay the tariff levies when importing machines, equipment, and materials for the investment stages within the projects.(Senado de la República, 2014)

However, Law 2099 of 2021 generated modifications to Law 1715 of 2014, with the purpose of expanding and updating incentives for investments related to the energy transition, as indicated below:

i. Deduction for Investments in Renewable Energy Projects: The deduction is increased to 50% of investments made without exceeding 50% of the taxable net income, with the possibility of discounting the investment for 15 years.

ii. The incentives of exemption from tariffs, VAT and Accelerated Depreciation for investment in productive fixed assets are maintained. In the same way, the import of electric and hybrid vehicles has been exempt from tariffs and VAT since the issuance of Law 2099 of 2021. Likewise, the exemption of income for the import of goods destined for energy efficiency projects is added.

iii. Incentives for the Development of Green and Blue Hydrogen: This is a novelty, since it includes specific incentives for the production and use of green and blue hydrogen, with the possibility of accessing emission reduction certificates, which can be traded in national and international carbon markets.

iv. Incentives for Research and Development: The recognition of income tax incentives for investments in research and development projects recognized in the National System of Science, Technology and Innovation is detailed.

v. Incentives for Distributed Energy Generation: Tax incentives are included in income tax and reduction of the energy rate for generation from renewable energy sources. (Senado de la República, 2021)

It is evident that the Colombian state has developed mechanisms and policies that will safeguard the ecosystem, the life that exists in it and the containment of climate change, this is observed, in particular case, from the regulations mentioned above, which also introduces a concept to the business sector and that is that of Corporate Social Responsibility (CSR). which defined by Núñez (2006) is the effects that the company produces in its natural productive work, effects that must be mitigated, corrected or compensated.

According to Herrera, A. C., Castillejo, M. C. B., & García, C. R. (2016) Corporate Social Responsibility (CSR) is the response of companies to face this scenario, which explains the rapid process of organizational and conceptual expansion that it has undergone in recent years, to the extent of positioning itself in the corporate field as a strategic element for increasing competitiveness and becoming a primary tool for the management of business and economic entities.

Thanks to the exhaustive research carried out by Garriga and Melé (2004), it is one of the most important documents today for the characterization, classification and identification of the theoretical progress of Corporate Social Responsibility (CSR), where, due to its explicit way in presenting the information, it obtains great recognition

and success and is where the authors pigeonhole the information into 4 four theoretical approaches (Cancino & Morales, 2008).

The theoretical approaches are the following, *Instrumentalist Theories*, *Integrative Theories*, *Political Theories*, *Theories on Ethics and Morals in business*, the first is that companies would seek to develop CSR activities as long as these actions are linked to obtaining greater economic benefits for their shareholders (Cancino & Morales, 2008), two levels can be observed, the first seeks in the first place an economic incentive which contributes to the increase of income to the collaborators and in the second plane contributes to the construction of an environmental culture in the community contributing to its social well-being.

The second theoretical approach is based on the presentation of Social Responsibility as a means to unify the areas surrounding the actions of an entity and integrate social demands, as described by Carroll (also cited by Cancino & Morales, 2008). This means that working closely with the communities contributes to the unity of the parties involved in the resolution of social problems present or caused by economic practice.

The third theoretical approach, Davis, K. (1960), one of the representatives of this theory, states that as a mercantile society evolves and increases its production, its employees and therefore its wealth, it will have decision-making that will affect in one way or another the community where it carries out its activities. Therefore, in this third approach, the company takes on an image of a political agent, through the direction or senior management they reflect credibility to the community as well as influence, which assume a decision-making role through technical studies in the solution of the problems caused by the economic processes carried out by the company in the territory and the community. therefore, Corporate Social Responsibility is the mechanism for communication and action of activities.

Finally, the fourth theoretical approach that, for Freeman, E. (1983) one of its exponents, it is necessary to distinguish two fundamental groups: *the Stakeholders* in the broad sense, and the *Stakeholders* in the narrow sense. The former are those people or groups that may affect the objectives of the company or be affected by its operations. While the second group would be those people or groups that are directly or indirectly involved with the organization. Although this is the most recent, emphasis is placed on placing ethics and morality as a fundamental pillar in the actions of the organization.

