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***Analysis and Estimation of the National Cost of Energy Subsidies in Ecuador: Impact on the Economic Sustainability of the Sector.***

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***Abstract***

The complicated and interlaced economic-energetic structure of countries highlights the growing role of applied energy economics since many decisions in the sector are made based purely on economic factors, often neglecting environmental and social impacts. The energy consumed by the Ecuadorian population daily-from hydroelectric plants to gas used for cooking to the fuel for transportation- is economically subsidized theoretically to foster the welfare of the economy. But the subsidies have been manipulated by many externalities and vested interest groups, which renders it into an archetypal business opportunity.

Such subsidies are funded by the State, causing the formation of internal debt running into billions of dollars yearly. This document intends to assess the fiscal burden created by subsidies using a cost-gap method that comprises the comparison of subsidized consumer prices with production costs and international reference prices.

The results show that Ecuador is subsidizing more than 8 percent of the annual state expenditures since 2013. Grasping these figures is now relevant because the subsidies make energy prices stay low artificially and thus promote the overconsumption of resources. Moreover, they are stopping both the common folk as well as the government in advancing toward an energy transition that would cause greater environmental and economic benefits leading to higher social welfare.

***Riasuunto***

La complicata e intrecciata struttura economico-energetica dei Paesi evidenzia il ruolo crescente dell'economia energetica applicata, poiché molte decisioni nel settore sono prese sulla base di fattori puramente economici, spesso trascurando gli impatti ambientali e sociali. L'energia consumata quotidianamente dalla popolazione ecuadoriana - dalle centrali idroelettriche al gas utilizzato per cucinare, fino al carburante per i trasporti - è economicamente sovvenzionata, in teoria per favorire il benessere dell'economia. Ma i sussidi sono stati manipolati da molte esternalità e gruppi di interesse, che li hanno trasformati in un'opportunità di business.

Tali sussidi sono finanziati  dallo Stato, causando la formazione di un debito interno di miliardi di dollari all'anno. Questo documento intende valutare l'onere fiscale creato dai sussidi utilizzando il metodo del cost-gap, che prevede il confronto tra i prezzi al consumo sovvenzionati e i costi di produzione e i prezzi di riferimento internazionali.

I risultati mostrano che l'Ecuador sta sovvenzionando più dell'8% delle spese statali annuali dal 2013. Cogliere queste cifre è ora importante perché i sussidi fanno sì che i prezzi dell'energia rimangano artificialmente bassi e quindi promuovono il consumo eccessivo di risorse. Inoltre, impediscono sia alla gente comune sia al governo di avanzare verso una transizione energetica che comporterebbe maggiori benefici ambientali ed economici, con conseguente aumento del benessere sociale.

*To my family*

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# 1. Introduction

## 1.1 Problem statement

The economic structure of a nation encompasses all activities which connect to generating, spreading, and using products and services throughout the nation. All economic sectors including agriculture, industry, services, and trade exist within the economic system. The economic system covers employment and inflation together with fiscal and monetary policies and investments and international economic relations. The field studies resource management operations to ensure they effectively sustain the population's needs and desires through sustainable practices. The administration of economic systems contains a field called energy economics which scrutinizes the production, distribution, consumption and regulation of energy resources alongside their economic, social and environmental outcomes. The field assesses energy supply and demand while examining price formation and subsidy and tariff mechanisms as well as supply security and public policy effects on the sector. Energy economics stands as a crucial factor for achieving sustainable transformation because it evaluates the economic and social consequences of energy choices together with their environmental sustainability repercussions.

The Ecuadorian government uses energy subsidies as its main tool to sustain accessible prices on fundamental utilities consisting of electricity and fuels. The primary goal of these subsidies focuses on helping households particularly from low-income groups handle their economic duties. The subsidies create a substantial economic burden for the nation. The national budget dedicates a substantial portion to these subsidies which prevents the State from investing in vital sectors such as health, education and infrastructure development. Energy subsidies lead to price distortions in the market by maintaining costs at low levels which both waste energy and promote excessive energy consumption. The intended goal of supporting vulnerable sectors gets undermined when the system continues to benefit wealthy

consumers who use more energy thus decreasing its effectiveness for social equity objectives.

The nation has worked across multiple years to adjust these approaches for better effectiveness while encountering substantial obstacles from social and political sources. Within this framework, the discussion regarding energy subsidies in Ecuador stands as a vital issue because it demands equal support for underprivileged individuals and efficient energy practices and public financial stability.


*Figure 1 Service in gas station in Ecuador Source: Petroecuador*

## 1.2 Justification

The financial evaluation of energy subsidies together with their fiscal costs is critical for revealing their precise economic effects and their impact on government revenue stability. Government funds assigned for electricity and fuel subsidies decrease the available money that could go towards health services education infrastructure and social programs vital for the population. The assessment of subsidy effectiveness depends on understanding their cost since it shows whether the funds actually help the most disadvantaged groups or merely benefit wealthier households which use more energy. The system evaluation requires knowledge of cost factors because low-price subsidies lead to wasteful resource consumption and hinder the deployment of advanced clean technologies. The comprehension of subsidy costs is vital to develop effective reforms which will steer the country towards a balanced and environmentally sustainable economic framework that meets fiscal sustainability targets.

The analysis of energy subsidies in Ecuador depends entirely on how national energy demand functions. The direction of demand patterns becomes vital in subsidized energy markets because continuous growth in energy consumption triggers parallel increases in the financial support needed for subsidies. Through demand projections, organizations can predict the financial challenges that will affect public budgets and the entire energy system during medium and long-term periods. When assessing current and future subsidy policies, demand projections stand as critical elements for creating various fiscal scenarios that help determine policy sustainability. A thorough analysis of both historical and future energy demand patterns across residential, transportation, and industrial sectors enhances quantitative analysis precision while delivering indispensable elements for responsible public policy development.

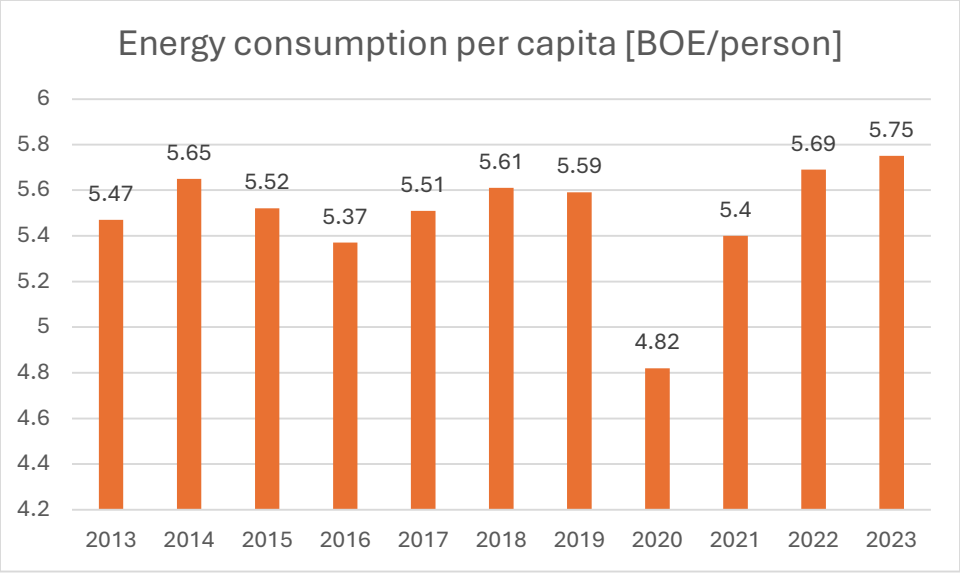


*Figure 2 Energy consumption per capita in Ecuador in the period 2013-2023*

## 1.3 Objectives

The main objective of this research is to calculate the overall financial support amount which constitutes energy subsidies in Ecuador by using energy sector public data for fiscal and economic sustainability assessment.

The following specific research goals form the project scope:

1. to carry out a bibliographic review of primary and secondary public sources through official, academic and informative pages to obtain information related to energy subsidies in Ecuador.

2. to identify energy subsidies through a methodology of difference between real and commercial cost in order to quantitatively estimate the annual expenditure generated by subsidies in Ecuador.

3. to analyze the effect of energy subsidies through a focus on the economy, society and the environment to identify alternatives to the problem of subsidies in Ecuador.

## 1.4 Methodology

The proposed research applies a quantitative-descriptive methodology as its foundation for development. The investigation targets one main objective, which include determining government economic spending through commercial analysis and collecting quantitative data from public national and international databases alongside academic sources in indexed publications that address the problem. The official documents published by the Ministry of Energy and Mines serve as the main source for the study due to its focus on the Ecuadorian context.

## 1.5 Document structure

This document is initially developed with the introduction, justification where the importance of the study of the problem is explained. This is followed by the theoretical framework where the theoretical concepts on subsidies, their functioning within the market and how they are supported by economic theory are presented. In chapter three, the methodology and materials used in the research are explicated, thus opening the way to the fourth chapter where the information gathered is analyzed as well as the quantitative evaluation of energy subsidies. Subsequently, a description of the effects from a sustainable perspective is made. Finally, the conclusions are presented followed by the references that have been fundamental for the research.

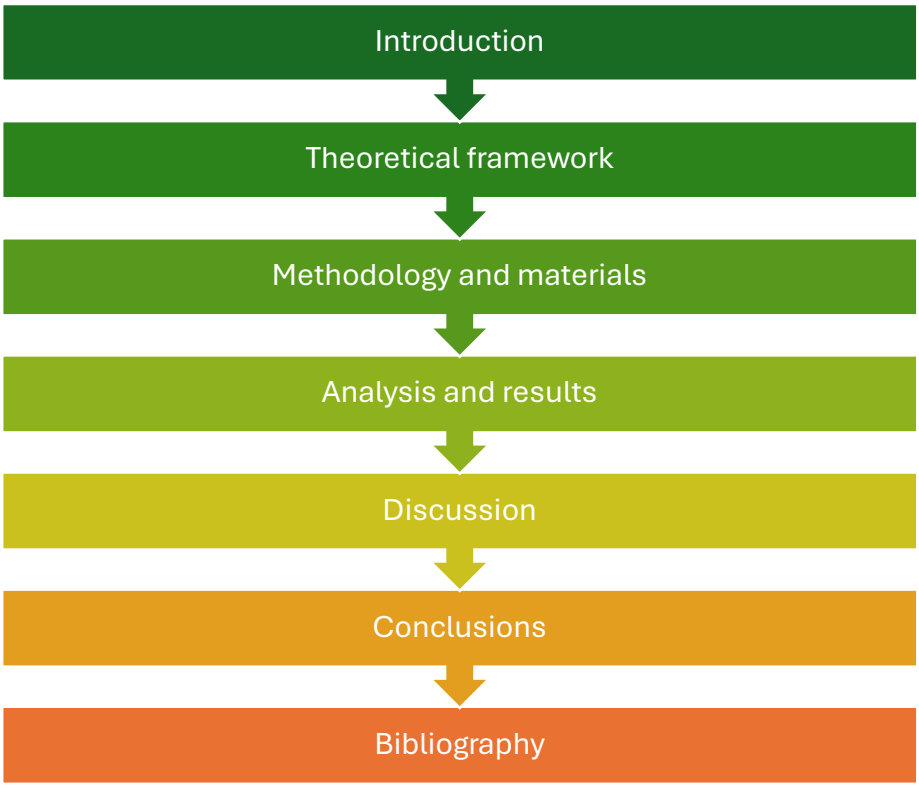


*Figure 3 Document structure*

# 2. Theoretical framework

## 2.1 Fundamentals

**Energy subsidies**

The government uses energy subsidies to decrease energy production costs and increase accessibility of energy to consumers (Moerenhout, 2022). Governments implement energy subsidies through different mechanisms including financial transfers and tax incentives and price controls as part of their goals to help domestic energy markets and fight energy poverty while stimulating economic growth. The implementation and impact of energy subsidies show both positive and negative results due to their complicated nature. The subsequent parts of this text explore different energy subsidy types alongside their objectives and effects together with potential reform challenges.

The implementation of an energy subsidy decreases the final consumer expenses which establishes a new balance point in the market (World Trade Organization, 2006). The plot of quantity versus price shows a movement along the demand curve that leads to increased quantity demanded because the subsidized price falls under the initial market equilibrium value. The difference between Q and Q1 in consumption and the decline from P to P1 in consumer costs represent an expenditure that the government needs to cover. The mechanism creates an increase in fiscal spending which matches the volume of subsidized consumption while promoting ineffective energy resource utilization that could threaten both economic and operational sustainability when handled incorrectly.

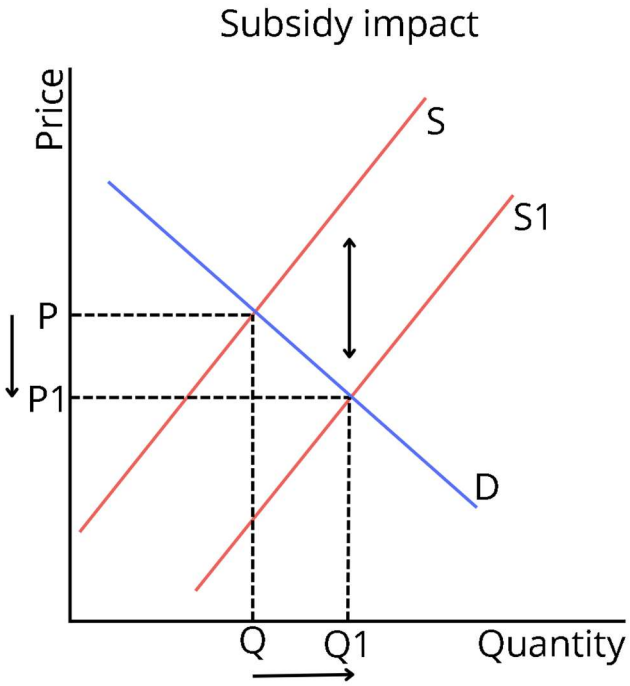


*Figure 4 Graphical representation of the introduction of a subsidy in the market*

**Types and mechanisms of energy subsidies**

Direct financial transfers: Governments can use direct financial assistance for energy producers or consumers to decrease energy expenses. The process involves government budget transfers to power suppliers and government subsidies for defined energy technologies according to (Burns et al., 2018).

Tax expenditures: Energy subsidies exist as tax expenditures through reduced tax rates which decrease the production and usage costs for both energy producers and consumers. Energy producers and consumers benefit from lower production and usage costs when governments implement tax breaks and reduced tax rates for these sectors according to (Clements et al., 2014).

Price controls: Energy price controls enable governments to set artificial low prices which support consumers while producing potential market distortions according to (Burns et al., 2018).

Subsidized load and risk shifting: Energy producers receive low-interest loans or assume risks through subsidies based on the research by (Burns et al., 2018).

**Objectives of subsidies applied to energy**

The government uses subsidies to create affordable energy for low-income families so that they can access energy and escape poverty according to (Hosan et al., 2023; Serem et al., 2024). Government support of local energy producers through subsidies results in economic growth and industrial progress as stated by (Dhakouani et al., 2020). The government uses specific subsidies to support renewable energy development while helping people reduce their dependence on fossil fuels according to research by (Sakib, 2024; Serem et al., 2024).

**Effects on the economy, society, and environment**

Economic impacts: Subsidies frequently result in inefficiencies and fiscal imbalances, even though they can boost economic activity. According to (Clements et al., 2014; Feng et al., 2018), for example, subsidies can be expensive and may not adequately target the intended beneficiaries, with wealthier households frequently benefiting more than poorer ones.

Social impacts: By lowering energy poverty and expanding access to necessary services, energy subsidies can raise social well-being. Richer households frequently benefit more, though, and the benefits are not always shared fairly (Hosan et al., 2023).

Environmental effects: Help given to fossil fuels can go against cutting carbon emissions and environmental degradation putting a stop to climate change efforts. Subsidies to renewable energies, however, can go toward promoting cleaner energy systems (Sakib, 2024).

**Challenges and considerations for reform**

Political and economic challenges: Reforming upon the energy subsidies under the law consists of gaining resistance from vested interests and contemplating protection for a poor population. For a successful reform, price increases should be structured and phased gradually (with corresponding protection measures for the poor); this would require a delicate design (Clements et al., 2014; Moerenhout, 2022).

Sustainability and market distortions: Subsidies have the potential to skew energy markets and jeopardize sustainability goals. Making sure subsidies are in line with the more general goals of sustainable development is essential (Sakib, 2024).

## 2.2 Structure of the Ecuadorian energy sector

Government institutions Ecuador's energy sector is characterized by a vertically integrated setup totally dominated by the state, and the roles across institutions that govern policy, regulation, planning, operation, and distribution are well differentiated. As the first and primary decision-maker in policy for the entire energy sector (which includes mining, hydrocarbons, and electricity), the Ministry of Energy and Mines (MEM) also retains specific, strategic planning roles. The Agency for Regulation and Control of Energy and Non-Renewable Natural Resources (ARCERNNR) has responsibility for technical oversight, regulatory compliance, and enforcement across the hydrocarbon and electricity sectors. National Electricity Operator (CENACE): regulates the wholesale market for electricity and operates the nation's electrical grid. CENACE is responsible for maintaining reliability in the grid system and developing real-time dispatch of the system.

**Energy subsidies in Ecuador**

The energy subsidy model in Ecuador has a wide base and lacks effectiveness in targeting recipients, because it operates where the State directly subsidizes key energy resources such as electricity, liquefied petroleum gas (LPG), gasoline, and

diesel, this is in order to maintain prices artificially low for end users (Peña Murillo et al., 2025; Schaffitzel et al., 2019). If these subsidies were to be eliminated, they would free many resources for social programs, very likely resulting in net benefits for the poorest households as well as aiding in meeting environmental goals (Montenegro-Casa & Ramírez-Álvarez, 2024).

**Main features of Ecuador's subsidy model**

Generalized consumption subsidy: Everyone, no matter how much they earn or how much they use, gets to enjoy lower prices. This includes homes, public and private transport, and industries.

Strong State involvement: The government sets prices for consumers lower than what it actually costs to produce them or what they would cost on the global market. They cover the gap with public money.

Focus on three key energy sectors:

LPG: The price of the residential common 15 kg gas cylinder has been kept the same since 2001. Representing a major cost for the government in terms of residential use.


*Figure 5 Distribution of LPG for domestic purposes in Ecuador*

Fuels (gasoline and diesel): The government helps cover part of the cost of extra gasoline, diesel, and other oil products. This can be a big expense, especially when global oil prices go up.


*Figure 6 Gas station with gasoline and diesel prices*

Electricity: There are subsidies for both generating and using electricity, especially for homes and rural areas (low voltage users). Even though there are tiered rates based on how much you use, many still pay less than what it really costs.

*Figure 7 Ecuadorian infrastructures for generation and transmission*

Lack of efficient targeting: Even though there have been attempts to set different rates, the system still struggles to tell apart those who really need help from those who do not. So, a lot of support ends up going to people who are not in need.

Dependence on oil incomes: This subsidy system has been based on getting money from oil exports, which makes it unstable when oil prices change.

Social resistance to reforms: When there is talk about changing the subsidy system, like cutting or adjusting fuel subsidies, it often leads to protests. This puts a lot of pressure on governments that want to make changes.

*Figure 8 Social resistance in Ecuador due to modification on energy subsidies*

## 2.3 Economic impact of subsidies

Energy subsidies have multiple effects on the economy, both positive and negative. From an economic perspective, these impacts can be analyzed using supply and demand models, welfare economics theory, and the concept of market failures. The main effects are explained below, supported by economic theory:

Price distortions and inefficient market signals theoretical basis: Supported by the supply and demand model or welfare economics. This theory expresses that by maintaining a price that is below the market equilibrium price, the government

creates a distortion in the energy market. Consumers face an artificially low price which results in excessive consumption, while producers face insufficient revenues which undermines future investments and efficiency in production. The result is the loss of economic efficiency called deadweight loss.

High fiscal cost theoretical basis: the public finance theory says that the government is using public funds to finance the subsidies, which has a high fiscal burden. If there are not enough revenues from taxes to pay for the subsidies, it will leave the government in a fiscal deficit situation or result in funds being siphoned off from other important areas (e.g., health or education). Economic theory identifies the opportunity cost of subsidies, since the resources used to support low energy prices could be employed better in other social spending programs.

Equity problems and poor targeting theoretical basis: In this case the welfare economics and distribution of income propose that general subsidies, as is the example in Ecuador, favor high-income households more than low-income households, as the former consume more energy. The result is a poor targeting outcome that is regressive, as the wealthy are enjoying a larger share of the subsidy. From an equity perspective, this is inefficient, since it does not yield maximum social welfare, since the less fortunate do not capture more benefits.

