

Energy Efficiency Laws in Latin America and the Caribbean

A LOOK AND ANALYSIS OF THE LEGISLATIVE PROGRESS OF THE REGION

PALCEE

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A Look and Analysis of the Legislative Progress
of the Region



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ENERGY EFFICIENCY LAWS IN LATIN AMERICA AND THE CARIBBEAN

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Introduction

The global awareness of the importance of energy efficiency continues to increase. It has been proved that energy efficiency has the real capacity to effectively influence energy demand worldwide and even more so when economic rearrangements occur globally and many emerging economies are strongly incorporated into the demand scenario. This is why, energy efficiency gradually begins to take a role in the countries' energy policies, giving the energy sector the scale needed to act on the demand side.

For developed countries, energy efficiency is directly related to the actions to mitigate climate change. But on the other hand, in emerging economies, energy efficiency has other additional motivators: it reduces the dependence on fossil fuels, reduces imports, allows the conservation of scarce resources, improves the competitiveness of productive sectors, provides a better allocation of resources for infrastructure, increases security and access to energy, contributes to the reduction of greenhouse gas (GHG) emissions, allows access to international financing and the need to face non-tariff barriers. Due to the potential benefits, promoting the development of energy efficiency in a country has a clear justification; however, in order to gain access to the existing energy efficiency potential it is necessary to overcome the different economic, regulatory, political, institutional, cultural, technological, information and financing barriers that block the development of a market for energy efficient goods and services.

In order to access the existing energy efficiency potential, it may be necessary to act on regulatory and legislative changes aimed at lifting the barriers present in each market. Acting on the establishment of laws that incorporate policy instruments aimed at breaking down these energy efficiency barriers also converts energy efficiency into a State policy with the potential to generate direct benefits to consumers, protect and allocate properly the available resources and safeguard the environment.

However, an Energy Efficiency Law is not the end in itself and will not be successful if it is developed in a divorced and anticipated way from the political system, companies and consumers claim. An Energy Efficiency Law must work to create the basis for a social agreement where there is consensus on the role of energy efficiency as a State policy and that it promotes a cultural change.

The elaboration and approval of an Energy Efficiency Law, which fits the specific context of the country, is a milestone for the development of the energy sector; and although it does not guarantee the success of the proposed objectives, it provides a solid base that will be the support for the development of energy efficiency in the country.

Given that an Energy Efficiency Law meets the needs and realities of each of the countries, it is impossible to replicate existing success stories or create a unique model of the Law. However, the following general policy instruments that an Energy Efficiency Law could include, with the objective of breaking down the different barriers present, have been defined: institutionality, planning, promotion of investments and financing, information for monitoring and evaluation, tax schemes, contracting and marketing mechanisms,



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dissemination of information and training, sector actions, control mechanisms, sanctions and certification mechanisms.

This document aims to show an analysis focused on the existing, or in the definition process, energy efficiency legislation. This, through a review of the laws and decrees that regulate them, also including bills in countries where they are still being debated. This review included examining each of the laws, bills and decrees, classifying them according to the main policy instruments so as to identify concurrences and highlight the most representative success stories in our region.

On the other hand, it is important to clarify that this review did not include the institutional frameworks or the energy efficiency plans that the countries may have developed without the support of an Energy Efficiency Law, nor is it a document that seeks to deliver recommendations on how to address the actions of energy efficiency within a particular country.

In addition, it is important to clarify that in this study both the laws and the bills that are under debate will be reviewed, with the understanding that the bills are subject to modification and may present substantial changes throughout the parliamentary discussion process.

Although Honduras and El Salvador have energy efficiency bills at the discussion level, the analysis of these bills has not been carried out and will be part of the following revision of this document.

The State of Energy Efficiency Legislation in Latin America and the Caribbean: Regional comparison.

The region of Latin America and the Caribbean is very different in terms of progress in the regulatory framework applicable to the promotion of energy efficiency. As can be seen in Figure 1, it highlights the fact that ten countries in the region already have existing laws on energy efficiency or rational and efficient use of energy, and there are six other countries that have an energy efficiency bill that is under discussion.

Figure 1. Progress in energy efficiency legislation in the countries of the LAC region



Source: Compiled by authors

Tables 1 and 2 detail the information regarding each existing law and bill on energy efficiency in the countries of the region. Many countries have already had an energy efficiency law in force for several years, while for others it is a relatively new issue as a component of their energy policy. In the case of Mexico, it has a set of laws that constitute a harmonic package that integrates energy efficiency, energy transition and renewable energy. The same applies to Brazil, which has two laws that focus on energy efficiency and the conservation and rational use of energy.