In addition, companies adopt the concept of environmental management system, which is defined as a process that is aimed at solving, mitigating and/or preventing environmental problems, with the purpose of achieving sustainable development, understood as that which allows man to develop his potentialities and his biophysical and cultural heritage, and, guaranteeing their permanence in time and space (Castro Arbeláez & Moncayo Muñoz, 2014).

An environmental management system has a technical support, which to carry out its implementation it is necessary to know the ISO 14001 standard of 2004, this explains through numeral 4 the *"requirements of an environmental management system"* explaining the importance and implementation of the PHVA click. This being a central axis standard for companies in the industrial sector that require the creation and implementation of an environmental management system, therefore, they must adopt transcendental changes for the implementation of the very famous clean energy revolution and environmentally friendly production. It is coherent to say that this change is not achieved from one year to the next, this is planned through a transition to what the world needs and that is, clean energy.

The Energy Transition not only represents investments of more than \$8 billion, more than 6 thousand jobs, a lower generation price that will imply a relief in Colombians' electricity service bills and a reduction of more than 9 million tons of CO₂ (Ministry of Mines and Energy of Colombia 2020).

It also creates circumstances to generate transcendental social changes such as bringing the electric energy service to small villages and municipalities, according to María Fernanda Suárez Londoño, former Minister of Mines and Energy (August 2018-June 2020) more than 9 thousand have electricity in their homes thanks to the energy of the sun, with a view to the year 2022 at least 100 thousand families can count on electricity service for the first time.

Of the 100,000 families that had a goal of electricity coverage in the four-year period (2019-2022), 40,000 live in the municipalities that are part of the Development Programs with a Territorial Approach (PDET), a key instrument of the peace agreements. As of May 2020, 18,900 families had received the service for the first time, improving their quality of life, such as that of Bella Escarpeta in Cartagena del Chairá in Caquetá (Colombian Ministry of Mines and Energy, 2020).

For this reason, the transition from fossil energy to clean or alternative energies is a construct of peace, cultivating a new generation without armed violence and with guarantees for young people to have an education through the tools of new technologies and communications, which in times of pandemic by covid-19 and social isolation (which has been the best way to preserve and protect human life), have been of daily and continuous use for the educational development of young people in the villages or municipalities as well as the improvement of the quality of life.

According to the Colombian Ministry of Mines and Energy (2020); in Colombia there are several projects of "generation of non-conventional sources of energy (FENC)", which are distributed in the national territory as follows, in La Guajira with 9 wind projects, Cesar with 2 solar projects, in Córdoba 1 solar project, Valle del Cauca 1 solar project, in Tolima 1 solar project, This represents in economic terms 7 trillion pesos in investment, contributes to reducing the unemployment rate because it generates more than 6,000 jobs and reduces energy consumption in homes in the aforementioned regions by 30%.

Whereas, the industrial sector will be able to guarantee competitiveness if it properly implements the concepts of environmental management system and social responsibility, benefiting from tax regulations, resulting in a sustainable development of operations.

According to the Colombian Ministry of Mines and Energy (2020), in tax matters, the National Government extended the additional deduction of 50% of income tax for a period of 5 to 15 years for investments in alternative sources and energy efficiency, and a reduction in procedures, which today allow the automatic exclusion of VAT on the acquisition of inputs for the generation of renewable energies. and the reduction of 45 days in the times to access these incentives, as no procedure is required before the National Environmental Licensing Authority (ANLA).

These tax benefits, mentioned in the previous paragraph, are consolidated with the objective of implementing solar and wind energy as a source of energy sustenance being sustainable over time, which will be implemented according to the context of each region, promoting in turn business competitiveness to industrial companies, thus enhancing the region.

The Colombian Caribbean, due to its geographical location and climatic conditions, has the ideal scenario for industries operating in the region to generate renewable, clean energies or as it is commonly known, non-conventional energies, a situational case is La Guajira, where solar radiation is approximately 60% and is considered the highest in the world on average. it also has the average world double wind speed.

Regarding the concept of competitiveness, of course, the "*book principles of economics*" was taken into account , where David Ricardo raises and reflects in it, relevant contributions regarding the notion of the concept of competitiveness and it is through the comparative method which differentiates the particularity of a country that takes the lead in the production of goods at a lower cost compared to other countries.