Energy waste and environmental damage theoretical basis: Market failures and the negative externalities describes that subsidies encourage fossil fuels to be consumed as they are artificially cheap and contribute to pollution and gases increases. According to economic theory, where negative externalities such as pollution exist the appropriate policy is to tax the polluting consumption, (e.g., carbon taxes) not to provide subsidies.

Barriers to energy transition theoretical basis: Technology change theory and incentives imply that substituting subsidies for conventional energy keep prices low for households and industries. When prices are low there are lower (or no) incentives in households or industries to invest in clean or efficient technologies, such as solar

energy, electric vehicles, or measures for energy efficiency. If these subsidies distort price signals, they diminish innovation capability and slow down the transition to a sustainable energy matrix.

Macroeconomic volatility and resource dependency theoretical basis: Business cycle theory rationalizes that countries such as Ecuador depend on oil revenues to pay for subsidies which makes them vulnerable to fiscal shocks due to dependence on the oil revenue. When oil prices fall, a country can experience increased volatility, impaired or temporary suspension of past gains in investor confidence, increased country risk, and pressure on public finances.

**When can a subsidy be justified?**

In certain cases, energy subsidies can be economically justified when applied temporarily or in a well-targeted manner to address specific policy goals. For instance, subsidies may be used to correct market failures that prevent equitable access to essential energy services, particularly in remote or underserved areas where the private market alone cannot guarantee affordable supply. They can also play a vital role in reducing energy poverty by lowering costs for low-income households, ensuring that basic needs such as lighting, cooking, and heating are met. Moreover, in the face of external shocks such as abrupt increases/reduction of international oil prices – temporary subsidies can be a safety net. They can help to reduce the impact on people and on the country's GDP and give time to implement re-adjustments. Subsidies can also be helpful to support the first market deployment of new technologies that might offer valuable long-term benefits but that have not yet reached the necessary scale to become competitive. This is what theory denominates the "infant industry" argument.

Very often, this public intervention may be the necessary driver that will allow these markets to develop faster, innovating and granting other businesses to co-act, thus making a faster transition towards a more sustainable and diversified energy system. However, for all these to be valid, these subsidies need to be carefully designed, they

need to be very transparent about whose favor it is done and, of course, need to be reviewed regularly, assuming that they are for a limited period, to avoid distortions and budget exhaustion in the medium or the long term.

## 2.4 Energy demand growth

The transition and growth of energy demand around the world is a pressing matter and has significant economic and environmental influences as it relates to energy subsidies. (*Global Primary Energy Consumption by Source*, 2023) supported by the University of Oxford predicts that energy demand is expected to increase 50% by 2030, and therefore, understanding and managing such demand is paramount to sustainability and economic security. Energy subsidies, while providing cost-effective energy and creating growth potential for economies, usually cause severe public costs, such as fiscal deficits, and environmental damage (Clements et al., 2014; Moltke et al., 2004). This complex relationship requires an investigation into both energy demand indicators, trends, and subsidy structures, if we hope to curb detrimental outcomes and increase sustainable energy outcomes.

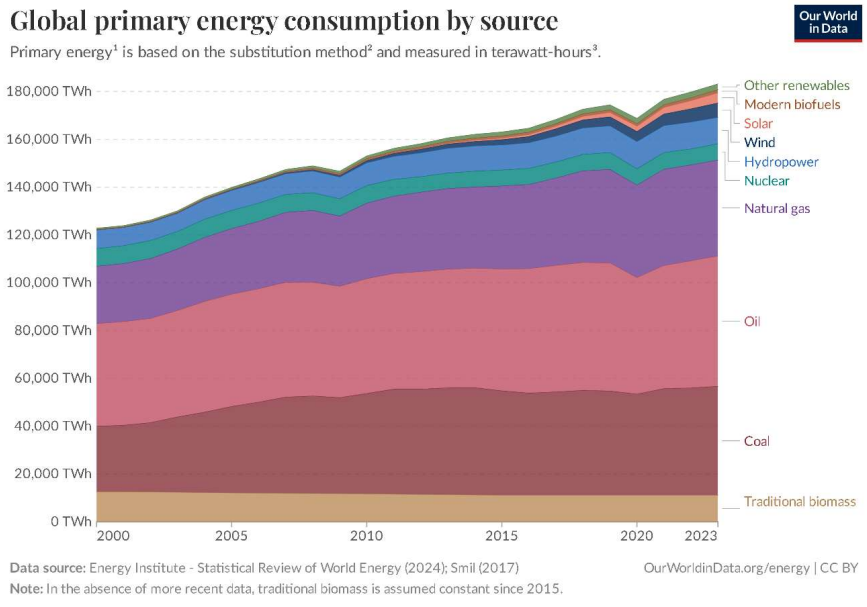


*Figure 9 Global energy consumption by source from 2000 to 2023 Source: Our World in Data*

# 3. Methodology and materials

## 3.1 Methodological approach

This study adopts a quantitative explanatory approach for the analysis and estimation of the national cost of energy subsidies in Ecuador. The research is based on the processing and analysis of statistical data from official sources, with the aim of quantifying the economic impact of these subsidies and evaluating their influence on the sustainability of the energy sector.

## 3.2 Research design

A non-experimental, descriptive design is used, based on quantitative historical data corresponding to the analysis period (2013–2023). The research is both descriptive and explanatory, as it aims to characterize energy subsidies and explain their economic impact.

## 3.3 Information sources

The main sources used in this research are:

• Ministry of Energy and Mines of Ecuador

*Figure 10 Ecuadorian Ministry of Energy and Mines logo*

• Agency for the Regulation and Control of Energy and Non-Renewable Natural Resources (ARCERNNR)


*Figure 11 Ecuadorian Agency of regulation and control of energy and non-renewable natural resources logo*

• Central Bank of Ecuador (BCE)


*Figure 12 Central Bank of Ecuador logo*

• Ministry of Economy and Finances


*Figure 13 Ecuadorian Ministry of Economy and Finances logo*

• Petroecuador and EP Petroamazonas


*Figure 14 Ecuadorian national oil company logo*

- National Institute of Statistics and Census (INEC)


*Figure 15 Ecuadorian institute of statistics and census logo*

- Reports from multilateral organizations: IEA, ECLAC, World Bank, IMF


*Figure 16 International Energy Agency logo*


*Figure 17 The World Bank logo*


*Figure 18 OLADE logo*


*Figure 19 International Monetary Fund logo*

## 3.4 Procedure for Estimating the Cost of Subsidies

**Identification of subsidized products/services:**

- Electrical energy
- Liquified petroleum gas
- Gasoline and diesel

**Subsidy cost calculation:**

For each component, the subsidy is calculated as the difference between the real market price (or opportunity cost) and the final consumer price, multiplied by the volume of consumption:

$$Subsidy\ cost = (market\ price - consumer\ price) * quantity$$

Where:

Market price: International price or actual cost

Consumer price: Government-regulated price

Quantity: Volume of subsidized consumption

**Aggregation by type and year:** Annual subsidy costs are aggregated by energy type and analyzed over time to observe trends and fluctuations.

**Conversion to macroeconomic terms:** The total cost of subsidies is calculated as a percentage of GDP and the total fiscal expenditure.

## 3.5 Assessment of the impact on economic sustainability

The sustainability of the energy sector is analyzed through the following factors:

- Proportion of subsidy spending relative to the sector's budget
- Postponed or limited investments due to the allocation of subsidies
- International comparison with countries in the region

## 3.6 Tools and techniques

The study employs software tools to perform a thorough examination of energy subsidy impacts on the Ecuadorian economy such as Excel, Python or R. These are helpful to arrange extensive datasets and execute analytical computations which produce meaningful visual outputs. The tools enable efficient processing of both historical and sector-specific information to enable trend assessment and scenario creation. With these tools it is possible to use descriptive statistical methods to gather information through average calculation and growth rate analysis and percentage variation computation which reveals the size and historical development of subsidies. Time series charts together with bar diagrams and comparative graphs

help to present findings in an effective manner while showing changes throughout the years and comparing energy source subsidy distributions. The combination of these instruments expands the analytical capacity of the research and enables the development of conclusions based on solid evidence.

## 3.7 Study limitations

As of 2024, Ecuador has been unstable in multiple areas. For one, politically, 2023 had early elections which resulted in a former president change and a new one being elected, and subsequently, a transition of leadership and changes within various ministries. Second, from an environmental perspective, Ecuador experienced hydrological drought in the last quarter of 2024, lasting over 80 days, as an effect of the so called “El Niño” phenomenon, which created an energy crisis and Ecuador has a primarily hydroelectric electricity matrix and did not have enough thermal backup. This caused residents and businesses to experience blackouts and/or outages of up to 16 hours per day. Considering these reasons, the study is simply limited to estimating state spending on energy subsidies until 2023. However, it is evaluated data from prior years to strengthen the research and the quality of any findings.

# 4. Analysis and results

This chapter examines the Ecuadorian energy sector grounded on two areas: electricity and hydrocarbons. Using statistics reported by official institutions, the fiscal burden due to energy subsidies is estimated based on reported generation and consumption, considering referential international costs of various products and services. Finally, the burden is estimated in terms of its reference to the gross domestic product and the public expenses.

## 4.1 National Energy Balance Analysis 2023

In 2024, the Ministry of Energy and Mines (Ministerio de Energía y Minas, 2024) released Ecuador's 2023 National Energy Balance (BEN 2023) which includes energy production, transformation, distribution, and consumption data. The publication serves as a fundamental document for creating sustainability metrics which evaluate Ecuador's energy sector performance alongside its economic and environmental dimensions.

National energy planning receives essential support from the 2023 BEN because it delivers transparent data about energy supply and demand that enables the creation of government policies for efficiency enhancement and energy mix diversification and fossil fuel reduction. The report enables experts to assess how economic and environmental factors within the energy sector impact sustainable development through decision-support tools.


*Figure 20 National energy balance 2023 Source: BEN 2023*

In 2023, total primary energy production in Ecuador reached 202.3 millions barrels of oil equivalent (MBOE), of which 85.8% corresponded to crude oil, 7.8% to hydropower, 4.5% to natural gas, 1.0% to sugarcane by-products, 0.7% to firewood, and 0.1% to other primary sources. Energy imports totaled 61.4 MBOE, while exports amounted to 130.7 MBOE, with 87% being crude oil and 13% derivatives and other products.

*Table 1 Primary energy production in Ecuador from 2013 to 2023*

| Primary Energy production (kBOE) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Oil** | 192405 | 203456 | 198527 | 201012 | 194218 | 189076 | 194107 | 175714 | 172857 | 175809 | 173732 |
| **Natural gas** | 10767 | 11499 | 11003 | 11751 | 10968 | 10182 | 9737 | 8777 | 8923 | 9087 | 9201 |
| **Hydro** | 6840 | 7099 | 8114 | 9811 | 12447 | 12812 | 15282 | 15077 | 15846 | 15264 | 15706 |
| **Wood** | 2014 | 2019 | 1865 | 1824 | 1786 | 1743 | 1689 | 1629 | 1565 | 1499 | 1430 |
| **Derivates from cane** | 1468 | 1955 | 2071 | 2156 | 2427 | 2095 | 2328 | 2231 | 2006 | 1902 | 1947 |
| **Other primary sources** | 38 | 60 | 84 | 125 | 166 | 233 | 226 | 231 | 214 | 212 | 293 |
| **Total** | 213532 | 226088 | 221664 | 226679 | 222012 | 216141 | 223369 | 203659 | 201411 | 203773 | 202309 |

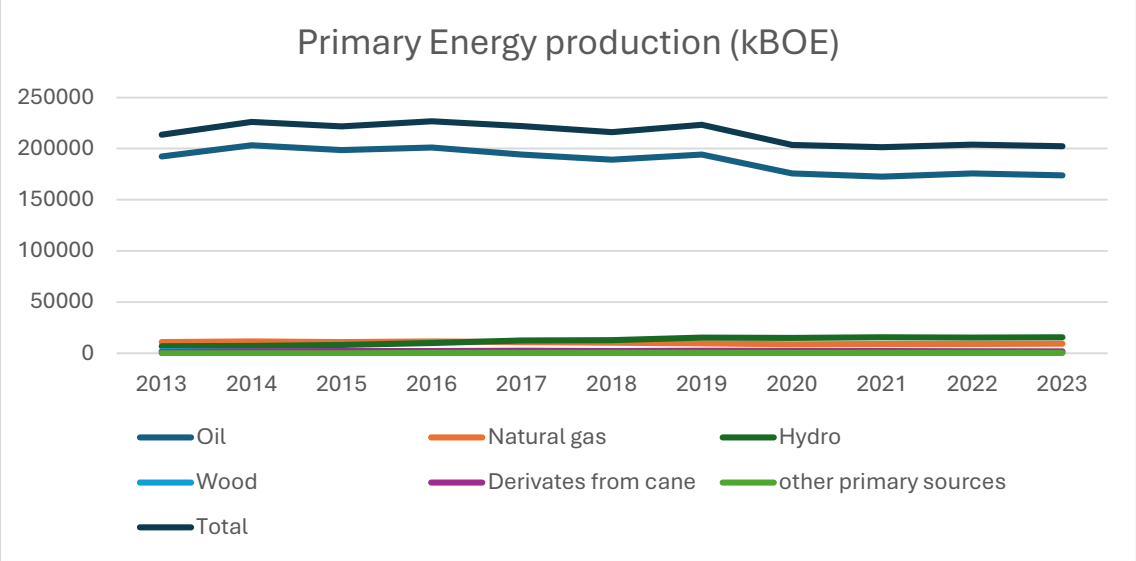


*Figure 21 Evolution of primary energy production from 2013 to 2023*

Secondary energy production reached 78.2 MBOE, with electricity accounting for 21.9 MBOE, followed by fuel oil (21.6 MBOE), diesel (11.8 MBOE), and gasoline (10.0 MBOE).

*Table 2 Secondary energy production in Ecuador from 2013 to 2023*

| Secondary Energy production (kBOE) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Electricity** | 14413 | 15061 | 16079 | 16924 | 17369 | 18120 | 20006 | 19364 | 19962 | 20455 | 21910 |
| **Liquified gas** | 1912 | 1508 | 1146 | 2055 | 2088 | 1912 | 1398 | 1393 | 1539 | 1435 | 1363 |
| **Gasoline** | 9743 | 7685 | 7440 | 11996 | 11348 | 11968 | 11022 | 8577 | 9855 | 10337 | 10015 |
| **Jet fuel** | 2856 | 2662 | 2650 | 2593 | 2984 | 2842 | 2804 | 1496 | 2154 | 2883 | 2877 |
| **Diesel oil** | 11831 | 10981 | 10812 | 14112 | 14076 | 13652 | 13060 | 9827 | 12596 | 13037 | 11785 |
| **Fuel oil** | 19127 | 16762 | 16959 | 19980 | 20638 | 23720 | 19029 | 17315 | 22448 | 23469 | 21597 |
| **Gases** | 730 | 772 | 934 | 698 | 688 | 736 | 706 | 606 | 646 | 657 | 631 |
| **Other secondaries** | 7004 | 7080 | 7069 | 6544 | 6721 | 6395 | 6282 | 5680 | 6270 | 6483 | 6446 |
| **No energetic** | 2856 | 2676 | 1936 | 1717 | 1699 | 1543 | 1477 | 1141 | 1373 | 1672 | 1580 |
| **Total** | 70472 | 65187 | 65025 | 76619 | 77611 | 80888 | 75784 | 65399 | 76843 | 80428 | 78204 |

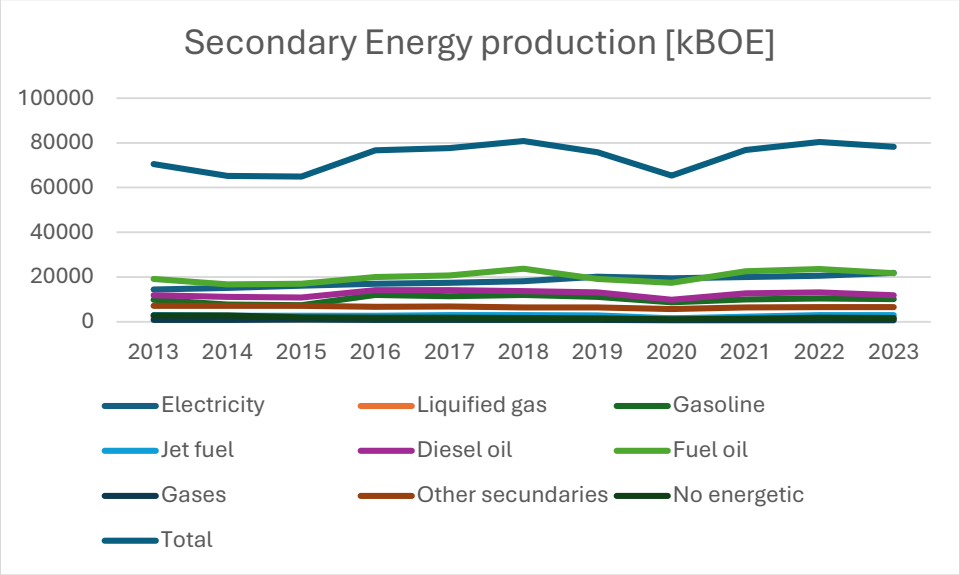


*Figure 22 Evolution of secondary energy production from 2013 to 2023*

The energy intensity remained at an average of 0.89 BOE per thousand dollars of GDP (at constant prices of 2018) for the period 2013–2023. The parameter reveals how efficiently the country uses energy and its correlation with growth in economics. The overall energy consumption was 121.5 MBOE, 18.3% greater than in 2013. Transport used the largest amount of energy, followed by industry and the residential sector.

The figures above show primary and secondary energy production; however, demand differs from production. Therefore, the demand for primary and secondary energy is presented below, showing that the demand for secondary energy is greater than primary energy. The primary energy demand is lower than secondary energy due to the exportation and importation of energy. Ecuador exports around 50% of the primary energy produced and the primary demand is close to 42%. Analyzing the information of the secondary energy, there is a high importation of secondary energy. And a small exportation, reflecting the dependency of the treated fossil fuel as well as the lack of capacity to refine. Around 50% of the secondary energy demand is imported.

*Table 3 Energy balance in Ecuador from 2013 to 2023*

| Year | Total primary energy production [kBOE] | Total primary energy demand [kBOE] | Total secondary energy offer [kBOE] | Total secondary energy demand [kBOE] |
|---|---|---|---|---|
| **2013** | 213531 | 74994 | 70474 | 97882 |
| **2014** | 226088 | 73233 | 65186 | 104100 |
| **2015** | 221664 | 69432 | 65023 | 104084 |
| **2016** | 226678 | 82661 | 76618 | 98353 |
| **2017** | 222012 | 88274 | 77612 | 97023 |
| **2018** | 216140 | 85145 | 80888 | 101537 |
| **2019** | 223368 | 85450 | 75784 | 102147 |
| **2020** | 203660 | 75998 | 65398 | 87708 |
| **2021** | 201411 | 87708 | 76843 | 100722 |
| **2022** | 203772 | 87636 | 80428 | 107960 |
| **2023** | 202308 | 86473 | 78204 | 113297 |

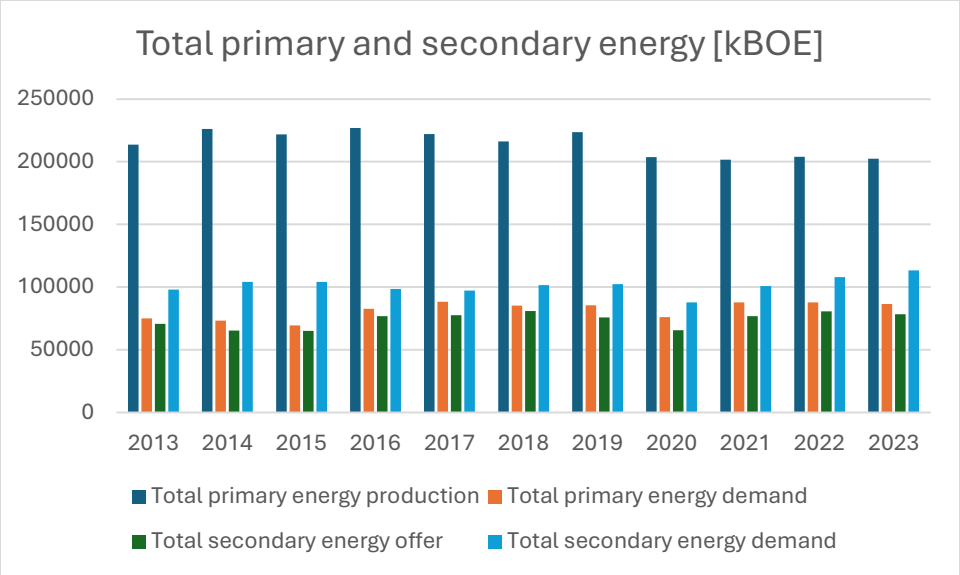


*Figure 23 Evolution of energy demand from 2013 to 2023*

## 4.2 Ecuadorian electrical energy chain

Up to the year 2023, the electricity industry of Ecuador has a wide range of sources that are being constantly modernized and that reach to electricity generation, transmission, distribution, and even international energy trade. The accumulated capacity of the country is 8938 MW which is superlative compared to the 5496 MW of 2013. The largest among the power sources is still the hydraulic one constituting 58.1% of the total capacity, next to it is the thermal generation contributing about 38.6%. However, those sources are not the only ones that have been overtaken by sustainable energy as for example wind and solar power, which now taken together, are responsible for 3.3% of the electricity supply mix. The National Interconnected System (SNI) is the primary channel used for power distribution, and it managed to fulfill 7177 MW in 2023. The lack of power is covered by stand-alone systems of the country, mainly found in the oil producing regions and Galapagos Islands, which accounted for the rest of the demand.