Table 1. Energy Efficiency Laws and their regulatory decrees in the LAC region

COUNTRY	NAME	DETAIL	YEAR
Brazil	<i>Law No. 9.991</i>	Deals with investments in research and development in energy efficiency by the concessionary, permitting and authorized companies of the electric energy sector.	2000
	<i>Law No. 10.295</i>	Deals with the National Policy on Energy Conservation and Rational Use.	2001
	<i>Decree No. 3867</i>	Deals with investments in research and development of energy efficiency by concessionary, licensee and authorized companies in the electricity sector.	2001
	<i>Decree No. 4059</i>	Deals with the National Policy on Energy Conservation and Rational Use.	2001
Chile	<i>Law No. 20.402</i>	Grants powers to the Ministry of Energy to label and establish minimum energy efficiency standards. Creates the "Chilean Energy Efficiency Agency" whose fundamental objective is the study, evaluation, promotion, information and development of all kinds of initiatives related to diversification, saving and efficient use of energy.	2009
Colombia	<i>Law No. 697</i>	Through which the rational and efficient use of energy is encouraged, the use of alternative energy is promoted and other provisions are dictated.	2001
	<i>Decree No. 3683</i>	Law 697 of 2001 is regulated and an Intersectoral Commission is created.	2003
Costa Rica	<i>Rational Energy Use Regulation Law</i>	To consolidate the participation of the State in the promotion and gradual execution of the program of rational energy use. And it is proposed to establish the mechanisms to achieve efficient energy use and replace them when it suits the country, considering the protection of the environment.	1994
	<i>Decree No. 25584</i>	Provisions of the Energy Rational Use Regulation.	1996
Ecuador	<i>Energy Efficiency Organic Law</i>	Establishes the legal framework and operating regime of the National Energy Efficiency System - NEES. It also seeks to promote the efficient, rational and sustainable use of energy in all its forms.	2019
Mexico	<i>Law for the Use of Renewable Energy and Financing of the Energy Transition</i>	Regulates the use of renewable energy sources and clean technologies to generate electricity for purposes other than the provision of the public power service, as well as establishing the national strategy and instruments for financing the energy transition.	2008
	<i>Law for the Sustainable Energy Use</i>	Its purpose is to promote a sustainable energy use through the optimal use of it in all its processes and activities, from its exploitation to its consumption.	2008
	<i>Energy Transition Law</i>	Establishes the provisions to regulate the mechanisms and procedures that allow the implementation of the Law for the Sustainable Energy Use, Clean Energies and reduction of Pollutant Emissions from the Power Industry.	2016

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	<i>Regulatory Decree of the Energy Transition Law</i>	Establishes the provisions to regulate the mechanisms and procedures that allow the implementation of the Law for the Sustainable Energy Use, Clean Energies and reduction of Pollutant Emissions from the Power Industry.	2017
Nicaragua	<i>Energy Efficiency Law</i>	Establishes the legal framework to promote the rational and efficient use of energy, in order to secure energy supply, promote the competitiveness of the national economy, protect and improve the quality of life of the population, while contributing to the protection of environment.	2017
Panama	<i>Rational and Efficient Use of Energy Law</i>	Establishes the general guidelines of the national policy for the rational and efficient use of energy in the national territory.	2012
	<i>Decree No. 398-2013</i>	Regulates the Law 69 of October 12, 2012, which establishes the general guidelines of the national policy for the rational and efficient use of energy in the national territory.	2013
Peru	<i>Law for the Promotion of an Efficient Energy Use</i>	Declares of national interest the promotion of an Efficient Energy Use (EEU) to ensure the supply of energy, protect the consumer, promote the competitiveness of the national economy and reduce the negative environmental impact of energy use and consumption.	2000
	<i>Decree No. 053-2007-EM</i>	Regulates the provisions to promote the efficient energy use in the country contained in Law No. 27345, Law for the Promotion of an Efficient Energy Use.	2007
Uruguay	<i>Law No. 18.597 for the Promotion of an Efficient Energy Use</i>	Declares of national interest the efficient use of energy with the purpose of contributing to the competitiveness of the national economy, the sustainable development of the country and reducing greenhouse gas emissions	2009
	<i>Law No. 18.719 of 01-05-2011:</i>	<i>The Budget Law introduces changes to the Law 18.597 of an Efficient Energy Use in the articles: No. 118, 821, 822 and 824.</i>	2011
	<i>Decree No. 211.015 of 08-03-2015:</i>	<i>The National Energy Efficiency Plan 2015-2024 is approved.</i> Deals with the energy efficiency labeling for compact fluorescent lamps.	2015
	<i>Decree No. 086-012 of 03-22-2012: (Fudae)</i>	<i>Approval of the Uruguayan Savings and Energy Efficiency Trust</i>	2012
	<i>Decrees No. 329/010, 116/011, 131/011, 428, 429 and 430/2009</i>	Establish the regulation of the energy efficiency labeling system for equipment and devices that consume energy from whatever source and that are intended for the commercial purposes in Uruguayan territory.	2009, 2010 and 2011
Venezuela	<i>Rational and Efficient Energy Use Law</i>	Its purpose is to promote and guide the rational and efficient use of energy in the processes of production, generation, transformation, transport, distribution, marketing, as well as the final use of energy.	2011