However, the literature illustrates us in the book *Dictionary of Applied Economics: Economic Policy, World Economy and Economic Structure*, according to Galindo (2008), this term comes from approximately three centuries ago when Adam Smith developed the theory of absolute advantage relating it to international trade and the benefits for all the actors participating in the process in his work *The Wealth of Nations* published in 1776.

Likewise, a notion of the concept of competitiveness from modernity is provided by Porter (2015) where he assures that it depends on the capacity of the industry to innovate and improve; Companies in turn gain advantages over the world's best competitors due to pressure and challenge.

Based on these conceptual notions, it can be concluded that competitiveness is an instrument through which organizations achieve significant growth, differentiating it from their peers and achieving leadership in comparison to others.

According to Muñoz, G. A. D., Lombeida, M. D. Q., & Mosquera, D. G. F. (2021), competitiveness is presented as a product of constant rivalry between companies in the environment and is achieved through a dynamic management process between the industry and its stakeholders – customers, suppliers, managers, creditors, market competitors – in order to show itself to society as an entity capable of satisfying the needs of its consumers better than the competition, which will be taken as a conceptual starting point.

Research Methodology.

In the first instance, the case study of the Public Companies of Medellín EPM will be analyzed, this company which is legally characterized as an industrial and commercial company of the State, in charge of providing the services of electricity, gas by network, water and sanitation, is a company with a historical history dating back to 1955 and only operated in Medellín (Puertas, 2021).

In the strict methodological sense, it is important to define this research under the qualitative phrase, understanding that a phrase is the fusion of several paradigms for the search for the generation of holistic knowledge, in this case, from the worldview of the qualitative approach. The conception of the epistemological phrase is mentioned for the first time in the 1990s by Hurtado de Barrera, who proposes in alignment with Kuhn, Feyerabend, Toulmin, Hanson, among other authors with methodological anarchist bases; the construction of holistic knowledge without contradiction between paradigms, without controls and much less without pretensions to do science based on logical, linear and progressive analysis models (Plata, 2006).

The qualitative phrase can be defined as one capable of "providing descriptive data on the intangible aspects of human behavior, focusing on those contexts of social problems, allowing us to know the relationships or links between people, social entities and culture" (Tinoco, et.al; 2018, p.45)

Continuing, the collection of information will be from the search for bibliographic information which will allow the construction of the theoretical foundation, which will serve as a contrast with the results of the research elaborated by the analysis of information obtained from the publicly accessible corporate reports of the Public Companies of Medellín.

The case study is of utmost importance in the world of research, because it studies a contemporary phenomenon that affects the real life of a community, which will be resolved from the process of triangulation of information between theoretical propositions and data analysis (Jiménez & Comet, 2016).

Results.

The concept of the environment is integral, since it considers the physical, biotic and social variables, among which there is a permanent interaction, by which the actions exercised in one of them have an impact on the others.

In the search for continuous improvement, Medellín's public companies have established a management model based on the principles of the *Demming* cycle (plan, do, verify and act), which allows the environmental variable to be involved in all the company's processes. The scope of the project is focused on environmental legal obligations and also on those discretionary actions that contribute to the social, economic and environmental viability of projects, works and activities, establishing mutually beneficial relationships with the communities of the territories where it operates.

The inclusion of corporate social responsibility as one of EPM's institutional values is highlighted, defined as: "Anticipating and responding for the consequences that actions and decisions may have on others, as well as on the environment and the environment" (Empresas Públicas de Medellín EPM, 2021).

It can be seen that EPM's environmental management system allows the implementation of programs in communities and territories, which are in favor of sustainable development, clean energy and reforestation, obtaining tax benefits and contributing to the recovery of the ecosystem, which will be mentioned below:

"Development Alliance Program and Agreements, which contributes to the sustainability of the territories by promoting hydroelectric projects managing three fundamental guidelines such as Sustainable production, Biodiversity conservation, Community-based tourism" (Empresas Públicas de Medellín EPM, 2021). The fact that territories adopt sustainable projects in Colombia contributes to the protection of biodiversity, the technification of the countryside and the introduction of value chain concepts as the central axis of production.