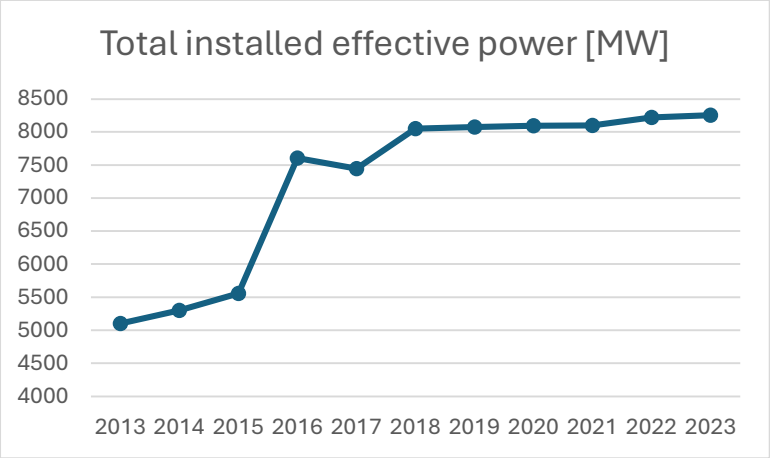


*Figure 24 Installed effective power evolution from 2013 to 2023*

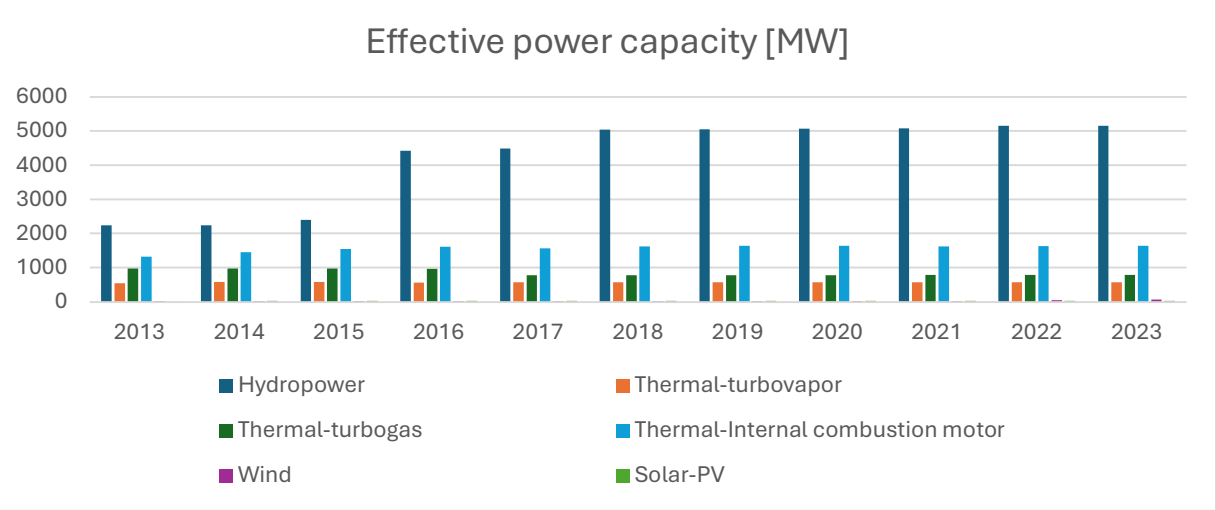


*Figure 25 Effective power capacity by technology from 2013 to 2023*

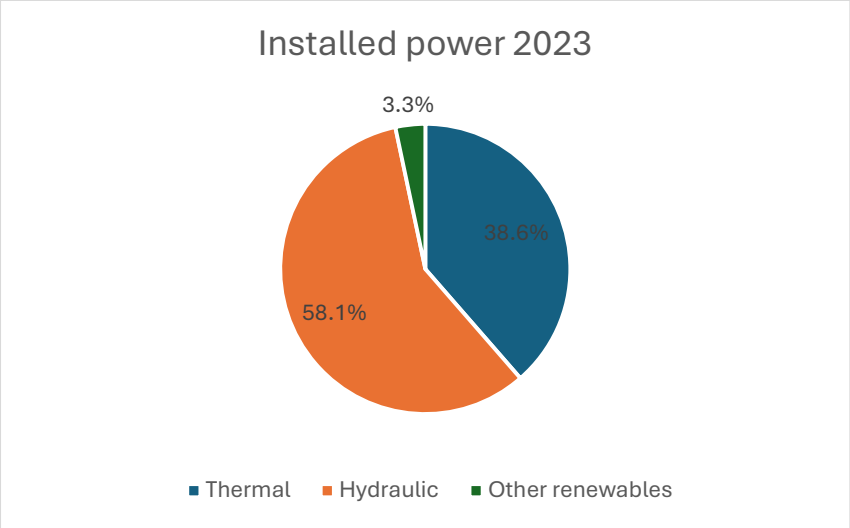


*Figure 26 Ecuadorian electrical installed capacity 2023*

The total electrical generation in 2023 amounted to 36683 GWh, primarily supplied by public sector generators, with notable contributions from self-generating entities and an increasing volume of imports through regional (Colombia and Peru) interconnection lines. Imports surged to 1321 GWh, signaling stronger energy integration with neighboring countries. Despite this progress, the transmission and distribution systems continue to experience efficiency issues, with technical and non-technical losses reported at 4.6% and 15.0%, respectively.

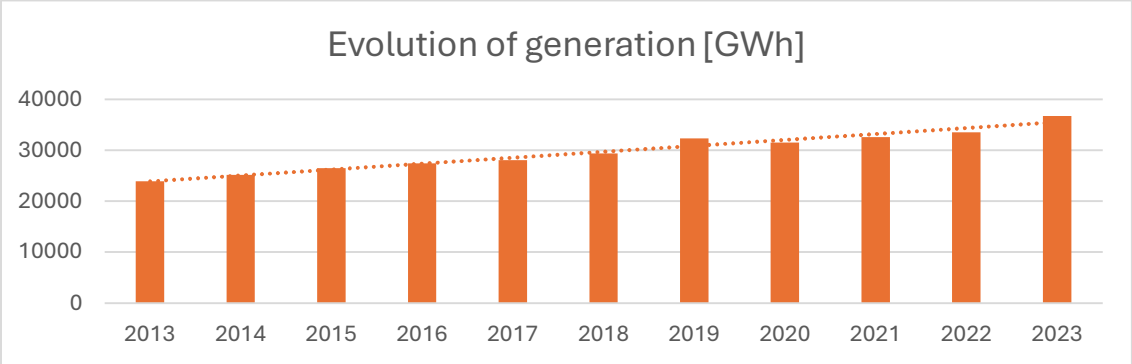


*Figure 27 Evolution of electrical generation from 2013 to 2023*

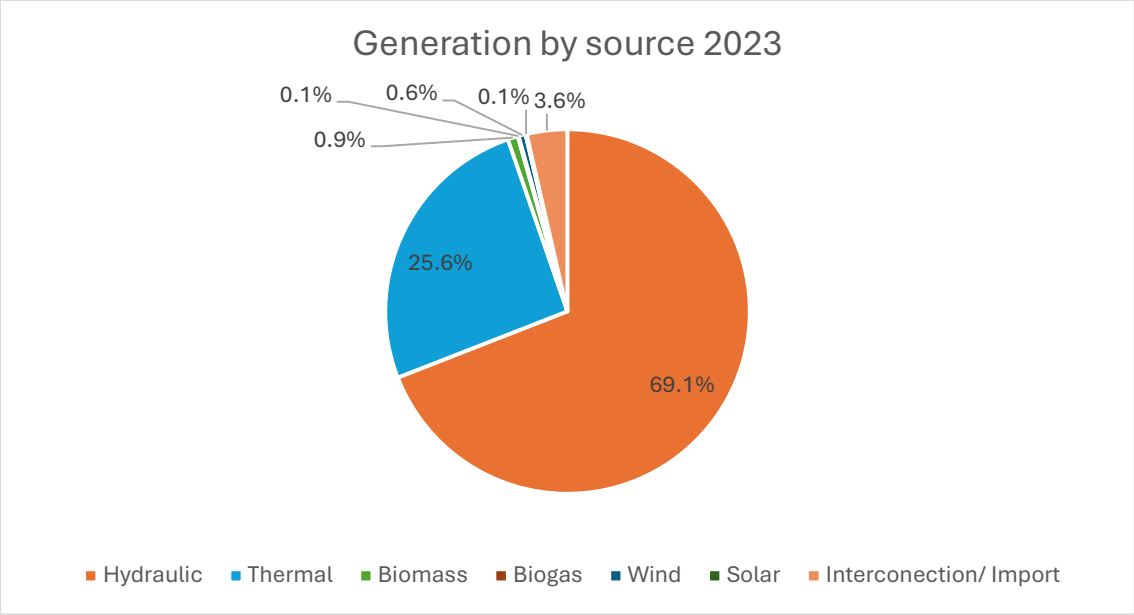


*Figure 28 Participation of sources in electrical generation 2023*

As of today, the energy mix of Ecuador's generation fleet is composed of large hydroelectric plants, thermal power stations that are based on conventional fossil fuels mainly used are fuel oil and natural gas, and also the fast-growing number of renewable energy systems including the wind and solar installations. The country has been practicing energy efficiency especially in the oil-making regions and during the formulation of this statement, the focus was on the task of adding the capacity through the generation of those clean energy sources which are proposed on the basis of the heat emitted from the burning of crude oil and the gas that is produced at the same time. As for the power trade, the country has an import connection capability of 635 MW in place and through these facilities, its domestic market can be served by imported energy in times of dramatically increased demand or limited local generation. The foreseen practices are the results of the sector's advances and the difficulties which are still there. In fact, the actions mentioned clearly demonstrate the necessity of the continuity of investment in infrastructure, the promotion of clean energy, and the creation of an efficient regional partnership so as to definitely have a stable, as well as sustainable, energy future. The year 2023 saw a

total of 1321 GWh being imported from Colombia and Peru, a figure that represents an increase of 183.5% in comparison with the year 2022.

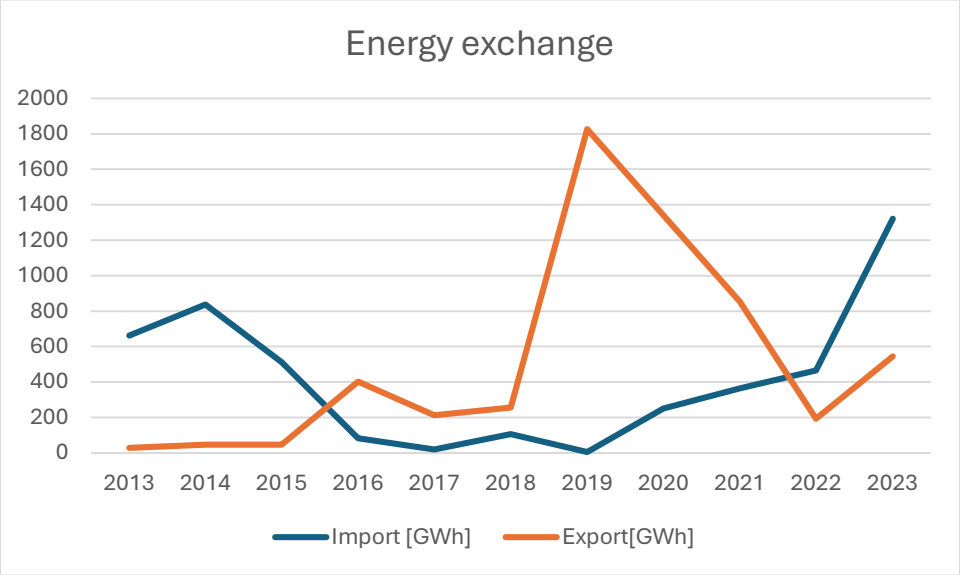


*Figure 29 Importation and exportation of electrical energy*

According to the diagram "Cadena Energética de Electricidad 2023" (See Annex 1), figures for the Ecuadorian electricity sector in 2023 were largely encouraging with strong reliance on renewable resources (48,055 kBOE in energy), moderate dependence on fossil fuels, and a mismanaged distribution system. The assessment of the sector does not go beyond the broad general features of the efficient electricity industry of the country, but it is also significant to highlight still existing issues of energy losses and sectoral modernization.

Despite most of the fewer number of leading energy sources used for electricity generation are outside of the hydropower industry, hydropower plants remain the main energy sources, contributing 14673 kBOE and 61% of the total energy input, which quite vividly illustrates Ecuador's reliance on RE. It means that Ecuador has a strong commitment to renewable energy sources compared to its neighbors and the world at large. The share of fossil fuels is the second-largest in the energy mix with fuel oil (4985 kBOE or 21%), diesel (2030 kBOE or 9%), and natural gas (950 kBOE or 4%) together comprising one-third of the energy. The remaining part of the primary

sources and the conversion of crude oil also make a small impact. Another confirmed transformation losses of 621 kBOE (3%) are reported that is the conversion of fuel to electricity in the first place, it is inefficient and energy-consuming at the same time.

Electricity generation amounted to 24383 kBOE, equal to 39917 GWh. Also, Ecuador received 1322 GWh of imported electricity and through self-generation; the domestic capacity was increased by 6138 GWh; thus, Ecuador could further strengthen its internal supply. 545 GWh representing a small part of the total electricity generated was then exported, indicating that Ecuador not only had the possibility of regional integration of electricity but also the capacity to operate with surpluses in some conditions.

When delivering electric power to customers, some of the energy is wasted. The energy loss was about 2714 kBOE or 6,010 GWh, that is almost 15% of the total electricity generated. The latter figure is very high as it implies that there is a great necessity to significantly improve the transmission infrastructure, minimize technical and non-technical losses, and enhance the economy of the grid.

As the electricity consumption data shows, the country uses a total of 29,379 GWh across all demand sectors. The consumption in the industrial sector stands highest after all sectors with 11912 GWh or 41%, the home sector at 8646 GWh or 29%, and commercial and Public Services at 7698 GWh or 26%. Other sectors consume 812 GWh, while transportation consumed just 236 GWh or less than 1% of total consumption. This very minuscule participation by the transport sector is a clear indication that electric mobility is in its infancy stage in the country. Self-consumption from generation not injected into the grid also took up 446 GWh, illustrating certain levels of decentralized generation, somewhat on the part of industries or institutions.

## 4.3 Ecuadorian hydrocarbons energy chain

The oil sector is the vital component of the Ecuadorian energy matrix and economy of Ecuador, which comprises the extraction, refining, and sale of petroleum and its derivatives. Average daily total crude oil refining in 2023 was 157000 barrels, mostly at three large sites: Refinery Esmeraldas (59% of total volume), Refinery La Libertad (22%), and Refinery Shushufindi (12%). The rest of the crude oil was processed in smaller topping plants. Though there has been historical growth in refining capacity since 2013, unplanned shutdowns at Esmeraldas and La Libertad were a major contributor to the 5% fall in processed volume in 2023 relative to 2022.


*Figure 30 Refineries location in Ecuador*

In Ecuador, the refining process emphasizes the production of various petroleum derivatives. Fuel oil (41.2%), gasoline (22.4%), and diesel (21%) dominated Esmeraldas refinery's output; jet fuel (7.1%), LPG (2. 5%), refinery gases (1.2%), and others (4. 5%) had lesser shares. With 66.4% of the output, fuel oil was followed by

diesel (15.6%), gasoline (12%), and other products at La Libertad. Shushufindi has a greater focus in lower crude (42.3%) but also made diesel, gasoline, LPG (7%), and gases.

Though integrated into the larger petroleum refining system, the LPG industry deserves particular focus because of its strategic local use and great subsidization. Particularly at Shushufindi and Esmeraldas, LPG is mostly taken during crude oil processing. Apart from its uses in the transportation and industrial sectors, it is mostly made of propane and butane and is employed as a domestic cooking fuel. Ecuador's LPG output in 2023 was little and not enough to satisfy local need, therefore imports which had a great impact on the national budget because of the government's long-standing subsidy policy were needed.

Refined goods and crude oil are both distributed locally and sold internationally in terms of commercialization. Especially for LPG and gasoline, the government sets prices in the tightly controlled local market. Though they guarantee affordability, these price controls sometimes cause financial imbalances. Particularly, LPG is offered at very subsidized rates (~0. 10 USD/kg), therefore while it is among the least expensive in the world this also encourages problems like cross-border smuggling and inefficient consuming habits.

Central to Ecuador's energy supply and public policy are its oil and LPG industries. Limited refining capacity, mechanical failures, and the financial strain of subsidies particularly in the LPG segmentate ongoing problems despite the converting infrastructure allowing the transformation of crude into a wide range of fuels. Modernization, improved subsidy targeting, and efficiency enhancements will help to address these problems and create a more resilient and sustainable hydrocarbon sector.

Starting the trade from extraction and refining through ultimate consumption and exchange, the "Cadena Energética de Hidrocarburos 2023" (See Annex 2) offers a comprehensive summary of Ecuador's hydrocarbon industry in 2023. By stressing the important dynamics of oil and gas output, import, processing, internal demand, and exports, it reveals the strategic role of the nation as both a producer and consumer of hydrocarbons.

With 173284 kBOE, Ecuador had output in 2023. Exported: a prominent share of this 113579 kBOE reflects the value of the industry as a producer of foreign currency. The remainder crude was handled domestically (57204 kBOE), 2500 kBOE was devoted to internal operations. This balance highlights Ecuador's dual role as an oil-exporting nation and one that relies on refining its own output to meet local fuel demands. Total refined products came to 56294 kBOE; gasoline (10015 kBOE), diesel (11786 kBOE), fuel oil (21537 kBOE), and other fuels including LPG and jet fuel were broken out. Obviously, imports were vital to meet home demand. Ecuador bought 849 kBOE value. Three million gallons of gasoline, 136.2 million gallons of diesel; 446.5 million liters of LPG Such a great volume of fuel imports in spite of home crude output points to restrictions in refining capacity or misalignments between local production and consumption profiles.

From the natural gas side, 49050 MPC (8202 kBOE) were generated; of this total, 41371 MPC were associated gas and 7680 MPC were free natural gas. Among other things, these volumes were aimed for industrial use (1390 MPC), residential consumption (40 MPC), and power generation hubs (4754 MPC). Though it is essential for power generation and industrial fuel replacement, gas production has a rather little role in the larger hydrocarbon chain.

Overall, the hydrocarbon sector gave 76673 kBOE in ultimate energy use. With 52996 kBOE or almost 69% of the total the transport industry was by far the biggest user. With 7952 kBOE, the industrial sector came next; residential, commercial, fishing/mining, and other sectors accounted for the remainder. An extra 2840 kBOE came from self-consumption.

## 4.4 Energy consumption by sector and source

Chapter 4 of the 2023 BEN offers a thorough sector-by-sector and energy source type breakdown of Ecuador's energy use. With an average yearly growth rate of 1.7% over the past ten years, the nation's total energy usage in 2023 was 102042 kBOE. With 51. 9% of total consumption, the transportation industry is still the biggest consumer; industry (16.6%), the residential sector (13.5%), and the commercial and public services sector (6.1%) follow. With a 9.5% rise over 2022, transportation was mostly fueled by increased diesel and gasoline use in terms of yearly development. Driven mostly by rising consumption of electricity and liquefied petroleum gas, the residential sector expanded 5.6%. Industrial consumption fell 6.8% in contrast, with significant cutbacks in gasoline and diesel traffic. Showing a downward tendency starting in 2013, the "other" sector including self-consumption and non-energy uses significantly fell 24.9%.

Regarding energy sources, fossil fuels continue to dominate. Total use is led by diesel (33.2%); gasoline (28.0%), electricity (18.5%), and LPG (10.5%) come next. Reflecting a rise across all industries especially in residential and business electricity use increased by 5.7% over 2022.