Source: Compiled by authors

Table 2. Energy Efficiency Bills in the LAC region

COUNTRY	NAME	YEAR OF APPROVAL / PRESENTATION
<i>Argentina</i>	Energy Efficiency Bill	It has not been submitted
<i>Chile</i>	Energy Efficiency Bill	2018
<i>Dominican Republic</i>	Energy Efficiency and Rational Energy Use of Energy Draft Bill	2018
<i>El Salvador*</i>	Energy Efficiency Draft Bill	2014
<i>Guatemala</i>	Energy Efficiency Draft Bill	2012
<i>Honduras*</i>	Bill of Rational and Efficient Energy Use	2014

* The Energy Efficiency Bills in El Salvador and Honduras has not been obtained; therefore, it will not be included in the analysis.

Source: Compiled by authors

Table 1 aims to compile the most relevant legislation and regulatory decrees regarding energy efficiency. Once a Law is in force, it is followed by the regulatory decrees of the law. These decrees can be of a different nature, from the decrees issued for the approval of national plans, programs and/or national energy efficiency funds to the decrees that focus on specific points such as schemes and tariff rates for efficient equipment. The scope of this study does not seek to go into detail on each of the decrees but intends to centralize the analysis in the provisions of the energy efficiency laws and those decrees of greater relevance that have been identified in the Table 1. Table 3 exemplifies visually the above, when taking the case of Uruguay, where as of 2009 several decrees regarding energy efficiency have entered into force.

Table 3. Decrees issued since the publication of the Energy Efficiency Law in 2009 in Uruguay

DECREE	DETAIL	YEAR
<i>Decree No. 428-009</i>	Deals with energy efficiency labeling for compact fluorescent lamps.	2009
<i>Decree No. 429-009</i>	Deals with energy efficiency labeling for equipment and devices that consume energy from any source and that are intended for sale in national territory.	2009
<i>Decree No. 430-009</i>	Deals with energy efficiency labeling for electric water accumulation heaters.	2009
<i>Decree No. 411-010</i>	Deals with the modification of IMESI rates applicable to the utility and passenger vehicles.	2010
<i>Decree No. 329-010</i>	Deals with the application of the transitional stage for electric refrigeration appliances for domestic use.	2010
<i>Decree No. 152-010</i>	Deals with the deadline for signing Energy Efficiency agreements with the MIEM.	2010
<i>Decree No. 116-011</i>	Deals with the control of the Products included in the National Energy Efficiency Labeling System.	2011
<i>Decree No. 131-011</i>	Extends the period of validity of the transitory stage of conformity assessment of the Electric Accumulation Water Heaters.	2011
<i>Decree No. 359-011</i>	The MIEM will establish the modalities and deadlines for applying the National Energy Efficiency Labeling System.	2011
<i>Decree No. 086-012</i>	Approval of the Uruguayan Savings and Energy Efficiency Trust (Fudae).	2012