"Plant a Tree Program - Applications for reforestation and conservation, this is possible through EPM's Forestry Development Program, which was formulated in the company's Board of Directors, Act No. 956 of 1980 with the objective of protecting the watersheds that supply the power generation reservoirs in the department of Antioquia" EPM, E. públicas de M. (2017). It is never too late to plant a tree, in addition to being CO₂ collectors, but the opposite happens in the Amazon, illegal groups cut down and burn large green areas or initiate illegal processes of felling trees, a situation that affects the largest and most representative lung found in Latin America.

"The BanCO₂ Program is one of the most representative for the commitment to reduce the carbon footprint through the capture of CO₂ and, in addition, with the BanCO₂ strategy, economic recognition and social and environmental support are provided to 56 families, in vulnerable situations and whose livelihood depends on the forest" (Empresas Públicas de Medellín EPM, 2021).

The holistic form of development and innovation of Medellín's public companies EPM has transcended the national level, which is present and has contributed to the formation of more than 55 companies which are located in Guatemala, El Salvador, Panama, Chile, Mexico, the United States, Spain and Colombia. Apart from being an

industrial company and managing a commercial component, it is the one that provides drinking water, electricity, natural gas, collection, use and final disposal of solid waste, with a strong component in new technologies and communications.

Empresas Públicas de Medellín EPM, by having tax benefits, can invest in its internal processes, innovate, and even set robust and ambitious goals. They are able to set strategic objectives such as increasing value for stakeholders, growing in customers, markets and businesses, strengthening relationships with external stakeholders, developing human talent capabilities with a business group vision, which is a strategic objective that is highly highlighted in the EPM report on the balance of the first 100 days - challenges 2020-2023. The ultimate goal for the year 2022 was to obtain revenues of more than 16,000 million dollars, obtaining a profit before the Depreciation and Amortization of Interest Taxes, by its acronym in English (EBIITDA) no less than 5,500 million dollars, thus generating value to stakeholders, defending the social and fulfilling the promise of caring for the ecosystem.

Despite the different situations presented in previous periods by the Ituango Hydroelectric project started on April 28, 2018, consolidated financial results as of June 30, 2020, between January and July 2020 Empresas Públicas de Medellín EPM obtained revenues of \$9.33 billion pesos with an increase of 6% (\$564 billion) compared to the same period of the previous year (Empresas públicas de Medellín EPM, 2020).

According to the 2019 management report of the Public Companies of Medellín EPM, the project to implement efficiencies in the Energy Transmission and Distribution business stands out for being cataloged as a research project by Minciencias, which generates tax benefits to EPM for COP 973 million approximately, it can be inferred that from a strategic management, visionary and with an awareness of caring for the environment, tax benefits can be obtained which contribute to cultivating the guarantees to achieve business competitiveness.

Innovation as a factor of competitiveness is another strategy, EPM is beginning to make giant strides in the enactment of a notable transition to the implementation of non-conventional energies such as, for example, we have the Jepírachi wind farm in La Guajira where 15 wind turbines of 1.3MW are installed, these wind turbines produce wind energy through the trade winds that run in La Guajira for a large part of the year. With this, it can be seen that the production of non-conventional energies is a short-term reality in the country.

Conclusions.

Fulfilling the purpose of this research and having as support the different authors which allowed to expand the spectrum of knowledge, obtaining a broader perspective and points of view about how strategies to create corporate environmental culture, the implementation of sustainable environmental development projects in the territories and the implementation of Corporate Social Responsibility CSR grant tax benefits, which contribute to EPM's competitiveness and innovation.

The tax benefits generated in the Empresas Públicas de Medellín EPM have contributed to the full technological, scientific and innovative development, which is a fundamental requirement to achieve the desired levels of competitiveness and set ambitious objectives, in addition to contributing to the balance of the environment and the development of the country.

Due to globalization and the global trend of conserving the planet and fighting climate change, there is a tendency to invest in technologies to generate clean energy, it is true that, with these, in addition to obtaining tax benefits, it is a reliable and favorable alternative for the sustainable development of EPM's operations.

As for the industrial sector dedicated to the exploitation of natural resources that adopts and implements what is said above in the first paragraph of these conclusions, they will have a sustainable development contributing to the duration over time of natural resources. Therefore, it favors the creation and strengthening of differentiating elements by providing competitive advantage in the national market.

The industrial sector committed to the implementation of environmentally friendly operations will reduce GHG Greenhouse Gases, air pollution and water tributaries contribute to an ecosystem balance, in addition, we comply with the different agreements ratified by Colombia on environmental matters.