The section also offers in-depth studies of energy use in certain industries including agriculture, transportation, residential, business and industry revealing patterns, efficiency, and source replacing. It also explores the change in electricity use across every sector, including 2013–2023 comparative tables and graphs.

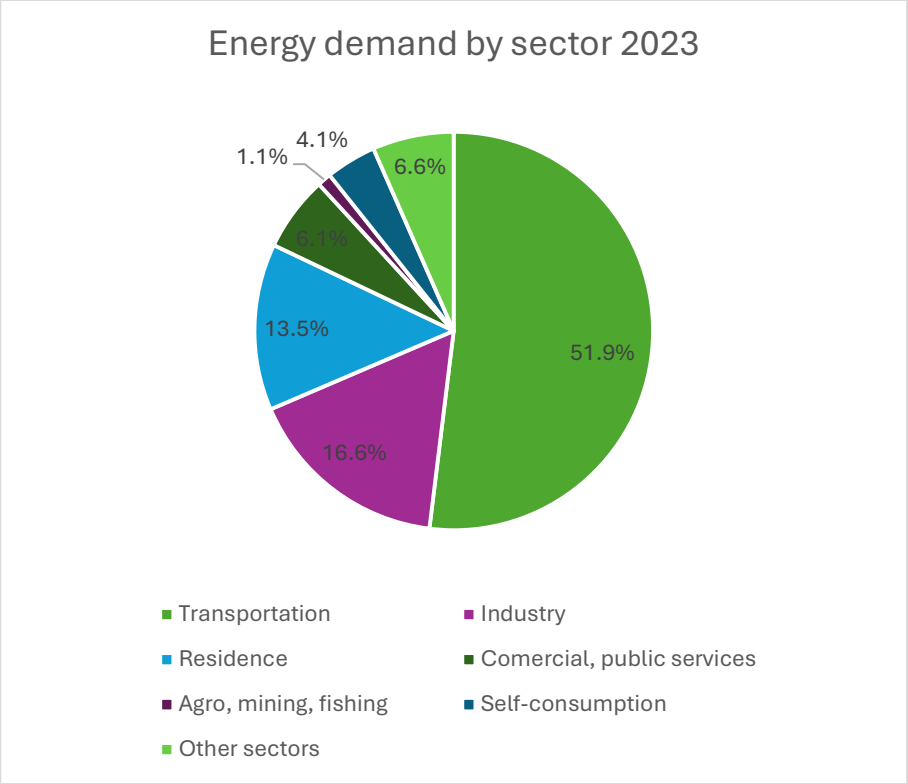


*Figure 31 Energy consumption by sector 2023*

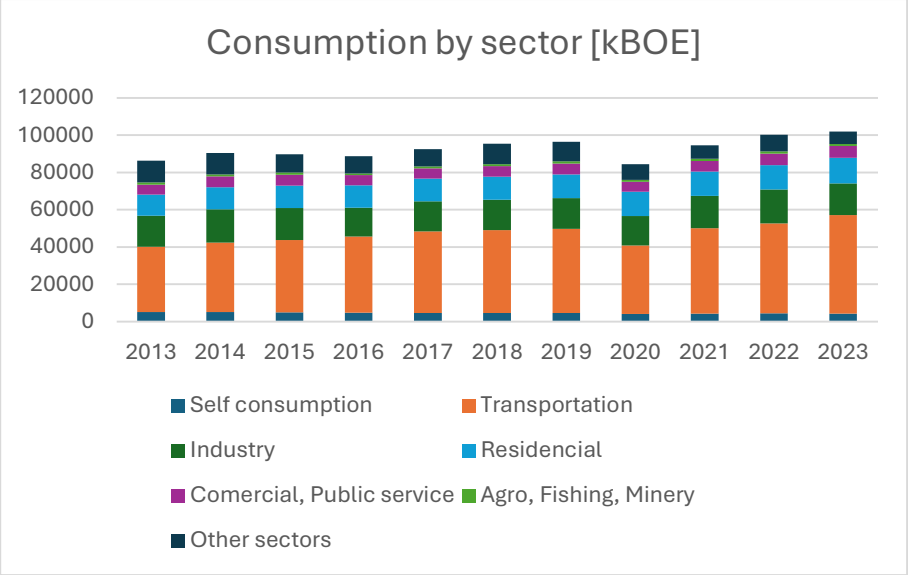


*Figure 32 Evolution of energy consumption by sector from 2013 to 2023*

*Table 4 Ecuadorian energy consumption by sector from 2013 to 2023*

| Consumption by sector [kBOE] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| **Self-consumption** | 4975 | 5098 | 4836 | 4717 | 4485 | 4557 | 4480 | 3927 | 4179 | 4277 | 4153 |
| **Transportation** | 35128 | 37254 | 38931 | 40816 | 43939 | 44402 | 45157 | 36910 | 45932 | 48401 | 53009 |
| **Industry** | 16591 | 17849 | 17067 | 15504 | 16109 | 16359 | 16588 | 15733 | 17370 | 18178 | 16936 |
| **Residencial** | 11442 | 11925 | 12123 | 12083 | 12174 | 12386 | 12686 | 13003 | 13003 | 13087 | 13821 |
| **Comercial, Public service** | 5307 | 5699 | 5788 | 5477 | 5553 | 5763 | 5783 | 5350 | 5593 | 6136 | 6236 |
| **Agro, Fishing, Minery** | 1110 | 1165 | 1150 | 900 | 940 | 1002 | 1212 | 1056 | 1218 | 1175 | 1144 |
| **Other sectors** | 11703 | 11524 | 9899 | 9225 | 9264 | 10977 | 10601 | 8430 | 7297 | 8981 | 6743 |
| **Total** | 86256 | 90514 | 89794 | 88722 | 92464 | 95446 | 96507 | 84409 | 94592 | 100235 | 102042 |

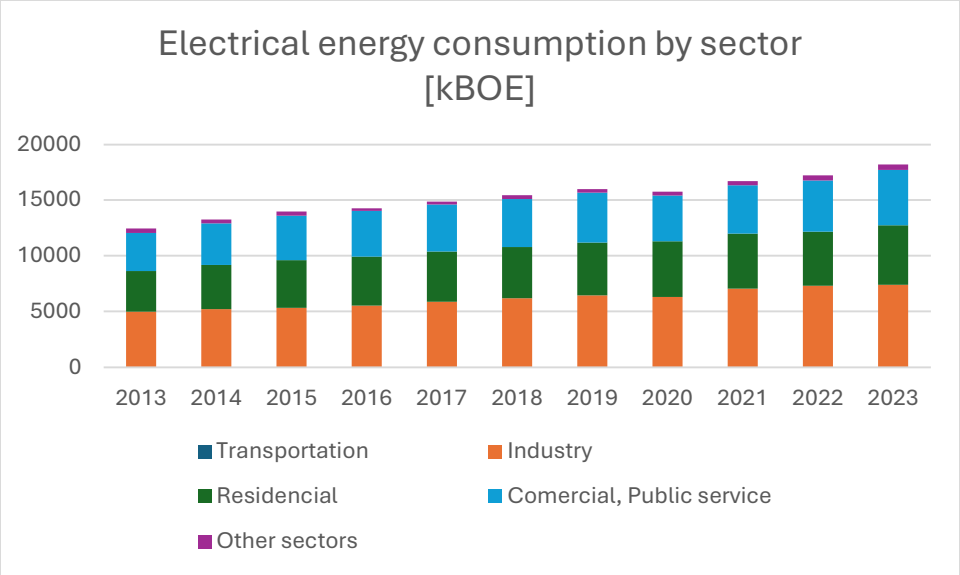


*Figure 33 Evolution of electrical energy consumption by sector from 2013 to 2023*

*Table 5 Electrical energy consumption by sector from 2013 to 2023*

| Electrical energy consumption by sector [kBOE] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| **Transportation** | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 14 |
| **Industry** | 4976 | 5216 | 5316 | 5526 | 5867 | 6195 | 6438 | 6290 | 7056 | 7313 | 7381 |
| **Residencial** | 3644 | 3943 | 4292 | 4402 | 4522 | 4585 | 4744 | 4996 | 4931 | 4853 | 5357 |
| **Comercial, Public service** | 3435 | 3737 | 3989 | 4110 | 4211 | 4299 | 4488 | 4119 | 4331 | 4577 | 4948 |
| **Other sectors** | 386 | 359 | 368 | 230 | 248 | 347 | 319 | 343 | 389 | 473 | 503 |
| **Total** | 12447 | 13261 | 13971 | 14274 | 14854 | 15433 | 15996 | 15755 | 16714 | 17223 | 18203 |

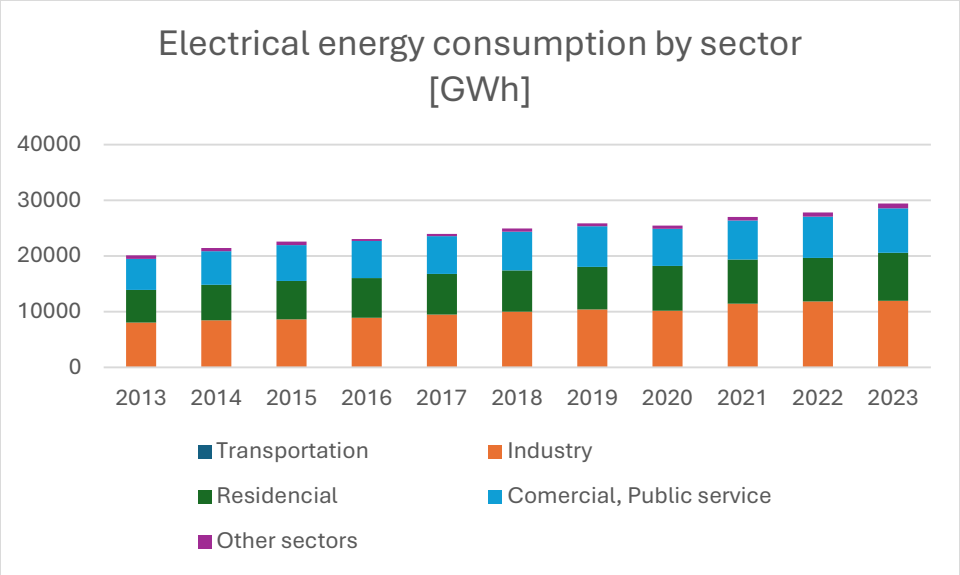


*Figure 34 Evolution of electrical energy consumption expressed in GWh*

*Table 6 Electrical energy consumption by sector expressed in GWh*

| Electrical energy consumption by sector [GWh] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| **Transportation** | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 23 |
| **Industry** | 8031 | 8419 | 8580 | 8919 | 9469 | 9999 | 10391 | 10152 | 11388 | 11803 | 11913 |
| **Residencial** | 5881 | 6364 | 6927 | 7105 | 7298 | 7400 | 7657 | 8063 | 7959 | 7833 | 8646 |
| **Comercial, Public service** | 5544 | 6031 | 6438 | 6633 | 6797 | 6939 | 7244 | 6648 | 6990 | 7387 | 7986 |
| **Other sectors** | 623 | 579 | 594 | 371 | 400 | 560 | 515 | 554 | 628 | 763 | 812 |
| **Total** | 20089 | 21403 | 22549 | 23038 | 23974 | 24909 | 25817 | 25428 | 26976 | 27798 | 29379 |

## 4.5 International prices of oil derivates and electricity

### Oil price

Looking at oil prices from 2018 to 2023 shows big changes caused by world events, finances, and how much oil people wanted versus how much was available. The (*U.S. Crude Oil First Purchase Price*, 2025) says that in 2018, Brent crude cost about $69.08 for each barrel. It went down a bit in 2019 to $64.34. But in 2020, the COVID-19 pandemic turned things upside down. People needed less oil, so prices dropped a lot, with Brent crude costing only $41.96 per barrel on average. As things got better

in 2021, oil prices went back up hitting $70.68 per barrel. In 2022, prices kept climbing because the global economy was doing better and there were problems between countries when Russia attacked Ukraine. This made Brent cost $101.70 per barrel on average. By 2023, oil prices calmed down some, with Brent at $82.95 per barrel. This happened because China's economy was not growing as fast and because of what OPEC+ members decided to do about making oil. From 2018 to 2023, oil prices went up and down a lot. What happened in the world, between countries, and decisions about making oil all played a part. These things keep changing how the energy market works now and will work later.


*Figure 35 Evolution of prices for oil barrel Source: EIA*

**Liquified Petroleum Gas**

LPG is tied to the price of crude oil as it is a byproduct of oil refining. The volatility of crude oil prices had a direct impact on LPG cost. As crude oil prices went up due to geopolitical tensions and supply constraints, LPG prices also went up especially in areas where LPG is a major source of energy (Shiña, 2024).

Ecuador's residential LPG price is one of the lowest in the world at around 1.60 USD per 15 kg cylinder or 0.11 USD/kg or 0.06 USD/liter due to strong state subsidies. Meanwhile international prices in 2023 were much higher: the (*Energy Market*

*Indicator*, 2025) of the European Union registered that countries like France, Germany and Spain had residential LPG prices ranging from 1.2 to 2.0 USD per liter while Latin American countries like Peru and Chile had prices between 0.60 to 1.00 USD per liter (Sánchez, 2022). Even in countries with domestic production and partial subsidies like India or Saudi Arabia prices ranged from 0.20 to 1.00 USD per liter (*World Bank Open Data*, 2025). Ecuador is in a unique position where subsidized LPG has become a central part of domestic energy consumption especially among low-income and rural households. But these subsidies put a heavy fiscal burden on the state and diverts public resources to other sectors. Moreover, the low price has hindered the transition to cleaner alternatives like electric induction stoves and encouraged smuggling to neighboring countries like Colombia and Peru where LPG is much more expensive. While the subsidy ensures social protection and energy access it also creates economic inefficiencies and environmental challenges hence the need for targeted reform and a more sustainable energy strategy.

**Electricity**

Electricity is a crucial component of modern energy systems all over the world, and the price fluctuates with factors including the cost of generation, transmission, and distribution. Along 2023, the price has been swayed by a variety of forces, particularly in Europe, such as petrol prices, renewable integration, and policies. The high dependency on thermal power plants running on derivates of oil makes the electrical energy cost directly affected by the price of the barrel of oil as explained. This implies a behavior on the price like the behavior of the price of LPG and crude oil barrel.

Taking into account international electricity prices in 2023 and comparing it with Ecuador's commercial electricity price (which in 2023 was approximately 0.10 USD/kWh, according to national energy data), it is possible to draw several important inferences such as that Ecuador's commercial electricity price is significantly lower than most of the countries. For example, Ireland had the highest price at 0.53 USD/kWh, followed by Italy (0.46) and the UK (0.44). Even in Latin America, Uruguay

(0.26 USD/kWh) and Peru (0.19) are notably higher than Ecuador. Only a few countries like India (0.06), Venezuela (0.05), Qatar (0.03), and Nigeria (0.02) have lower prices, many of which are also heavily subsidized or are oil-producing nations with distinct economic structures.

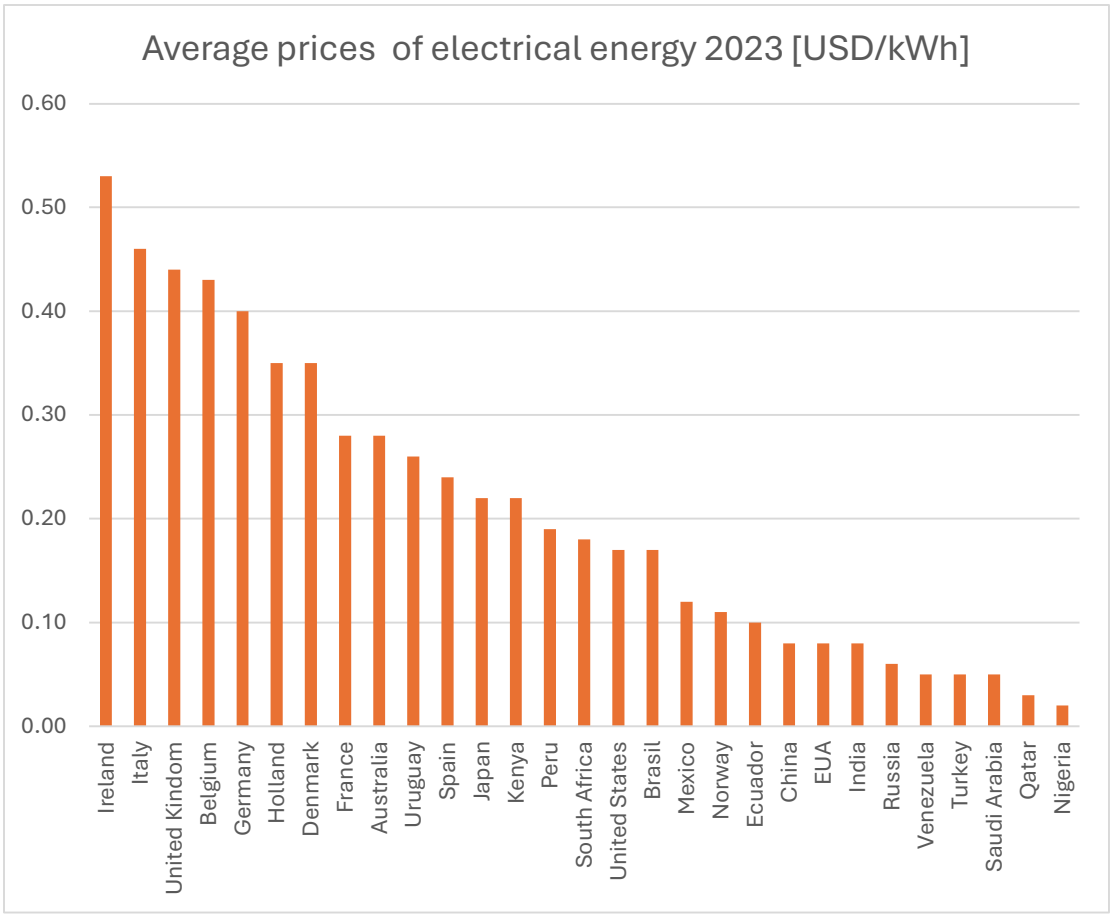


*Figure 36 Electrical energy prices in different countries 2023*

This placement is in line with Ecuador's historic stance on energy handouts, with the electricity field being the largest recipient of public handouts through public firms CELEC EP and CNEL EP, controlling the bulk of its generation and distribution. The artificially low price of electricity makes energy more available, especially for the poor and for small business, but it also creates a significant financial burden for the state meaning that the gap between the cost of production and the sales price is covered by the budget.

In contrast, countries with liberalized or deregulated energy markets such as most of Europe have higher electricity prices that more accurately reflect generation, distribution, and environmental costs (e.g., carbon pricing). These prices can incentivize energy efficiency and investment in renewables, whereas in Ecuador, the lower tariffs may delay such transitions unless paired with targeted reforms.

## 4.6 National Gross Domestic Product

From 2019 through 2023, (*World Bank Open Data*, 2025) and ("Banco Central del Ecuador," 2025) indicated that Ecuador's GDP fluctuated considerably, demonstrating dependency on both external and internal forces. In 2019 economic growth was marginal at 0.1%, crimped by low oil prices, political instability and fiscal constraints. The COVID-19 pandemic was hitting the trade and tourism industries – already down 7.8% in 2020, which suffered from lockdowns and global disruption. However, the economy recovered by rising 4.1% in 2021 as a result of better oil prices along with farm and manufacturing recovery. This recovery picked up pace in 2022 with growth at 6.2%, driven by an increase in oil prices and exports at increased levels despite inflation and political unrest creating problems. The GDP during 2023 amounted to 118845 millions of USD and growth registered slowed down to 2.4%, a deceleration from the boom in the previous period, as recovery was continued by private consumption and steady oil prices but with persistent structural issues like high public debt and inflation. The performance of the economy during this time is a reflection of Ecuador's reliance on its exports of oil and vulnerability of its economy to external shock, with prospects of growth in the short term being uncertain.