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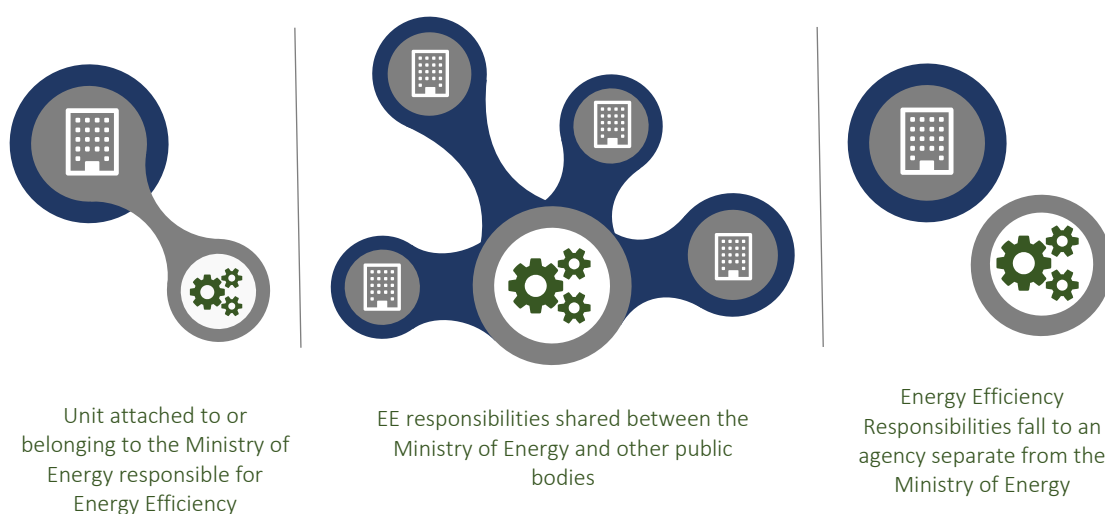
<i>Decree No. 099-012</i>	Deals with the modification of applicable categories and rates of IMESI to hybrid vehicles.	2012
<i>Decree No. 154-012</i>	The 2012 Energy Savings Economic Plan for the public sector is approved.	2012
<i>Decree No. 232-012</i>	Liabile billings subject to obtaining the subsidy established by Article 12 of the Law 18.860 of December 23, 2011.	2012
<i>Decree No. 246-012</i>	MEF decree on IMESI in motor vehicles, motorcycles, scooters, motorbikes and all the other types of motor vehicles.	2012
<i>Decree No. 074-013</i>	Incorporates integrated socket E14 and E40 to the list of exceptions to the common external tariff (CET) to the compact fluorescent lamps (CFLs).	2013
<i>Decree No. 034-015</i>	The global tariff rate that taxes item 8703.90.00.10 "Cars with electric propulsion engine only" is modified.	2015
<i>Decree No. 211-015</i>	The National Energy Efficiency Plan 2015-2024 is approved.	2015
<i>Decree No. 289-015</i>	Article 59 of the Law No. 18.834 of November 4, 2011, regarding remunerated contracts for performance of energy efficiency in the public sector is regulated. DECREE No. 289/015	2015
<i>Decree No. 317-015</i>	The Registry of Certified Energy Saving Agents is created that will work, be organized and administered by the MIEM through the DNE.	2015
<i>Decree No. 046-016</i>	The Energy Efficiency Certificates Manual is approved.	2016

Source: Compiled by author

Institutionality

An institutional arrangement that allows managing energy efficiency as part of the sector policy, both at the level of policy design as well as execution, is a major aspect of the energy efficiency laws of the countries assessed. Within the revised laws, there are differences in the institutional structure selected for the operation and management of energy efficiency issues. It should be borne in mind that the design and establishment of policies naturally falls to the level of the Executive Power and the implementation of policies may fall to independent agencies.

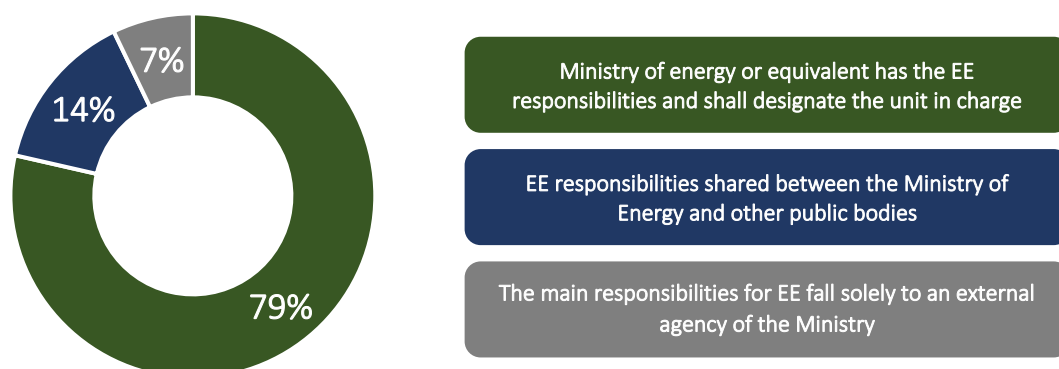
Figure 2. Institutional structures for energy efficiency management in countries