The political system must guarantee and promote, through the executive, the transition from non-renewable (fossil) energies to clean or non-conventional energies, as well as promote and strengthen the National Energy Plan PEN and devise attractive new tax policies to guarantee a greater participation of the industrial sector in the profits, which will result in a sustainable development of its operations and an increase in business competitiveness.

Bibliographic References.

Cancino, C., & Morales, M., (2008). Corporate Social Responsibility. Chile: Teaching Documents of the Department of Management Control and Information Systems of the Faculty of Economics and Business of the University of Chile. Retrieved from: https://repositorio.uchile.cl/bitstream/handle/2250/122747/Cancino_Morales_2008.pdf

Castro Arbeláez & Moncayo Muñoz., (2014). Tax benefits for the environmental management of industrial companies considered large taxpayers in the industrial zone of Yumbo – Colombia. Retrieved from: <https://investigacion.fca.unam.mx/docs/memorias/2014/5.04.pdf>

Ministry of Mines and Energy of Colombia (2020). Colombia's energy transition. Retrieved from: https://www.minenergia.gov.co/documents/5744/Memorias_al_Congreso_2019-2020.pdf

- Davis, K., (1960). "Can business afford to ignore corporate social responsibilities?" California Management Review, 2, pp.70-76. Recuperado de: <https://journals.sagepub.com/doi/10.2307/41166246>
- Empresas Públicas de Medellín EPM., (2021). Development partnerships and conventions. 1–4. Retrieved from <https://www.epm.com.co/site/comunidadymedioambiente/comunidad-y-medio-ambiente/comunidad/alianzas-para-el-desarrollo>
- Empresas Públicas de Medellín EPM., (2021). Environmental management. 2–4. Retrieved from <https://www.epm.com.co/site/home/sostenibilidad-epm/medio-ambiente/gestion-ambiental>
- Empresas Públicas de Medellín EPM., (2021). BanCO2 Program Contact Lines Office Contact Links Transparent Main Ema Virtual Interest. 2–4. Retrieved from <https://www.epm.com.co/site/comunidadymedioambiente/comunidad-y-medio-ambiente/programa-banco2>
- Empresas Públicas de Medellín EPM, E. G., (2020). Financial Results Second Quarter 2020 Financial Results Second Quarter 2020. 1–20.
- Empresas Públicas de Medellín (2017). Plant a Tree - Applications for reforestation and conservation. 1–9. Retrieved from <http://www.epm.com.co/site/Home/Fomentoforestal.aspx>
- Galindo, M. (2008)., Dictionary of Applied Economics: Economic Policy, World Economy and Economic Structure. Madrid: Ecobook.
- García Arbeláez, C., G. Vallejo, M. L. Higgings and E. M. Escobar. 2016. The Paris Agreement. This is how Colombia will act in the face of climate change. 1 ed. WWF-Colombia. Cali, Colombia. 52 pp. Retrieved from: https://d2ouvy59p0dg6k.cloudfront.net/downloads/el_acuerdo_de_paris_asi_actuara_colombia_frente_al_cambio_climatico.pdf
- Herrera, A. C., Castillejo, M. C. B., & García, C. R. (2016). Social responsibility and organizational strategy in large industrial companies in the city of Cartagena de Indias, Colombia. Knowledge, Science and Freedom, 11(1), 105-114. Retrieved from: <https://revistas.unilibre.edu.co/index.php/saber/article/view/495>
- Jiménez, Viviana & Comet, Cornelio (2016) Case studies as a methodological approach. ACADEMO Journal of Research in Social Sciences and Humanities. December, 2016, Vol. 3 No. 2. Retrieved from: <https://dialnet.unirioja.es/servlet/articulo?codigo=5757749>
- Ministry of Environment and Sustainable Development. (2022). *Escazú Agreement approved 63 days after the start of President Petro's government*. Retrieved from

<https://www.minambiente.gov.co/aprobado-acuerdo-de-escazu-a-63-dias-de-iniciar-gobierno-del-presidente-petro/#:~:text=Con%20su%20aprobaci%C3%B3n%20y%20ratificaci%C3%B3n,e n%20la%20implementaci%C3%B3n%20del%20Acuerdo.>