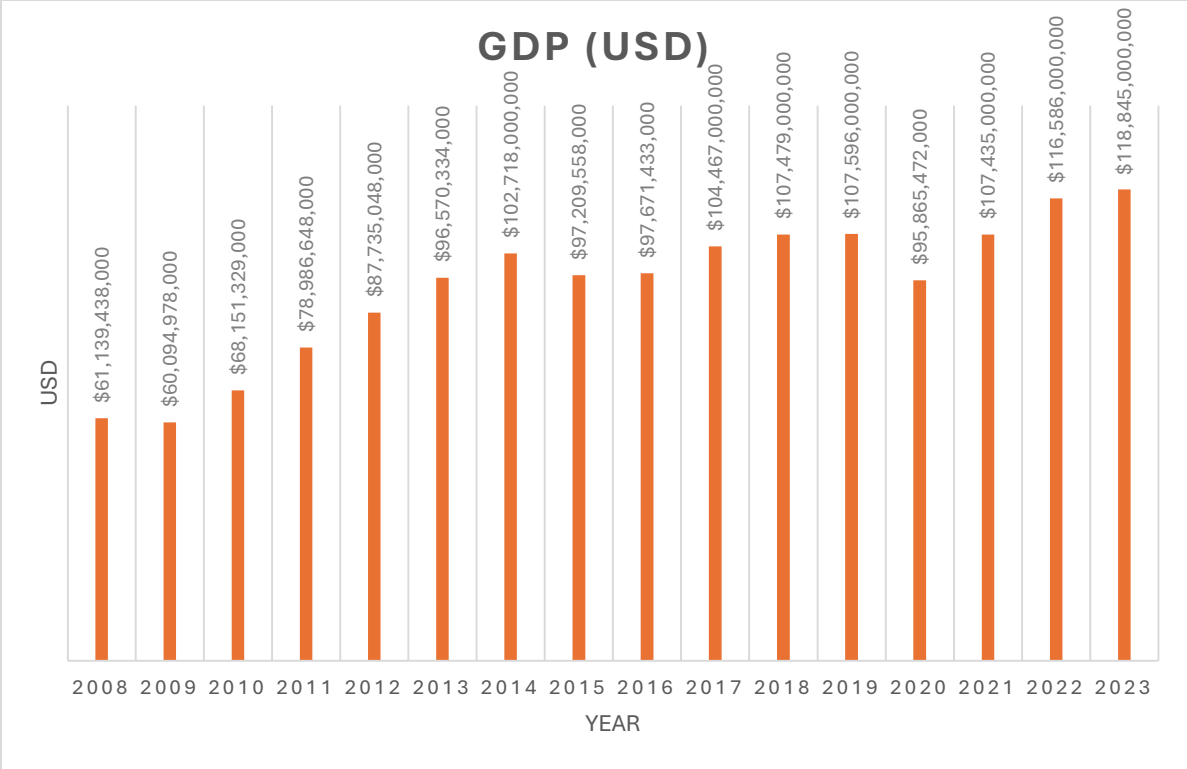


*Figure 37 Ecuadorian GDP evolution from 2008 to 2023 Source: World Bank Data*

## 4.7 Estimation of energy subsidies

The national cost of energy subsidies can be estimated by calculating the difference between the real cost and the commercial price paid by consumers. Consumption volumes are derived from official statistics and figures reported in the 2023 National Energy Balance, published by the Ministry of Energy and Mines. The real prices are not officially published by financial or commercial institutions and are subject to fluctuations due to domestic and international market conditions. Therefore, this study uses reference estimates of real costs for both electricity generation and petroleum-based energy products, based on available research and expert sources. The real and subsidized values used in this analysis are based on average figures reported across multiple sources. Subsidy estimates are carried out across three key areas: electricity, liquefied petroleum gas, and gasoline and diesel.

**Electrical energy subsidy**

The electricity tariff structure in Ecuador defines prices based on the voltage level and the stage of connection to the power system. As electricity moves from generation to distribution, tariffs increase to reflect the added infrastructure and operational costs. Large-scale industrial and mining users that have contracts for the implementation of private transmission systems, which purchase power from the point of generation and are connected via high voltage (230 and 138kV), have the lowest tariff (up to 8 cents/kWh), while residential consumers connected at low voltage pay the highest (up to 10 cents/kWh) (*¿Cuánto Pagan Por La Electricidad y Cuánto Consumen Las Dos Grandes Mineras Que Tiene Ecuador?*, 2024). Industrial users connected at high voltage levels benefit from significantly lower tariffs encouraging direct access to the grid at higher voltage levels for substantial consumers. This structure aims to align pricing with real system costs, support large-scale industrial activity, and incentivize efficient energy use, though it also highlights the higher burden placed on residential users. Roberto Aspiazu, president of the Energy Chamber of Ecuador declared that the average price for Ecuadorian consumers is 0.09 USD/kWh and the real price should be in the range of 0.13 to 0.15 USD/kWh (*¿Cuál Es El Costo Real de La Energía Eléctrica En Ecuador?*, 2024). The ARCONEL is the official institution in charge of setting the commercial price every year. Since 2008, the institution has set the price in an average of 0.09 USD/kWh (*El Precio de La Electricidad En Ecuador: ¿Cómo Se Ubica Frente a América Latina?*, 2024; *Tarifas del Sector Eléctrico – ARCONEL*, 2024). To complement the information described before, another publication suggest that the real price may be in the range of 0.14 and 0.16 USD/kWh (Schaffitzel et al., 2020). The information suggests that the subsidy evaluation can be done considering a real price of 0.13 USD/kWh. Based on the consumption by sector from 2013 to 2023, the subsidy is calculated as the difference between real and subsidized price, multiplied by the volume reported in previous sections.

The actual generation costs by each generating company are not publicly available, however, the Corporación Eléctrica del Ecuador Empresa Pública (CELEC EP)

through its generation, transmission and distribution business units, report in 2014 a generation value of between 0.092 USD/kWh to 0.16 USD/kWh. Depending on the technology used and the natural resources available. That is to say, the costs that generate a deficit are perceived by the state, since the generation units update the productive costs (» *Vigente el mecanismo para subsidio eléctrico*, 2014).

*Table 7 Electrical energy real prices*

| Electrical energy real price | |
|---|---|
| **Source** | USD/kWh |
| **Roberto Aspiazu** | 0.13-0.15 |
| **Schaffitzel et al** | 0.14-0.16 |
| **CELEC EP** | 0.092- 0.162 |

Table 7 shows the average real and subsidized prices used to calculate the energy subsidy for the Ecuadorian electricity sector. The approximate real price is USD 130,000/GWh, while the average commercial price is USD 90,000/GWh. The direct implication is that the government assumes an average value of USD 40,000/GWh.

This is based on Articles 1 and 2 of Constituent Mandate No. 15, registered on July 31, 2008. This mandate explains that the Ministry of Finance will cover monthly differences between the costs of generation, distribution, and transmission, and the single tariff set for the final consumer. It also explains that marginal costs will be eliminated from the calculation of the generation component, and that investment for the expansion of distribution and transmission will not be considered (Asamblea Nacional, 2008). The evolution of the real cost to the state shows a steady increase, reaching USD 3,819.4 million. Demand has increased by 46% over the past decade. The increase is due to the natural increase in energy demand as well as infrastructure operating and maintenance costs. Among the strategic sectors, industry is the largest energy customer, with values ranging from USD 1,044.1 million in 2013 to USD 1,548.7 million in 2023. This is followed by the residential sector, which grew from

USD 764.6 million to USD 1,124 million. Table 10 shows the difference between the real and commercial values, that is, the value subsidized by the state in accordance with Constituent Mandate No. 15. National public spending in terms of subsidies is USD 803.59 million in 2013 and USD 1,175.19 million in 2013. Notably, the subsidy is directly proportional to the real costs, that is, there have been no constituent reforms that modify the level or percentage of subsidy applied to the electricity sector.

*Table 8 Electrical energy prices real and subsidized*

| Electrical energy prices and subsidy | | |
|---|---|---|
| **Real price average** | 130000 | USD/GWh |
| **Subsidized price average** | 90000 | USD/GWh |
| **Difference paid by government** | 40000 | USD/GWh |

*Table 9 Real cost of electrical energy by sector expressed in millions of USD*

| Real electrical energy cost [Million of USD] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| **Transportation** | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 3.0 |
| **Industry** | 1044.1 | 1094.4 | 1115.4 | 1159.5 | 1231.0 | 1299.8 | 1350.8 | 1319.8 | 1480.5 | 1534.4 | 1548.7 |
| **Residencial** | 764.6 | 827.3 | 900.5 | 923.6 | 948.8 | 962.0 | 995.4 | 1048.3 | 1034.6 | 1018.3 | 1124.0 |
| **Commercial, Public service** | 720.7 | 784.1 | 837.0 | 862.4 | 883.5 | 902.0 | 941.7 | 864.2 | 908.7 | 960.3 | 1038.2 |
| **Other sectors** | 81.0 | 75.3 | 77.2 | 48.3 | 52.0 | 72.8 | 66.9 | 72.0 | 81.6 | 99.2 | 105.5 |
| **Total in millions of USD** | 2611.7 | 2782.4 | 2931.4 | 2995.0 | 3116.7 | 3238.1 | 3356.2 | 3305.7 | 3506.9 | 3613.7 | 3819.4 |

*Table 10 Subsidized cost of electrical energy s by sector expressed in millions of USD*

| Subsidized electrical energy cost [Million USD] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| **Transportation** | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.1 |
| **Industry** | 722.8 | 757.7 | 772.2 | 802.7 | 852.2 | 899.9 | 935.2 | 913.7 | 1024.9 | 1062.3 | 1072.2 |
| **Residencial** | 529.3 | 572.8 | 623.5 | 639.4 | 656.9 | 666.0 | 689.1 | 725.7 | 716.3 | 704.9 | 778.2 |
| **Commercial, Public service** | 499.0 | 542.8 | 579.4 | 597.0 | 611.7 | 624.5 | 651.9 | 598.3 | 629.1 | 664.9 | 718.7 |
| **Other sectors** | 56.1 | 52.1 | 53.5 | 33.4 | 36.0 | 50.4 | 46.3 | 49.8 | 56.5 | 68.7 | 73.1 |
| **Total in millions of USD** | 1808.1 | 1926.3 | 2029.4 | 2073.5 | 2157.7 | 2241.8 | 2323.5 | 2288.5 | 2427.8 | 2501.8 | 2644.2 |

*Table 11 Electrical energy subsidy by sector expressed in millions of USD*

| Difference between real and commercial prices of electrical energy [Million USD] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| **Transportation** | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.92 |
| **Industry** | 321.25 | 336.74 | 343.20 | 356.76 | 378.77 | 399.95 | 415.63 | 406.08 | 455.53 | 472.12 | 476.51 |
| **Residencial** | 235.26 | 254.56 | 277.09 | 284.19 | 291.94 | 296.01 | 306.27 | 322.54 | 318.34 | 313.31 | 345.85 |
| **Commercial, Public service** | 221.76 | 241.26 | 257.53 | 265.34 | 271.86 | 277.54 | 289.74 | 265.92 | 279.61 | 295.49 | 319.44 |
| **Other sectors** | 24.92 | 23.18 | 23.76 | 14.85 | 16.01 | 22.40 | 20.59 | 22.14 | 25.11 | 30.54 | 32.47 |
| **Total in millions of USD** | **803.59** | **856.14** | **901.97** | **921.54** | **958.98** | **996.34** | **1032.68** | **1017.12** | **1079.04** | **1111.90** | **1175.19** |

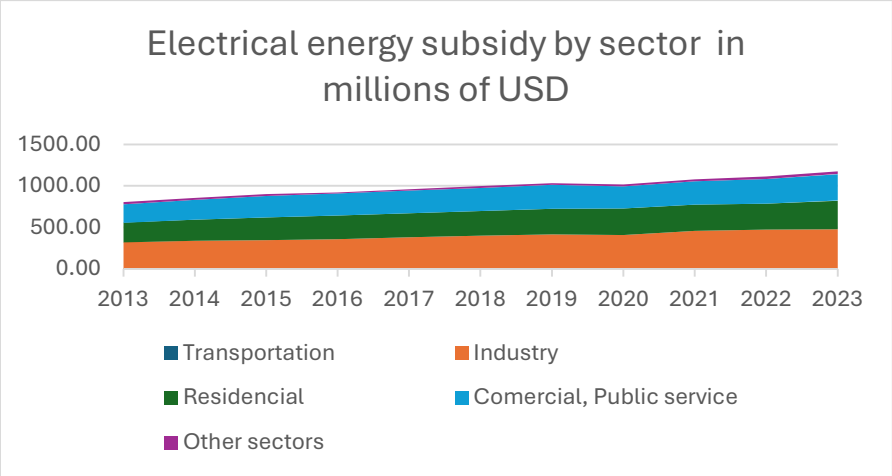


*Figure 38 Electrical energy subsidy from 2013 to 2023*

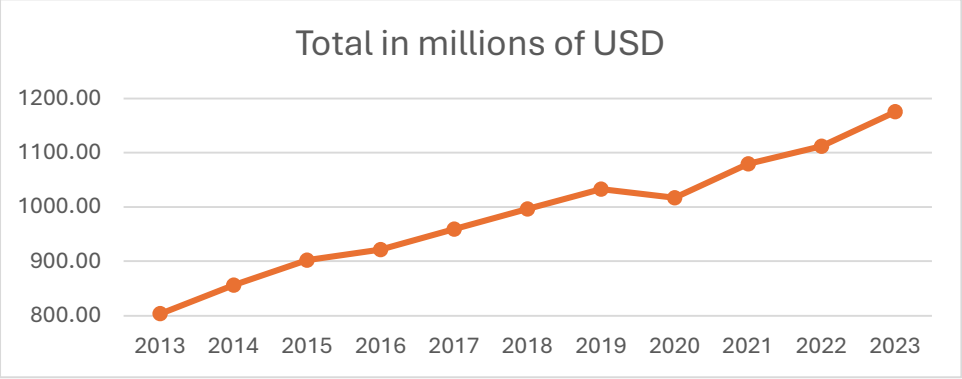


*Figure 39 Fiscal burden due to electrical energy subsidy from 2013 to 2023*

It is significant to mention that under Constitutional Mandate No. 15, the difference between the real cost and the commercial cost is directly attributed to the state through the Social Development tool which is within the general state budget and is

the recipient that issues the payment, that is, the subsidy. As expressed in the constitutional mandate, the Ministry of Finance has the responsibility to make all the budgetary adjustments that allow to comply with the payment. And in case of failure to do so, one of the measures is the dismissal of the Minister of Finance (Asamblea Nacional, 2008). The way to pay the subsidy is by direct monetary transfer as well as with bonds and pensions. Money comes specially from taxes, and it is recollected by the SRI.

**Liquified Petroleum Gas subsidy**

To find the subsidy on liquefied petroleum gas in Ecuador, the base price used is commercial and stands at around USD 1.00 per kilogram and for domestic stands at USD 0.10667 per kilogram. As mentioned by (Cabrera et al., 2025) the market price of a 15-kilogram LPG cylinder is in the range USD 13 to USD 15. However, since 2001, there has been a fixed official LPG price at USD 1.60 per cylinder (*Precio Del Cilindro de Gas Aumentará Desde El 1 de Abril, El Gobierno Dice Que "Es Necesario,"* 2024). From her document, (Sánchez, 2022) also notes that the price of LPG is lowest in Latin America in Ecuador and Venezuela only has a lower price. On this backdrop, regional average is USD 13.31 per cylinder and Chile topped the list at USD 22.74 in 2020.

The Ecuadorian national LPG subsidy calculation thus hinges on the gap between the assumed real market price and the existing since 2001 fixed official price as indicated on PetroEcuador's official website (*EP PETROECUADOR – Empresa Pública de Hidrocarburos del Ecuador*, 2025).

Over the 2013–2023 period, public expenditure in Ecuador on the subsidization of liquefied petroleum gas (LPG) increased from $723.47 million to $991.70 million, representing a cumulative increase of nearly 37%. This growth is most evident beginning from 2018 and keeps increasing annually owing to increased consumption and broader subsidization.

The domestic sector has control over LPG subsidy allocation, absorbing over 70% of the total annually. In 2013, it was $605.45 million; in 2023, it would be $738.59 million. This shows how much subsidized LPG is used as a cooking and hot water source in Ecuadorian homes, especially in municipal and peri-urban environments.

The segment called "other sectors" had the quickest growth—its total for 2015 was $13.19 million; for 2023, it would be $174.66 million. Such fast growth may either be an indicator of growing unregulated or informal consumption, or a failure to make a distinction between sectoral classification. If not addressed, this can indicate leakages or inefficiencies in the subsidy distribution.

Lower and more consistent proportions are observed in:

Commercial and public services: between $37–45 million per year.

Transportation: increasing steadily from $6.51 million (2013) to $17.24 million (2023), showing modest but strengthening use of LPG as taxi fuel.

Industry: maintaining relatively low share, around $7–8 million annually.

Agriculture, fisheries, and mining: fluctuating, reaching a peak of 2019 ($17.44 million) and falling to $9.64 million in 2023.

The charts show a rising fiscal cost, specifically with total subsidies approaching $1 billion a year. The skewed emphasis in the residential sector ensures social protection but raises issues of sustainability. By contrast, the rising cost in unspecified "other sectors" mirrors the need for greater transparency and monitoring.

In the future, Ecuador's LPG subsidy program can be improved by:

- Well-targeted reforms to ensure access only to vulnerable households.
- Tighter controls to reduce diversion or misuse.
- Phased replacement approaches, promoting electric cooking alternatives like induction stoves, especially where low-cost electricity from hydropower is available.

These measures would reduce fiscal costs and allow for a transition to cleaner, more sustainable domestic energy systems.

*Table 12 LPG energy subsidy by sector expressed in millions of USD*

| LPG subsidy in millions of USD | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Transportation** | 6.51 | 7.64 | 4.86 | 4.49 | 4.59 | 3.89 | 4.41 | 4.82 | 8.46 | 18.98 | 17.24 |
| **Industry** | 5.22 | 7.50 | 8.62 | 6.96 | 7.68 | 8.11 | 8.47 | 7.54 | 8.43 | 8.68 | 7.98 |
| **Residencial** | 605.45 | 626.20 | 626.92 | 616.65 | 618.22 | 637.93 | 658.16 | 671.35 | 684.75 | 708.07 | 738.59 |
| **Comercial, Public service** | 37.70 | 37.96 | 38.46 | 37.93 | 39.06 | 41.02 | 41.13 | 38.44 | 40.85 | 45.52 | 43.60 |
| **Agro, fishing, minery** | 12.90 | 15.22 | 15.69 | 12.24 | 16.96 | 16.12 | 17.44 | 14.29 | 16.80 | 15.74 | 9.64 |
| **Other sectors** | 55.68 | 48.83 | 13.19 | 67.87 | 59.34 | 99.00 | 135.38 | 145.25 | 147.92 | 168.44 | 174.66 |
| **Total** | 723.47 | 743.36 | 707.75 | 746.15 | 745.84 | 806.07 | 865.00 | 881.70 | 907.21 | 965.43 | 991.70 |