Source: Compiled by authors

As can be seen in Figure 3, 79% of the laws and bills assign to the ministry governing energy issues the responsibility of selecting a specific unit or body responsible for energy efficiency matters. This body is part of or responds directly to the ministry of the sector. In the special case of Argentina, the bill defines an “Application Authority” that will be designated by the Executive Power and that will be within the scope of the Government’s Secretariat of Energy of the Ministry of Finance. On the other hand, in 14% of the cases, the responsibilities are divided between two or more public entities such as Mexico, where the Federal Executive will exercise the powers conferred by the Energy Transition Law through the National Secretariat of Energy, the Secretariat of Environment and Natural Resources (SEMARNAT), the Energy Regulatory Commission (CRE) and the National Commission for the efficient use of energy (CONUEE), or the Brazilian Laws that grant differentiated responsibilities regarding energy efficiency to units within the Ministry, to public energy research companies and to a management committee of indicators of energy efficiency levels. Finally, in 7% of the cases, an agency or autonomous entity of the Ministry is created; which will have full responsibility for energy efficiency.

Figure 3. Types of designations of responsibilities for energy efficiency



Source: Compiled by authors

Table 4 shows the text of energy efficiency laws and bills regarding institutionality and in relation to which entity will be responsible for the different components associated with energy efficiency policy.

Table 4. Details on the designations of institutional responsibilities of energy efficiency issues

COUNTRY	ENTITY / DESIGNATED ORGAN	RESPONSIBILITIES / FUNCTIONS
Argentina	The Executive Power determines the <i>Authority of Application</i> that will belong to the National Government Secretariat. <i>Interjurisdictional Energy Efficiency Council (CIEE)</i>	All the actions for the implementation of the bill and energy efficiency measures. Establish plans, policies, standards, sanctions, training, among others. Technical advisory body of the Energy Efficiency Application Authority.
Brazil	<i>Ministry of Mines and Energy - Management Committee of Indicators of Energy Efficiency Levels</i>	The executive branch is responsible for determining the maximum levels of specific energy consumption, or minimum energy efficiency, from energy consuming machines and appliances manufactured or marketed in the country, based on relevant technical indicators. Decree No. 4059 (Presidencia de la República de Brasil, 2001) regulating the Law establishes the creation of the Management Committee of Indicators of Energy Efficiency Levels (MCIEE). The MCIEE establishes the work plan in order to implement the Law, and draws up its own rules for each type of energy consuming device and machine.
Chile	<i>Ministry of Energy and Council of Ministers</i> <i>Chilean Energy Efficiency Agency</i>	In the Bill, it is indicated that the Ministry of Energy, in coordination with the relevant ministries, will be responsible for preparing the Energy Efficiency Plan every 5 years, which will be evaluated by the Council of Ministers for its Sustainability. It was defined by Law No. 20.402 and its main objective is the study, evaluation, promotion, information and development of all kinds of initiatives related to the diversification, saving and efficient use of energy.
Colombia	<i>Ministry of Mines and Energy</i>	Promote, organize, ensure the development and monitoring of programs for the rational and efficient use of energy.
Costa Rica	<i>Ministry of Natural Resources, Energy and Mines</i>	Responsible for coordinating, applying, supervising and overseeing the national program for the rational use of energy.