Muñoz, G. A. D., Lombeida, M. D. Q., & Mosquera, D. G. F., (2021). Competitiveness as a growth factor for organizations. *INNOVA Research Journal*, 6(1), 145-161. Retrieved from: <https://revistas.uide.edu.ec/index.php/innova/article/view/1465>

Núñez, G. (2006). *The Business Sector in Environmental Sustainability: Axes of Interaction*. Santiago de Chile: United Nations. Retrieved from: <https://repositorio.cepal.org/entities/publication/ac2fad01-7bcc-4886-ab7c-3a719a9d94fe>

Ohmen Sinisterra, Y. J. (2020). *Compliance with the legal obligations adopted by the Colombian State through the ratification of the Kyoto Protocol* (Doctoral dissertation, Universidad Santiago de Cali). Retrieved from: <https://repositorio.usc.edu.co/items/77159948-a662-45cf-8296-cef1cb219714>

Olhoff, A., & Christensen, J. M. (Eds.) (2019). *Emissions Gap Report 2019*. United Nations Environment Programme. Recuperado de: <https://www.unenvironment.org/resources/emissions-gap-report-2019>.

Plata, Dalia (2006) Theoretical approach to holistic research as a methodological tool in the university context. *Revista Multiciencias*, vol. 6, no. 3, 2006, pp. 244-249. Retrieved from: <https://www.redalyc.org/pdf/904/90460306.pdf>

Porter, M., (2015). *Competitive strategy. Techniques for the analysis of industrial sectors and competition*. Mexico City: Continental. Retrieved from: https://books.google.com.co/books/about/Estrategia_Competitiva.html?id=_n0dDAAAQBAJ&redir_esc=y

Poveda Orjuela, Pedro Pablo (2005). *Implement an environmental management system according to ISO 14001. A basic guide for companies committed to the future*. GYGA and ICONTEC. Retrieved from: https://books.google.com.co/books/about/Implementar_un_sistema_de_gestion_ambiental.html?id=yQ-KtgAACAAJ&redir_esc=y

Presidency of the Republic of Colombia (1989) By means of which the Tax Statute of the taxes administered by the Directorate of National Taxes and Customs is issued. *Official Gazette* No. 38.756 of March 30, 1989. Retrieved from: http://www.secretariassenado.gov.co/senado/basedoc/estatuto_tributario.html

Puertas, P. (2021). That's EPM. 1-4. Retrieved from: <https://www.epm.com.co/site/home/nuestra-empresa>

Semana Magazine. (2023). *Susana Muhamad asks the Constitutional Court to ratify the Escazú Agreement*. Retrieved from

<https://www.semana.com/politica/articulo/susana-muhamad-le-pide-a-la-corte-constitucional-ratificar-el-acuerdo-de-escazu/202359/>

Rodríguez Cely, E. P. (2015). Tax benefits in Colombia, management opportunities and environmental investment in Cundiboyacense companies. Retrieved from: <https://repository.udistrital.edu.co/server/api/core/bitstreams/84b5b226-7f10-4004-8b2c-fad13543d171/content>

Senate of the Republic. (2014). *Law 1715*. Obtained from By means of which the integration of non-conventional renewable energies into the National Energy System is regulated.: <https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=57353>

Senate of the Republic. (2021). *Law 2099*. Obtained from the Ministry of Energy Administration, the Promotion of Energy Transition, the Revitalization of the Energy Market, the Economic Reactivation of the Country, and Other Provisions: <https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326>

Stavro Tirado, X. I. (2007). Implementation of the Montreal Protocol in Colombia. Retrieved from: <https://repository.unilasallista.edu.co/server/api/core/bitstreams/0630faa7-ce29-4c73-8807-c095fa02ccdb/content>

Tinoco, Nasly; Boxes, Daisy & Santos, Ofelia (2018). Qualitative Techniques and Methods for Scientific Research. Chapter 3: Qualitative Research Design. Retrieved from: <http://repositorio.utmachala.edu.ec/bitstream/48000/12501/1/Tecnicas-y-MetodoscualitativosParaInvestigacionCientifica.pdf>

Zamora Sáenz, I. (2019). The Escazú Agreement, a tool for environmental democracy. Retrieved from: <https://bibliodigitalibd.senado.gob.mx>