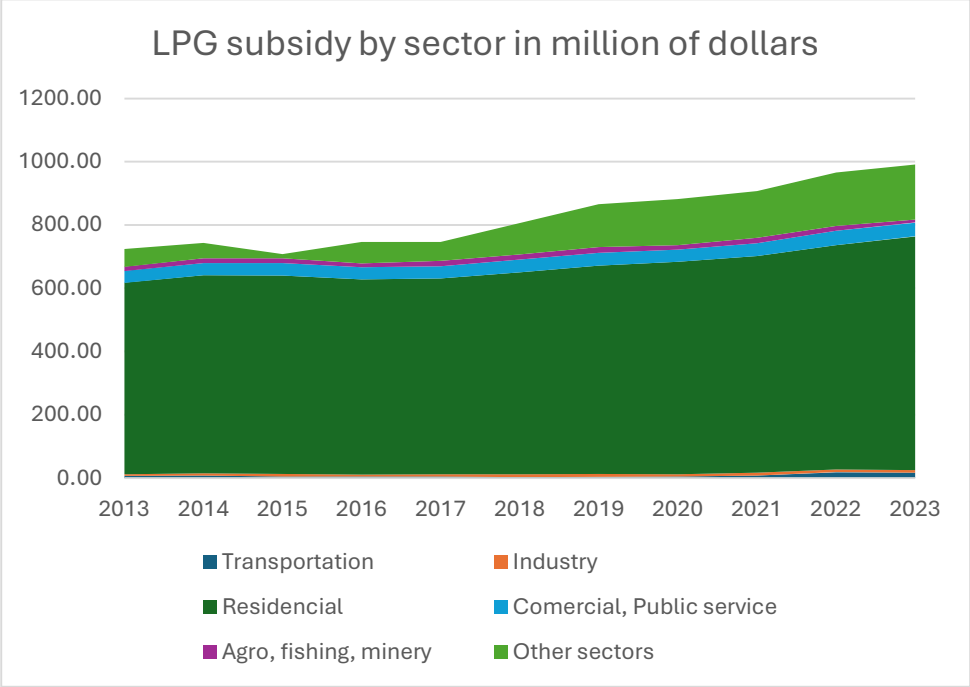


*Figure 40 LPG subsidy in millions of USD by sector from 2013 to 2023*

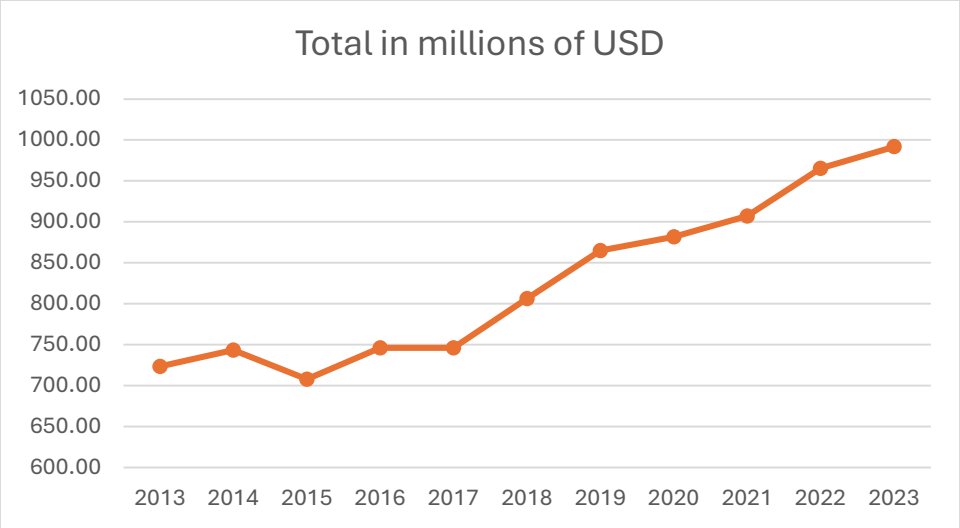


*Figure 41 Fiscal burden due to LPG subsidy from 2013 to 2023*

**Gasoline and diesel subsidy**

It is challenging to quantify Ecuadorian diesel and gasoline subsidies since there is no reliable data and variability in real costs on account of shifting international crude oil prices. Despite such shortcomings, commercial fuel prices for 2013-2017 are well documented in the form of reports issued by news agencies. Commercial prices are posted on Petroecuador's official website since 2018 (*EP PETROECUADOR – Empresa Pública de Hidrocarburos del Ecuador*, 2025). Perhaps the most significant limitation to this information is that there is no clear methodology to calculate the actual subsidy cost to the state. As such, the industrial tariff on fuel serves as a surrogate for the true, unsubsidized price because it is specifically characterized as being free of subsidy. Diesel and gasoline usage in Ecuador has shown dynamic patterns over the ten years from 2013 to 2023 reflecting domestic economic activity, global oil prices, and subsidy policy choices. Total gas consumption nationwide climbed from roughly 1.09 billion gallons in 2013 to about 1.31 billion in 2023, reflecting rising personal vehicle usage and general economic expansion. The transportation sector was always the largest consumer at a staggering over 80% of gas consumption throughout the period. The increase in demand was particularly acute post-pandemic, with 2021 recording a peak in demand that was high followed

by the 2022 and 2023 peaks. The increase in demand had a direct implication on the financial burden of gasoline subsidies. Gasoline prices and subsidization during this time exhibited clear trends of restraint and release. The transport sector's market price of petrol was around USD 2.25 per gallon in 2013 and increased steadily to around USD 2.75 per gallon as of 2023. Subsidized petrol was significantly lower than the quoted price and ranged from USD 1.3 to USD 2.22 per gallon on average each year. Thus, the subsidy per gallon was widely fluctuated—from its peak of USD 1.14 in 2015 to its historical low of as little as USD 0.14 in 2020, during the time of the COVID-19 pandemic when global oil prices crashed. Such lowest level of subsidy was in line with that foreign shock and internal economic crisis. But as oil prices recovered and demand picked up again, per-gallon subsidy went up again, though not to historical highs, to stabilizing at fixed USD 0.5 by 2023. Such volatility in per-gallon subsidy and level of consumption consequently affected fiscal burden of gasoline subsidy. Between 2014 and 2015, the total subsidy on gas surpassed USD 1.3 billion annually, reaching its peak of USD 1.34 billion in 2015. But with years of economic downturn and austerity budgets (2016–2020), the subsidy went down to its historical low of USD 144 million in 2020. Economic revival after the pandemic, coupled with new subsidy demands and growing consumption, witnessed a sharp surge in 2022 as gasoline subsidies surged to USD 2.71 billion—hugely surpassing the decade high. The abrupt increase was contributed mainly by a mix of peak consumption coupled with unit-by-unit subsidization in the wake of peaks in global oil prices and local price caps. In 2023, even with consistent high consumption, the subsidy value dipped again to USD 696 million, which reflects either a reduction in per-unit subsidy or a tighter government regulatory grip over consumption. Diesel, like gasoline, is the crown jewel of Ecuador's energy matrix, but it is directly linked with industrial, agricultural, and commercial applications. Diesel usage also rose in the trend, from approximately 1.14 billion gallons in 2013 to approximately 1.36 billion in 2023. The transportation sector remained the largest user of diesel, though the industrial sector also had a steady and relatively stable share. Demand softened in 2020 in the midst

of the pandemic but was back at pre-pandemic volumes by 2023. Notably, agricultural and fishing industries also saw increasing diesel consumption in the second part of the decade, which can be interpreted as having most probably occurred on account of policy or general forces of rural development. Subsidization and diesel prices followed gasoline but with more subsidization per unit. Diesel's real cost in the transportation sector ranged from roughly USD 2.75 in 2023 to USD 3.12 early in the 2010s. Conversely, subsidized diesel was much less—ranging from USD 1.0 to USD 1.75 per gallon depending on the time. Therefore, the subsidy on a gallon was as much as USD 2.1 in 2013; for the entire time save for those few years, it never fell below USD 1.0. It was only in 2020 that the subsidy was lowest at USD 0.25 per gallon. It is for this reason that diesel, although being consumed in volumes similar to gasoline, always incurred a higher fiscal expense. At the budgetary level, diesel subsidies represented the most significant portion of Ecuador's total energy subsidies. It fluctuated from USD 2.4 billion to USD 2.5 billion yearly in diesel subsidies from 2013-2015. Similar to gasoline, financial outlays and declining oil prices in the next few years reduced the subsidies, to USD 265 million in 2020. After Covid, though, the reverse trend occurred and the subsidies crept upward to USD 1.4 billion in 2021. The rising global oil prices and tight domestic price ceilings led to mounting pressure again on the government's exchequer. By 2023, the diesel subsidy again increased to USD 1.35 billion, again supporting once more the long-term dominance of diesel in Ecuador's subsidization program. Larger per-gallon subsidy given to diesel and widespread use of diesel in bulk commercial and productive processes are the reason why diesel subsidies are greater than gasoline subsidies even at equivalent levels of demand. In brief, the recent history of subsidization of gasoline and diesel in Ecuador closely mirrors the close interlinkages between international commodity markets, macroeconomy, and energy policy. The recurrent government effort to maintain low domestic energy prices has attained social and economic ease at a very steep fiscal cost. Particularly in the case of episodes of high world petroleum prices or economic shocks, these subsidies have placed strains on

public finance. Though short-term subsidy savings have been built up during periods of oil-backed recession, even as in the year 2020, the rapid reversal of costs in the years 2022–2023 point towards the structural nature of the subsidy system and its vulnerability to the vagaries of world prices. Since Ecuador remains to contend with budget and environmental challenges, consideration of fuel subsidy targeting, design, and sustainability will be a step towards substituting energy policy into economic resilience and equity objectives.

*Table 13 Evolution of real and subsidized prices of gasoline from 2013 to 2023*

| Prices of gasoline in USD per gallon | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Real price** | 2.25 | 2.61 | 2.61 | 2.08 | 2.08 | 2.44 | 2.33 | 1.71 | 2.41 | 4.33 | 2.75 |
| **Subsidized price** | 1.3 | 1.48 | 1.48 | 1.48 | 1.48 | 1.3 | 1.67 | 1.57 | 2 | 2.22 | 2.22 |
| **Subsidy per gallon** | **0.95** | **1.13** | **1.13** | **0.6** | **0.6** | **1.14** | **0.66** | **0.14** | **0.41** | **2.11** | **0.53** |

*Table 14 Gasoline subsidy by sector expressed in millions of USD from 2013 to 2023*

| Gasoline subsidy in millions of USD | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Transportation** | 690.51 | 836.19 | 910.99 | 509.54 | 546.16 | 1094.99 | 644.55 | 108.86 | 423.81 | 2237.41 | 615.52 |
| **Industry** | 9.42 | 6.76 | 6.40 | 3.55 | 2.39 | 5.66 | 4.56 | 0.85 | 3.45 | 15.47 | 5.05 |
| **Comercial, Public service** | 1.46 | 2.12 | 2.06 | 0.84 | 0.87 | 0.92 | 0.66 | 0.04 | 0.79 | 0.00 | 0.00 |
| **Agro, fishing, minery** | 32.74 | 41.09 | 40.64 | 19.59 | 21.14 | 43.96 | 27.88 | 5.49 | 17.97 | 91.58 | 23.94 |
| **Other sectors** | 297.18 | 413.28 | 379.32 | 182.10 | 177.60 | 350.01 | 187.05 | 28.83 | 60.05 | 367.67 | 51.97 |
| **Total** | **1031.32** | **1299.43** | **1339.41** | **715.63** | **748.16** | **1495.54** | **864.70** | **144.06** | **506.05** | **2712.13** | **696.48** |

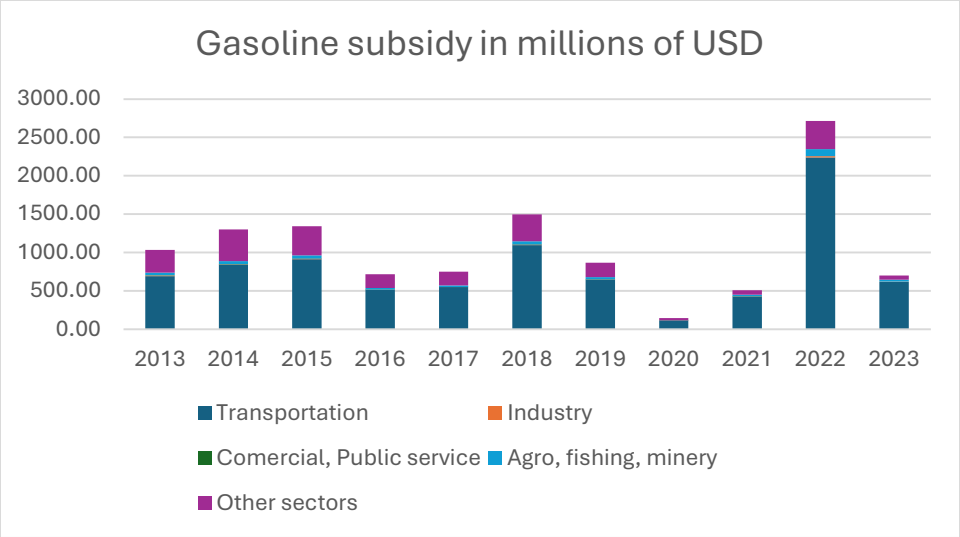


*Figure 42 Gasoline subsidy by sector from 2013 to 2023*

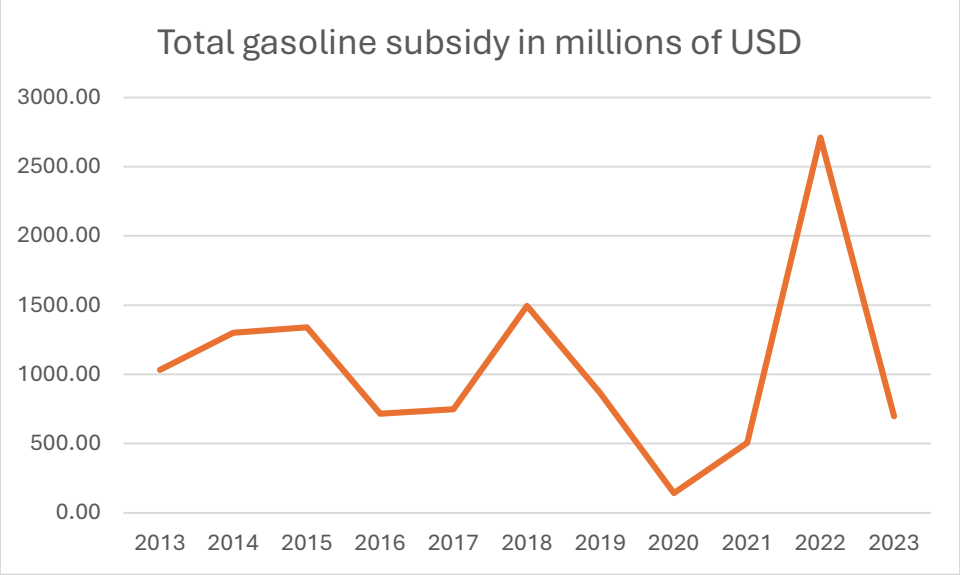


*Figure 43 Fiscal burden due to gasoline subsidy from 2013 to 2023*

*Table 15 Evolution of real and subsidized prices of diesel from 2013 to 2023*

| Prices of diesel in USD per gallon | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Transportation real price** | 3.12 | 3.12 | 3.12 | 2.34 | 2.34 | 2.25 | 2.2 | 1.4 | 2.38 | 2.4 | 2.75 |
| **Transportation subsidized** | 1.02 | 1.03 | 1.04 | 1.04 | 1.04 | 0.9 | 0.9 | 1.15 | 1.21 | 1.67 | 1.75 |
| **Subsidy per gallon** | **2.1** | **2.09** | **2.08** | **1.3** | **1.3** | **1.35** | **1.3** | **0.25** | **1.17** | **0.73** | **1** |

*Table 16 Diesel subsidy by sector expressed in millions of USD from 2013 to 2023*

| Diesel subsidy in millions of USD | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Transportation** | 1617.58 | 1769.25 | 1785.93 | 1195.59 | 1298.69 | 1313.28 | 1286.66 | 209.44 | 1149.90 | 761.62 | 1139.16 |
| **Industry** | 544.97 | 573.27 | 503.59 | 210.71 | 202.14 | 249.46 | 206.78 | 38.80 | 173.32 | 149.85 | 156.33 |
| **Commercial, Public service** | 123.57 | 130.01 | 115.32 | 49.43 | 47.38 | 55.94 | 44.26 | 8.31 | 37.10 | 32.07 | 33.46 |
| **Agro, fishing, minery** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.41 | 0.64 | 4.77 | 2.30 | 3.15 |
| **Other sectors** | 115.59 | 24.80 | 31.11 | 4.60 | 0.00 | 75.12 | 67.45 | 8.74 | 30.39 | 30.91 | 23.55 |
| **Total** | **2401.71** | **2497.33** | **2435.95** | **1460.33** | **1548.22** | **1693.79** | **1611.55** | **265.93** | **1395.47** | **976.77** | **1355.64** |

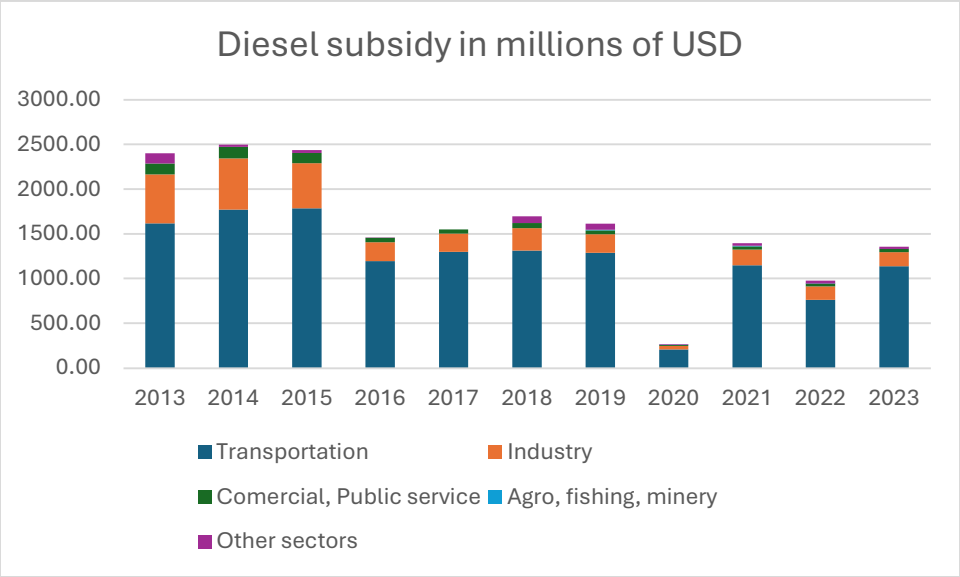


*Figure 44 Diesel subsidy by sector from 2013 to 2023*

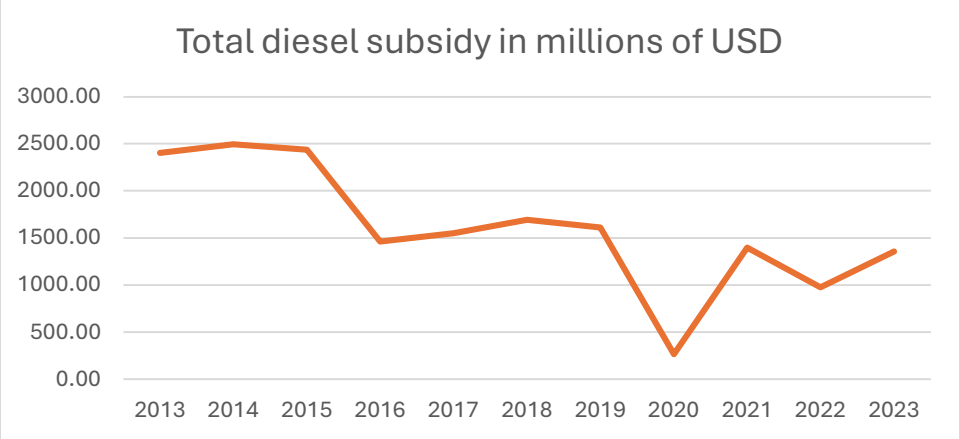


*Figure 45 Fiscal burden due to diesel subsidy from 2013 to 2023*

## 4.8 Total economic burden of energy subsidies to Ecuador

Subsidies remained significant in 2013 and 2015; 2014 saw a peak of about USD 5.25 billion. This occurred against the backdrop of expensive world oil prices and a policy focus on stabilizing consumer prices. Subsidy spending dropped substantially, though, between 2016 and 2020. Early government efforts to rationalize public spending through subsidy reform, together with declining oil prices which lowered the cost of implicit subsidy caused this drop. In 2017, when total energy subsidies dropped to USD 2.66 billion, this downward trend reached its lowest point. The COVID-19 epidemic in 2020 drastically reduced energy use and worldwide oil demand, causing Ecuador's subsidy spending to drop even further to under USD 2 billion. Still, the fall was transient. Post-pandemic recovery and increasing energy prices as well as currency appreciation brought on a remarkable rebound in subsidy expenditure, which reached a record USD 5.766 billion in 2022 and stayed high at USD 4.21 billion in 2023.

Subsidy distribution by source indicates that diesel consistently had the largest share of government outlays. Diesel subsidies hit an all-time high in 2014 of over USD 2.497 billion, as proof of the importance of diesel to transport, logistics, agriculture, and commerce in Ecuador. The distribution of this high level indicates diesel as the backbone of the country's economic pillar. Gasoline subsidies also presented an unstable trend. After peaking at USD 1.3 billion in 2015, gasoline subsidies were cut significantly from 2016 to 2020 to a low of a mere USD 144 million in 2020. However, similar to diesel, subsidies began rising again in subsequent years, and the subsidy levels of LPG, used prevalently in domestic cooking and rural energy systems, were fairly steady at the start of the decade but began to rise again from 2021 to reach an all-time high in 2022 of nearly USD 1 billion. Simultaneously, subsidies on electricity were steadier than on liquid fuels, in the range of USD 800 million to USD 1.17 billion per year, with steep increases in the last two years of the series—most likely due to more robust demand and generation costs.

Sector-wise analysis of energy subsidies shows that the transportation sector always had the largest share, particularly through diesel. Transportation alone absorbed USD 2.2 billion in energy subsidies in 2022. This is followed by the industrial sector, which has seen more than USD 1 billion in various years, mainly in the form of diesel and electricity subsidies. Household sector was largely subsidized by electricity and LPG, which have been the saviors of rural and poor domestic sectors. Public and commercial services were subsidized with smaller proportions, but these did not fluctuate much, particularly in electricity and LPG consumption. Agricultural, fishing, and mining sectors were also highly subsidized by diesel, which are purely essential for machinery and transportation activities in non-urban sectors.

Macroeconomically, subsidies on energy contributed a lot to the public purse and the overall economy. In GDP percentage terms, the subsidies reached a peak of 5.25% in 2014 as a result of both high world energy prices and also loose fiscal policies prevailing then. Conversely, the lowest percentage was posted in 2020 at 2.41% of GDP, synchronized with the decline in the economy as a result of the pandemic. The relative weight of subsidies against public spending took the same course, varying between a high of 12.56% in 2014 and a low of 5.99% in 2020. By 2022, the share of subsidies versus public expenditure returned to 12.78%, showing recovery of pre-reform spending levels and mirroring increased fiscal strain.