Dominican Republic	<i>National Technical Committee for Energy Efficiency (CTNEE)</i>	It is a collegiate and ex-officio body for detailed monitoring and support for the implementation of the bill in question, composed of several public institutions.
Ecuador	<i>The lead Ministry of public policies for renewable energy and energy efficiency</i> <i>National Energy Efficiency Committee (CNEE)</i>	It will be competent, among others, to establish policies for the reduction of energy consumption, to lead the strategies between the different sectors for the promotion of energy efficiency and to establish information mechanisms. Committee responsible for inter-institutional coordination in the field of energy efficiency and, among other functions, coordinating the operation of the NEES.
Guatemala	<i>Ministry of Energy and Mines - National Energy Efficiency Council (CONEE)</i>	It is a technical body of the Ministry of Energy and Mines. Responsible for exercising exclusively the functions related to energy efficiency and the implementation of the bill in question.
Mexico	<i>National Commission for Efficient Energy Use (CONUEE)</i> <i>The Ministry of Energy, the Ministry of Environment and Natural Resources (SEMARNAT), the Energy Regulatory Commission (CRE) and CONUEE</i> <i>Secretariat of Energy</i>	It is an administrative body that does not belong to the Secretariat and that has technical and operational autonomy. It must promote energy efficiency and be a body of a technical nature related to the issues of sustainable use of energy. Each of these, within the scope of its attributions, will exercise the powers conferred by the Energy Transition Law, which includes differentiated provisions in the areas of clean energy and energy efficiency. The Secretariat leads the Strategy, whose main objective will be to promote the use, development and investment in renewable energy and energy efficiency.
Nicaragua	<i>Ministry of Energy and Mines</i>	Its responsibility is to organize, formulate, promote and ensure the development and monitoring of national programs for the rational and efficient use of energy.
Panama	<i>National Secretariat of Energy</i>	It must establish the national policy of rational and efficient use of energy. It must also support the program for the rational and efficient use of energy promoted by the private sector. In addition, it must design and propose the National Strategic Plan for the execution of the policy of rational and efficient use of energy.
Peru	<i>Ministry of Energy and Mines</i>	It is the competent authority of the State for the promotion of the efficient use of energy for: promoting the creation of a culture oriented towards the rational use of energy resources; promoting transparency of the energy market; the elaboration and execution of reference plans and programs for energy efficiency; promoting EMSES; among others.
Uruguay	<i>The Ministry of Industry, Energy and Mining creates the Energy Efficiency Unit</i>	It must establish the policy, standards and infrastructure necessary for law enforcement. For this, it must create the necessary regulation, technical, economic and financial structure that ensures the sustainable development, knowledge and awareness of the entire population about the efficient use of energy and the benefits associated with the responsible use of resources.
Venezuela	<i>Ministry of Popular Power with competence in electrical energy</i>	It must dictate the general and political guidelines on the rational use of energy.

Source: Compiled by authors

Planning

Energy efficiency planning must be part of a long-term public policy that is defined within an appropriate regulatory framework. The planning process for energy efficiency includes the development of an initial diagnosis, the identification and characterization of opportunities and barriers, the identification of objectives and actions, and finally the establishment of quantitative goals and indicators for the defined period. Fixing the preparation of a National Energy Efficiency Plan in a Law, gives weight to the energy efficiency goals and actions that are determined, strengthening its execution. Laws and bills vary from what is stipulated in this topic. Some are more specific regarding the development of energy efficiency programs and plans, while others are not specific on this issue or treat it in general terms without giving specific guidelines.

An example of the first group of laws that give greater detail regarding planning is the case of the law of Uruguay where it is established that the Ministry of Industry, Energy and Mining (MIEM) through the Energy Efficiency Unit must prepare the National Energy Efficiency Plan, this in coordination with related ministries and institutions; it should consider a projection of 15 years and will be reviewed and evaluated at least every 5 years. The law also includes the specific aspects that must be included in the National Energy Efficiency Plan, including: mechanisms for the availability of truthful information to the consumer, development plans, promotion and education in the efficient use of energy, including the corresponding goals, the mechanisms that ensure the efficient use of energy in the facilities of the Central Administration and public entities in general, among others. In the case of Panama, they include energy efficiency planning within their national energy plans.

A similar detail is included in the bill of Argentina, with the difference that the National Energy Efficiency Plan is for a period of 15 years with a review every 5 years. In the said plan, the goal of 2030 is to generate a reduction of 23 MM tCO₂ in the year 2030, with the obligation for the Application Authority to monitor and create intermediate or new goals in the case of exceeding it. What is stipulated in the Guatemalan bill is also noteworthy, which establishes the preparation of the Comprehensive Energy Efficiency Plan with the minimum aspects that must be observed such as the integration and analysis of energy information, mechanisms and programs aimed at energy consumers, programs for the establishment and adoption of standards, among others. This plan will have a projection of 15 years and will be reviewed every 5 years. A special case is that of Ecuador, where the Energy Efficiency Plan was prepared and published in 2017, this before having approved the Energy Efficiency Law since the Bill was recently approved at the National Assembly level.