Seen more broadly, the pattern of energy subsidy spending in Ecuador over the past ten years illustrates the difficulty in achieving the proper balance among social protection, economic development, and fiscal sustainability. Though subsidies have helped to stabilize prices and shield the impoverished, the experience has also produced major inefficiency and financial risk.

The facts show that a large proportion of subsidies, and notably in liquid fuels, disproportionately benefit more affluent households and business consumers than the most vulnerable parts of society. This regressive character limits the redistributive value of subsidies and questions the long-term sustainability thereof. In the coming

years, Ecuador will be faced with the challenge of retooling energy subsidy reforms that are protective of social interests and phase in a more fiscally responsible and environmentally friendly approach. This may involve enhancing targeting of subsidies, introduction of direct cash transfers, and a more intensive transition to renewable energy technologies and energy efficiency schemes.

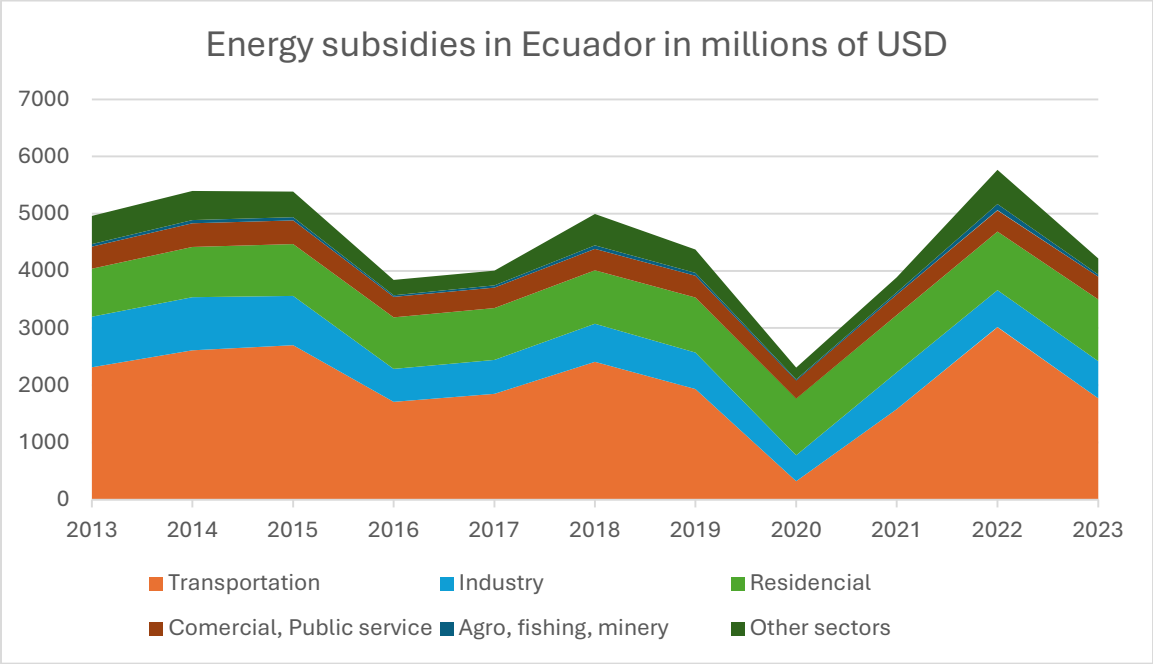


*Figure 46 Evolution of subsidies by sector from 2013 to 2023*

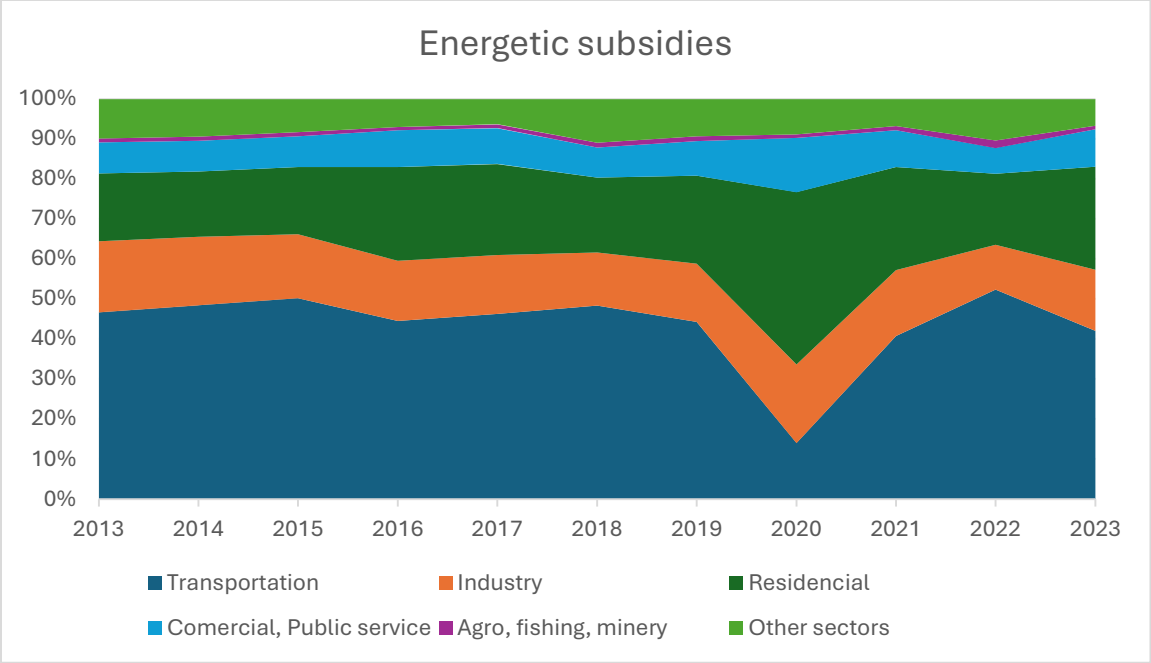


*Figure 47 Evolution of energy subsidies expressed in percentage*

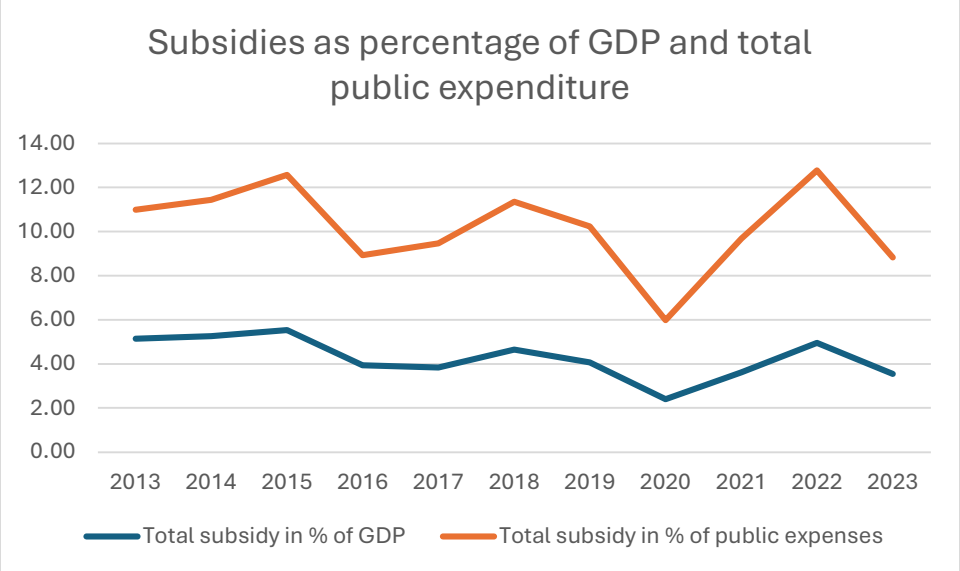


*Figure 48 Evolution of subsidies cost as percentage of GDP and total public expenditures*

*Table 17 Energy subsidy in Ecuador from 2013 to 2023*

| Total energy subsidies in millions of USD | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Transportation** | 2315.00 | 2613.48 | 2702.18 | 1710.03 | 1849.84 | 2412.60 | 1936.06 | 323.56 | 1582.60 | 3018.46 | 1772.84 |
| **Industry** | 880.86 | 924.26 | 861.81 | 577.97 | 590.98 | 663.18 | 635.46 | 453.28 | 640.73 | 646.13 | 645.86 |
| **Residencial** | 840.70 | 880.76 | 904.01 | 900.84 | 910.16 | 933.94 | 964.43 | 993.89 | 1003.10 | 1021.38 | 1084.43 |
| **Commercial, Public service** | 384.50 | 411.35 | 413.38 | 353.53 | 359.17 | 375.41 | 375.79 | 312.70 | 358.34 | 373.08 | 396.50 |
| **Agro, fishing, miner** | 45.65 | 56.31 | 56.32 | 31.84 | 38.10 | 60.08 | 51.73 | 20.42 | 39.54 | 109.62 | 36.72 |
| **Other sectors** | 493.37 | 510.09 | 447.38 | 269.43 | 252.95 | 546.53 | 410.46 | 204.96 | 263.47 | 597.56 | 282.64 |
| **Total** | **4960.08** | **5396.26** | **5385.08** | **3843.64** | **4001.20** | **4991.74** | **4373.94** | **2308.81** | **3887.77** | **5766.23** | **4219.00** |
| **Cumulative** | 4960.08 | 10356.34 | 15741.42 | 19585.07 | 23586.27 | 28578.01 | 32951.95 | 35260.76 | 39148.53 | 44914.76 | 49133.76 |
| **GDP** | 96570.33 | 102718.00 | 97209.56 | 97671.43 | 104467.00 | 107479.00 | 107596.00 | 95865.47 | 107435.00 | 116586.00 | 118845.00 |
| **Public expenses** | 45128.00 | 47182.00 | 42858.00 | 43101.00 | 42295.00 | 43985.00 | 42773.00 | 38538.00 | 40145.00 | 45120.00 | 47796.00 |
| **Total subsidy in % of GDP** | 5.14 | 5.25 | 5.54 | 3.94 | 3.83 | 4.64 | 4.07 | 2.41 | 3.62 | 4.95 | 3.55 |
| **Total subsidy in % of public expenses** | 10.99 | 11.44 | 12.56 | 8.92 | 9.46 | 11.35 | 10.23 | 5.99 | 9.68 | 12.78 | 8.83 |

# 5. Discussion

## 5.1 Implications in the economy, politics and society

**Impact on the economy**

Subsidies are an overwhelming strain on the government of Ecuador. In 2022, energy subsidies comprised more than USD 4.6 billion, over 4% of the country's GDP and 12.78% of public spending. Budget that can be allocated to education, healthcare, infrastructure, or retiring public debt. Furthermore, fuel subsidies also fluctuate extensively in cost with changes in international oil prices, thereby making planning challenging. Subsidies are advantageous in the short run for consumers, but inefficient in the long run because they distort market signals and discourage investment in mass transit and renewable energy.

**Impact on politics**

Fuel subsidies are politically sensitive in Ecuador. Efforts to cut or reform them will be resisted with protests, such as in 2019 when the government tried to scrap fuel subsidies in an IMF agreement. The subsidies are perceived by many as a kind of economic shield and social justice in one of the most unequal countries. For this reason, subsidy reform is far from being an economic issue but a highly political issue and destabilizes governments when even tried.

**Impact on society**

Subsidies, although meant to help poor sections by lowering energy costs, benefit higher-income groups that consume more fuel for personal transport. Rural and lower-income groups may benefit more from subsidies on LPG and electricity. The disproportionate allocation of gains undermines the social rationale for cross-subsidies. In addition, fiscal revenues used to finance maintaining subsidies could be directed toward more effective and better-distributed social programs such as direct cash transfers or investments in basic services.

## 5.2 Efficiency and equity of subsidies

### Efficiency

From an economic viewpoint, Ecuador's energy subsidies are inefficient. They create market distortions and promote overconsumption of fossil fuels. The unexpected reduction in gasoline and diesel subsidies in 2020 amid the COVID-19 pandemic serves to demonstrate that reducing subsidies generates reduced consumption alongside greater fiscal space. Nevertheless, the renewed increase in subsidy costs in 2021 and 2022—specifically on gasoline—shows an inability to achieve steady policy control. Subsidies also discourage investment in the alternative energy sources and technologies of energy and thereby lower the overall efficiency of the national energy system. Economically, they lead to deadweight losses and inefficient allocation of resources.

### Equity

On an equity basis, Ecuador's current subsidy policy is unfair. Wealthier families and businesses use more energy and thus benefit disproportionately from generalized subsidies. The poorest segments of society benefit less, particularly from gasoline and diesel subsidies. Subsidies on LPG and electricity can be more progressive, subsidizing core domestic consumption, but even these are inefficiently targeted. Lack of income and consumption differentiation points towards a more progressive and targeted subsidy regime that benefits the poor more without leveling gross fiscal costs.

## 5.3 Contribution to energy transition

### Electricity and new technologies

The long-term sustainability of subsidies to fossil fuels goes a long way in delegitimizing Ecuador's efforts towards a cleaner energy matrix. Even as it already has a considerable percentage of electricity generated from hydroelectric power,

subsidized gasoline and diesel prices are still a primary driver of suppressing the wide penetration of electric cars and other clean technologies. The lack of strong incentives, in combination with continued subsidization of conventional fuels, is a disincentive to investors and consumers alike to shift towards renewable energy technology, efficiency improvements, and electromobility. Reform of subsidies can free up money to invest in electric infrastructure expansion and enable deployment of new technology.

**Fuels**

Subsidizing fossil fuels also delays the transport and industrial sectors' decarbonization, which are likewise the biggest emitters. The trends of the data from 2013 to 2023 show that even when subsidy levels decreased at times, consumption patterns do not really change, particularly in transport. To enable a believable energy transition, Ecuador must phase out fossil fuel subsidies gradually while, simultaneously, instituting support for cleaner options. This could include subsidies for electric or biofuels and green hydrogen, among others, and policies encouraging modal transport changes (e.g., private cars to public transport).

## 5.4 Subsidy financing mechanisms

The Ecuadorian state has instituted various financing mechanisms to address the huge cost of energy subsidies, which form a significant percentage of public spending and strain fiscal resources. Firstly, the strongest mechanism has been direct state financing through the General State Budget (PGE), which advances money to organizations in the energy sector—i.e. Petroecuador, CNEL EP, or CELEC EP—to finance the difference between the production/import prices and the subsidized consumer price. This constant transfer is a continued drag that takes away fiscal space from other strategic areas of health, education, and infrastructure. Second, the government has increasingly resorted to domestic and foreign public debt as a means of financing temporary subsidy spending deficits, especially in cases where

there are high levels of international petroleum prices or cuts in tax receipts. In this regard, international financial institutions such as the International Monetary Fund (IMF) and World Bank have provided lines of credit that, in some cases, are made conditional upon reforming subsidy programs.

The other important mechanism has been cross-subsidization from crude oil export revenues. These revenues helped finance a part of the spend on subsidies, especially fossil fuel subsidies. The strategy, however, exposes the country to the uncertainty of the oil market, which can cause fiscal imbalances if there are sharp declines in the price of oil. Besides, the state has employed the transfer of operational surpluses from state-owned companies such as Petroamazonas, CELEC, or CNEL EP to ensure subsidized tariffs. As short-run efficient, this measure hinders the capacity of such companies to invest, preserve necessary infrastructure, and persist in technological innovation procedures.

In response to rising budget pressure, the government has promoted concepts in recent years to reform and target subsidies, especially on liquid fuels such as diesel and gasoline. The reforms have been intended to reduce public spending without affecting the poorest portions by separating precise beneficiaries—such as owners of public transportation, rural communities, and poor households—based on means such as social registries and geolocation technology or compensatory payments directly. Finally, energy efficiency and the transition to greener sources of energy have been promoted as a structural policy to reduce subsidized energy use. Initiatives like promoting induction cookers, electric public and private transport, and energy efficiency in public and private buildings aim to reduce fossil fuel subsidies and result in a cleaner, fiscally sustainable energy mix in the medium and long term. These tools, collectively, document the efforts of the state to balance social protection with fiscal restraint and sustainability of the national energy industry.

## 5.5 Alternatives and proposals to the current scenarios

Ecuador's fuel subsidy system, though rooted in historical efforts to make the economy accessible and shield vulnerable populations from volatile energy prices, has become a major fiscal, environmental, and structural burden. The persistent use of generalized subsidies—particularly for gasoline, diesel, and LPG—has resulted in economic inefficiencies, regressive wealth transfers, and increases in public finance burdens. In order to shift towards a more sustainable energy policy, alternatives need to be found that maintain social protection objectives while reducing inefficiencies and environmental externalities. Among the most viable solutions is the transition from universal fuel subsidies to targeted cash transfer programs. Instead of subsidizing every consumer automatically, it would allow the government to channel aid only to low-income families, the most exposed to price volatility of fuels. Existing infrastructure, such as the Bono de Desarrollo Humano, can be reused and expanded to incorporate energy-specific transfers so that public money is spent more efficiently.

Another viable option is having tiered or "lifeline" energy tariffs, especially for electricity and LPG. In this model, a basic consumption level—sufficient to meet household needs—would still be subsidized, and any additional usage would be levied at market rates. This model not only protects the most needy consumers but also prevents unnecessary energy use by better-off consumers. At the same time, strategic industries such as agriculture, rural transport, and fishing can be supported with subsidized fuel quotas controlled and distributed electronically to prevent misuse. Phasing in fiscal resources from the subsidy on fossil fuels to investment in public infrastructure, especially clean public transport, would enhance long-term energy efficiency, reduce oil derivative dependence, and yield more inclusive mobility choices for urban and rural areas.

Gradual, transparent reductions supported by strong communications to prevent a backlash among people can be implemented. Gradual phasing down of subsidies on

a multi-year horizon, ideally linked with oil price movements or inflation, can allow consumers and businesses to adapt step by step. In the process, transparent and open fuel pricing mechanisms—such as those used in Indonesia and Colombia—may be the center of attention in depoliticizing the setting of energy prices while maintaining social stability. Further, enhancing fiscal control mechanisms through web-based portals, fuel monitoring systems, and national-level subsidy registries can minimize leakages and provide targeted benefits to the intended persons. In the medium term, the implementation of environmental fiscal measures such as carbon tax or selective excise duties may serve a two-fold aim: decreasing high-emitting activities while generating new public revenues to support climate action or social protection.

As complements to such reforms and to offset the impact on poor households, compensation measures must be put in place. Fiscal savings redistribution into social investment is one of the most visibly evident and socially impactful options. Open and clear communication on how the savings generated from subsidy reform are reinvested, targeting areas such as health, education, or poverty reduction, can build public support and trust in reform. In addition, tax policy could be redesigned to be more equitable. For instance, progressive taxation on high-net-worth individuals or luxury vehicles could help rebalance the price of reform more evenly, especially if linked to sustainability goals. Furthermore, the adjustment of the minimum wage alongside the de-regulation of fuel prices could help smooth the rise in living costs for low-wage workers. However, such adjustments must be carefully weighed to rule out inflationary pressures or labor-market productivity distortions.

Short-term compensation instruments, such as electronic subsidy cards or fuel coupons, could also be introduced as a bridging intervention to support informal workers, rural producers, and public service operators during the process of phasing out the subsidy. Such instruments could then be phased out as clean energy alternatives—such as electric mobility or restructured public transport—become progressively available and widespread. In the long run, subsidy reform can be seen

not as a tight cost-saving exercise but as a cornerstone element of Ecuador's wider energy transition strategy. It offers the opportunity to guide national policy towards an equitable, low-carbon, and financially prudent energy future. To achieve so requires joint and multifaceted action, the combining of social protection, economic prudence, environmental integrity, and strong political determination.

# 6. Conclusions

The examination confirms that energy subsidies have imposed a considerable and continued budgetary load on the Ecuadorian state, averaging over 8% of total yearly state expenditure between 2013 to 2023. That sum of money is a huge cost because public money spent on fuel and electricity subsidies can be diverted elsewhere in crucial sectors such as healthcare, education, infrastructure projects, and investments in renewable energy.

Ecuador's current subsidy system lacks effective targeting mechanisms to reach poor groups. Through imposing uniform price policies on all income brackets, the system unintentionally disproportionately benefits wealthier households, who consume much more energy than the poorer strata. Such a regressive impact undermines the original design of energy subsidies as a poverty alleviation and social protection policy.

The artificial restraint of energy prices has produced dangerous distortions in the energy market. These distortions disfavor incentives towards energy efficiency, promote unsustainable consumption, and deter the development and deployment of renewable technologies. As a result, the current subsidy regime delays Ecuador's transition towards a cleaner and more sustainable energy matrix, pitting the nation against global sustainability goals.

Subsidies for fossil fuels encourage greater emissions and pollution, largely through increased use of gasoline and diesel in the transport sector and LPG in the household sector. Also, subsidized low prices reduce economic competitiveness of alternatives to fossil-fuel-based systems, perpetuating the dominance of the latter and continuing to cause ecological degradation.

The subsidy program in Ecuador is largely based on government revenues from the sale of oil. The dependence makes the subsidy program highly responsive to changes in international prices for oil. Periods of low oil prices have in the past manifested

themselves as increased fiscal deficits and have forced reductions in other social spending categories. The lack of a diversified fiscal foundation undermines the long-term sustainability of the energy subsidy program.

The current energy subsidy system in Ecuador is not only economically unsustainable but also environmentally unsustainable. The report justifies the argument that the reform process should be a well-planned and phased process, and it should involve gradual phasing out of general subsidies along with imposing targeted support schemes on poor families. At the same time, the government must promote investment in renewable energy installations, energy-saving retrofits, and public information campaigns to produce an equitable energy transition that meets economic efficiency, social justice, and environmental attention.

Ecuador in the future must re-evaluate the role of subsidies in its larger energy and economic policy environments. Applying evidence-based policymaking, underpinned by solid data and deliberative discussion, will be required to mitigate against political resistance and social unrest typically associated with subsidy reform. Strong institutions, open budgeting, and adaptive social safety nets will be essential in creating public confidence and sustainable energy and fiscal strength.

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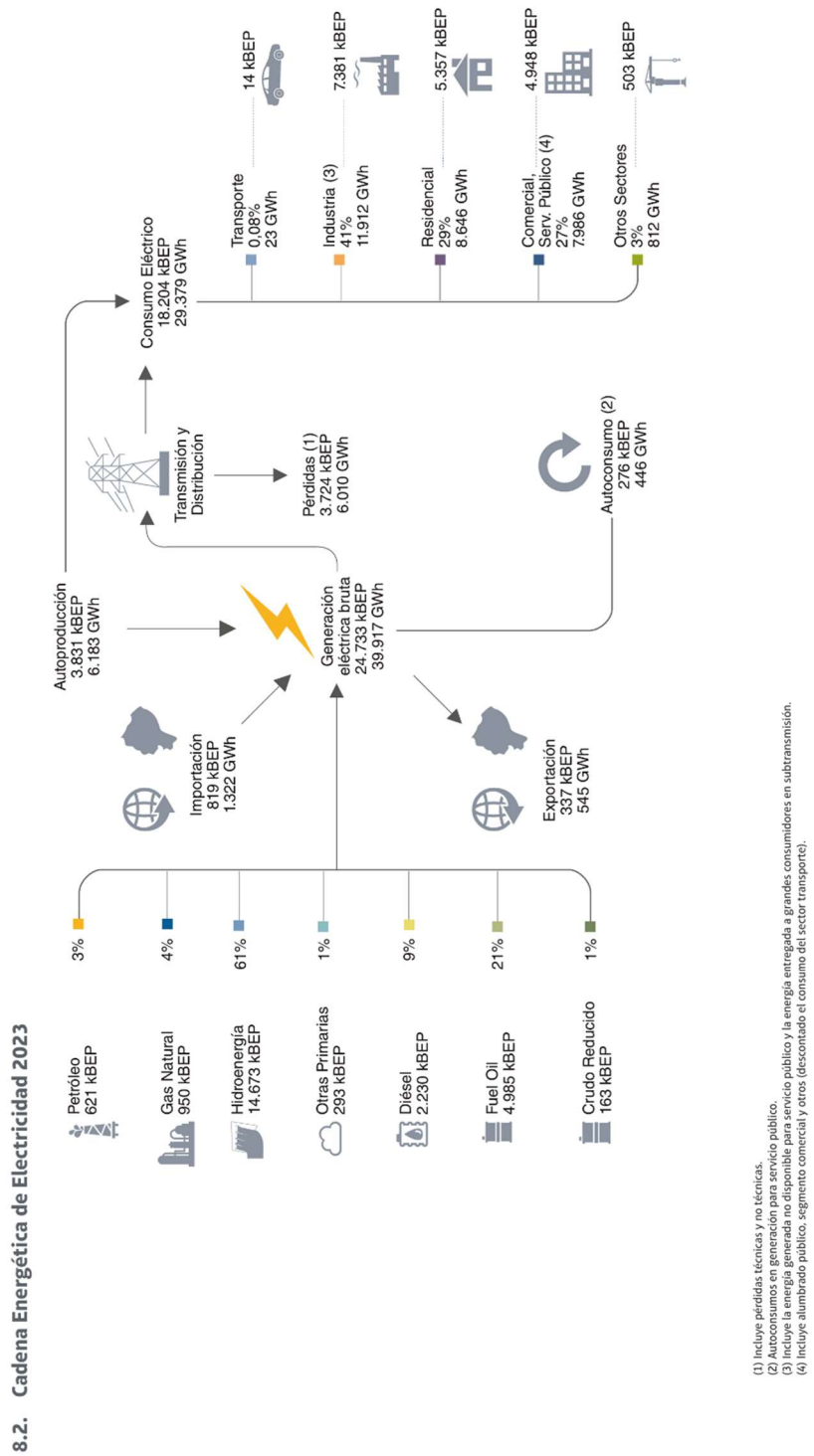
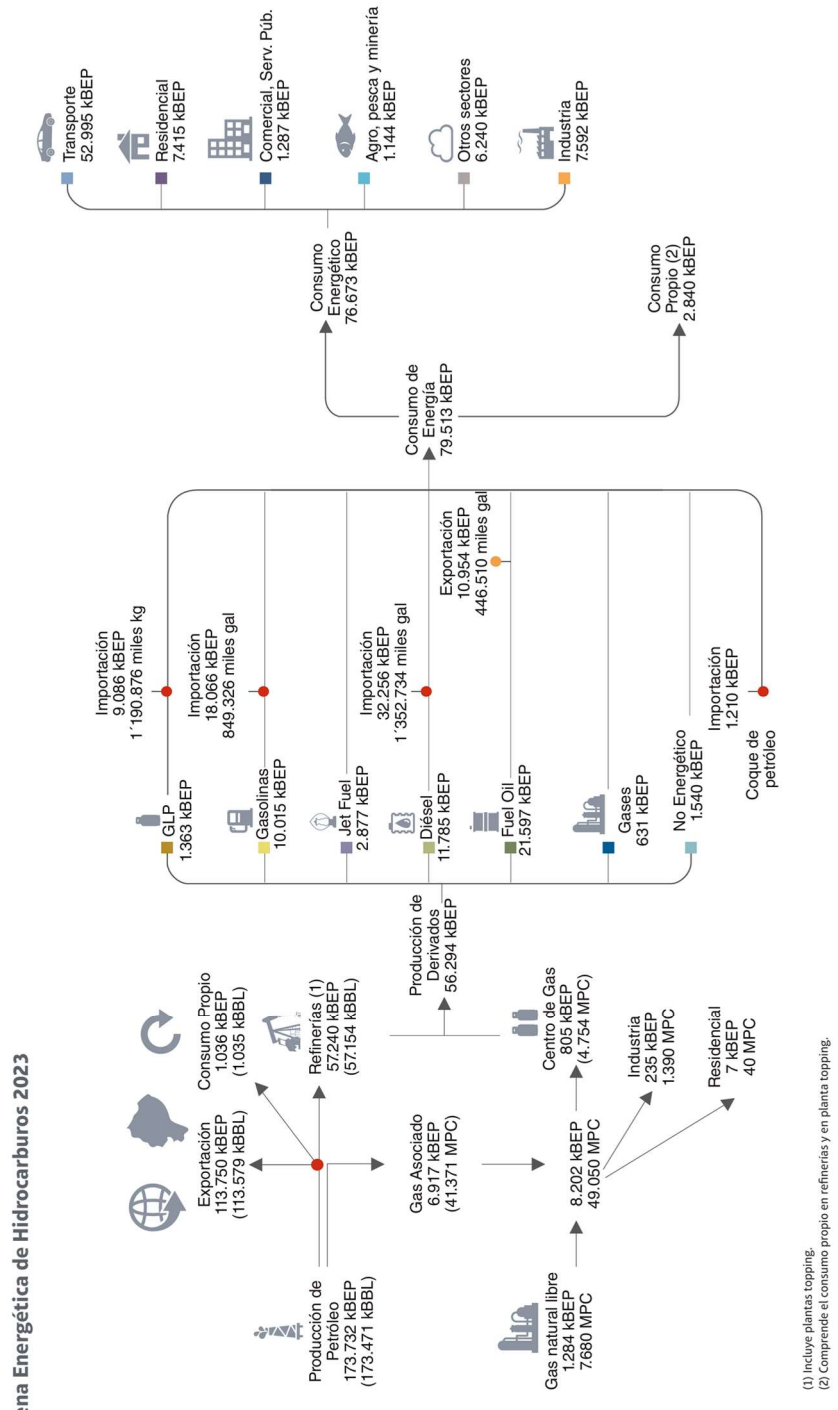
# 8. Annexes

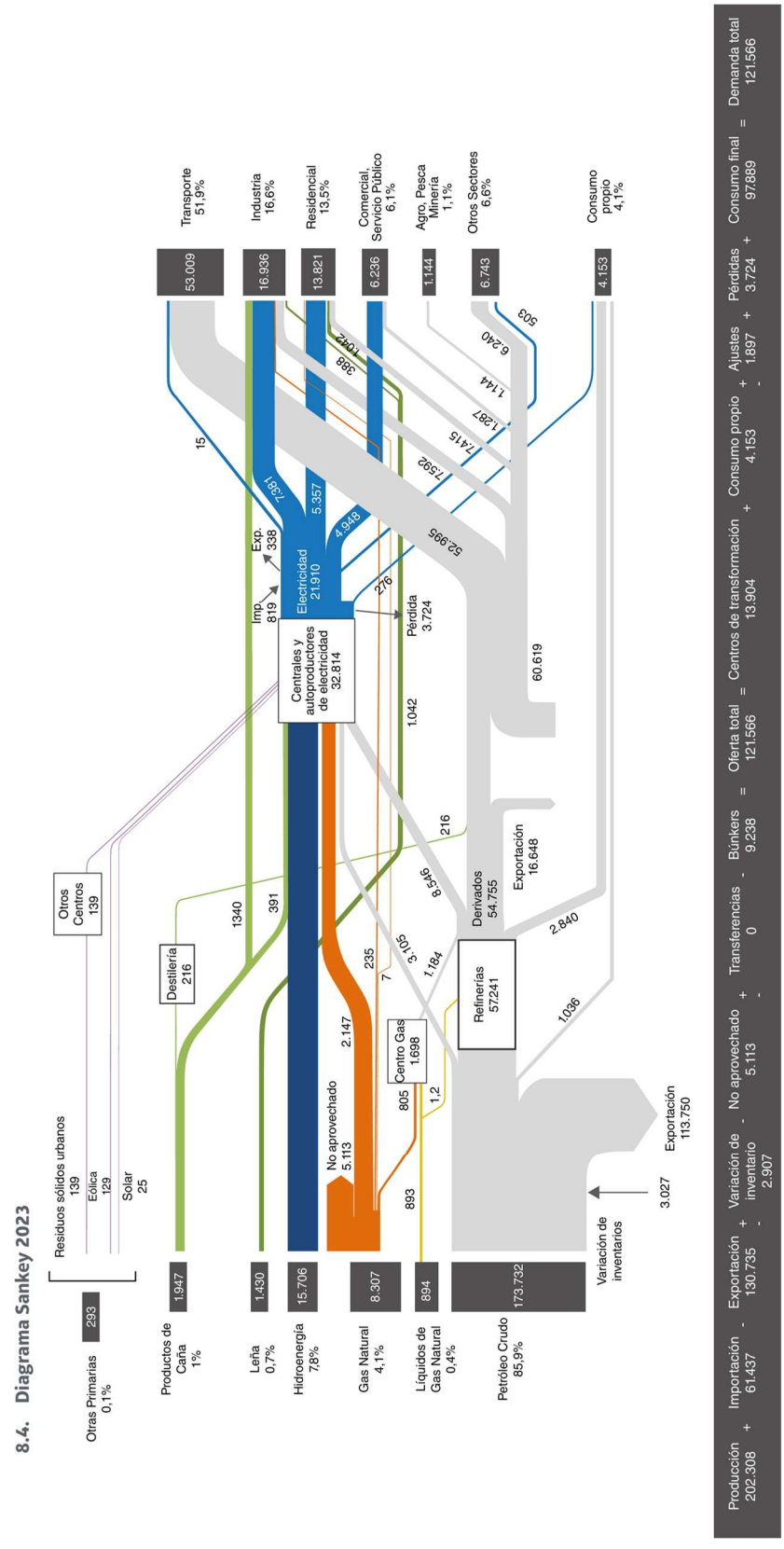
Annex 1. Energetic chain of electricity 2023



# Annex 2. Energetic chain of hydrocarbons 2023



Annex 3. Sankey diagram 2023



# Annex 4. Example of commercial prices of fuels

PETROECUADOR

**PRECIOS DE VENTA EN TERMINAL PARA LAS COMERCIALIZADORAS CALIFICADAS Y AUTORIZADAS A NIVEL NACIONAL**

**PERIODO DE VIGENCIA: DEL 12 DE ENERO AL 11 DE FEBRERO DE 2023**

**DECRETOS EJECUTIVOS No. 338, 1158, 724 Y 467**

| PRODUCTO | Unidad de medida | PRECIO EN TERMINAL (Incluye el 12% del I.V.A.) Expresado en US$ |
|---|---|---|
| **SECTOR PETROLERO MINERO** | | |
| ABSORVER PETROLERO | Galones | $ 3,149944 |
| DIESEL 1 PETROLERO | Galones | $ 3,149944 |
| DIESEL 2 PETROLERO | Galones | $ 3,149944 |
| DIESEL PREMIUM PETROLERO | Galones | $ 3,454388 |
| FUEL OIL PETROLERO | Galones | $ 1,185787 |
| GASOLINA EXTRA PETROLERO | Galones | $ 2,881198 |
| EXTRA CON ETANOL PETROLERO | Galones | $ 2,859948 |
| GASOLINA SUPER PREMIUM 95 PETROLERO | Galones | $ 3,407220 |
| **SECTOR INDUSTRIAL** | | |
| DIESEL 1 INDUSTRIAL | Galones | $ 3,149944 |
| DIESEL 2 INDUSTRIAL | Galones | $ 3,149944 |
| DIESEL PREMIUM INDUSTRIAL | Galones | $ 3,454388 |
| EXTRA INDUSTRIAL | Galones | $ 2,881198 |
| EXTRA CON ETANOL INDUSTRIAL | Galones | $ 2,859948 |
| SUPER PREMIUM 95 PREMIUM INDUSTRIAL | Galones | $ 3,407220 |
| FUEL OIL No. 6 INDUSTRIAL | Galones | $ 2,090907 |
| FUEL OIL LIVIANO | Galones | $ 1,185787 |
| GAS LICUADO DE PETROLEO (GLP) INDUSTRIAL | Kilogramos | $ 0,776117 |
| RESIDUO CEMENTERO | Galones | $ 0,912259 |
| RESIDUO INDUSTRIAL | Galones | $ 0,912259 |
| MINERAL TURPENTINE | Galones | $ 2,104157 |
| RUBBER SOLVENT | Galones | $ 2,083481 |
| CEMENTOS ASFALTICOS NO OBRA PUBLICA | Kilogramos | $ 0,528752 |
| ASFALTOS INDUSTRIALES NO OBRA PUBLICA | Kilogramos | $ 0,528752 |
| CEMENTOS ASFALTICOS OBRA PUBLICA | Kilogramos | $ 0,298480 |
| ASFALTOS INDUSTRIALES OBRA PUBLICA | Kilogramos | $ 0,298480 |
| GASOLINA EXTRA CAMARONERO | Galones | $ 2,881198 |
| GASOLINA EXTRA CON ETANOL CAMARONERO | Galones | $ 2,859948 |
| DIESEL 2 CAMARONERO | Galones | $ 3,149944 |
| DIESEL PREMIUM CAMARONERO | Galones | $ 3,454388 |

**Nota:** Precios conforme la metodología establecida en el Decreto Ejecutivo No. 614, suscrito el 1 de diciembre de 2022

| | | |
|---|---|---|
| **SECTORES ELÉCTRICO Y OTROS** | | |
| DIESEL 2 / PREMIUM ELECTRICO | Galones | $ 0,900704 |
| FUEL OIL 4 ELECTRICO LIBERTAD | Galones | $ 0,537600 |
| CRUDO REDUCIDO ELECTRICO 5,000 S.R. | Galones | $ 0,401857 |
| GAS LICUADO DE PETROLEO (G.L.P.) AGRICOLA | Kilogramos | $ 0,188384 |
| GAS LICUADO DE PETROLEO (G.L.P.) DOMÉSTICO | Kilogramos | $ 0,106667 |
| **SECTOR NAVIERO** | | |
| DIESEL PREMIUM MARINO | Galones | $ 3,454388 |
| DIESEL PREMIUN TURISTA | Galones | $ 3,454388 |
| DIESEL 2 MARINO | Galones | $ 3,149944 |
| DIESEL 2 NACIONAL | Galones | $ 3,149944 |
| GASOLINA EXTRA | Galones | $ 2,881198 |
| EXTRA ETANOL MARINO | Galones | $ 2,859948 |
| **SECTOR USO PARTICULAR Y PESCA DEPORTIVA** | | |
| DIESEL 2 INTERNACIONAL | Galones | $ 3,149944 |
| DIESEL PREMIUM INTERNACIONAL | Galones | $ 3,454388 |
| EXTRA CON ETANOL INTERNACIONAL | Galones | $ 2,881198 |
| EXTRA INTERNACIONAL | Galones | $ 2,881198 |
| SUPER PREMIUM 95 INTERNACIONAL | Galones | $ 3,407220 |
| **SECTORES PESQUERO Y ATUNERO** | | |
| GASOLINA PESCA ARTESANAL | Galones | $ 0,799120 |
| GASOLINA EXTRA PESQUERO | Galones | $ 2,370450 |
| GASOLINA EXTRA CON ETANOL PESQUERO | Galones | $ 2,370450 |
| DESEL 2 PESQUERO | Galones | $ 1,756150 |
| DIESEL 2 ATUNERO | Galones | $ 1,756150 |
| DIESEL PREMIUM ATUNERO | Galones | $ 1,756150 |

**Nota:** Precios conforme la metodología establecida en el Decreto Ejecutivo No. 467, vigentes a partir del 1 de junio de 2022

| | | |
|---|---|---|
| **SECTOR AUTOMOTRIZ** | | |
| GASOLINA EXTRA AUTOMOTRIZ | Galones | $ 2,220450 |
| GASOLINA EXTRA CON ETANOL AUTOMOTRIZ | Galones | $ 2,220450 |
| DIESEL 2 / DIESEL PREMIUM (AUTOMOTRIZ) | Galones | $ 1,606151 |
| GASOLINA SUPER PREMIUM 95 AUTOMOTRIZ | Galones | $ 3,355891 |
| GASOLINA EXTRA CON ETANOL (ECO PLUS 89) | Galones | $ 2,865885 |
| DIESEL 2 TRANSP. DE CARGA PESADA PLACA INTERNACIONAL | Galones | $ 3,149944 |
| DIESEL PREMIUM TRANSP. DE CARGA PESADA PLACA INTERNACIONAL | Galones | $ 3,454388 |
| GAS LICUADO DE PETROLEO (G.L.P.) TAXIS | Kilogramos | $ 0,188384 |

**Nota:** Precios conforme la metodología establecida en el Decreto Ejecutivo No. 467, vigentes a partir del 1 de junio de 2022

| | | |
|---|---|---|
| **SECTOR AEREO** | | |
| JET FUEL TPCO | Galones | $ 3,433030 |
| AVGAS INTERNACIONAL | Galones | $ 6,951007 |
| AVGAS NACIONAL | Galones | $ 2,464000 |

**DECRETOS EJECUTIVOS No. 338 y 1158**

**SECTOR NAVIERO INTERNACIONAL**

**PERIODO DE VIGENCIA: DEL 12 DE ENERO AL 11 DE FEBRERO DE 2023**

| PRODUCTO | Unidad de medida | PRECIO EN TERMINAL (Incluye el 12% del I.V.A.) Expresado en US$ |
|---|---|---|
| DIESEL PREMIUM MARINO | Galones | $ 3,454388 |
| DIESEL PREMIUM MARINO (CRED.) | Galones | $ 3,473531 |
| MDO 1 (MARINE GASOIL) | Toneladas | $ 998,532248 |
| MDO 2 (MARINE GASOIL) | Toneladas | $ 998,532248 |