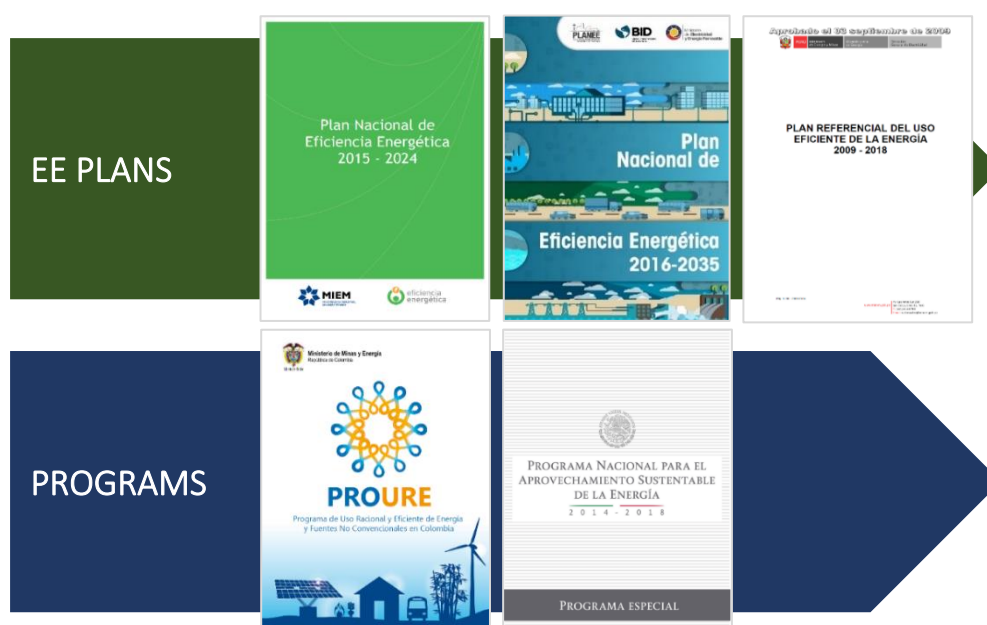
In the case of the laws of Colombia, Mexico and Nicaragua and the bill of Argentina, they establish the creation of programs related to what is dictated by each Law. In the case of Colombia, the Program for the Rational and Efficient Use of Energy and other forms of unconventional energy (PROURE) is created, whose objective is to gradually apply programs for the energy sectors to comply with the minimum levels of energy efficiency. The Nicaraguan Law includes the National Energy Efficiency Program (PRONAE) that must establish the necessary objectives, goals, strategies and financing in the energy sector for energy efficiency. Mexico with no specific law for energy efficiency, includes in its Energy

Transition Law three planning instruments that are: the Transition Strategy to Promote the Use of Cleaner Technologies and Fuels, the Special Energy Transition Program and the National Program for the Sustainable Use of Energy (PRONASE). PRONASE must establish the Energy Efficiency Goal and the Secretariat of Energy together with CONUEE will establish the Roadmap for the fulfillment of the Energy Efficiency Goal. Finally, Argentina includes the development of three programs, the Rational and Energy Efficient Use Program (ProUREE), the National Labeling Program and Minimum Energy Efficiency Standard (ProNEEM) and the Energy Efficiency Labeling Program in Homes (ProdEV).

A particular case is that proposed in the Energy Efficiency Draft Bill of the Dominican Republic, where the planning instrument contemplated is that of the National Energy Efficiency Strategy (ENEE) and also Energy Efficiency Programs. The ENEE will act as a guide for the execution and achievement of objectives set forth in the Draft Bill and it is proposed that it be reviewed every four years.

It is clear that there are different ways how the Energy Efficiency Laws and Bills address the issue of planning. Some opt for the definition of national plans, national programs or national energy efficiency strategies. The importance lies in establishing the clear goals, axes, scenarios and actions that countries must follow for the development of energy efficiency.

Figure 4. Energy Efficiency Plans and Programs



Source: Compiled by authors

Promotion of investments and financing

One of the factors that gives the greatest boost to the development of energy efficiency is to develop mechanisms aimed at developing a market for energy efficient goods and services. In this sense, policy instruments aimed at creating incentives and breaking down

barriers of access to financing are issues that are repeatedly observed in energy efficiency laws.

Figure 5 shows the share of countries that include the aspects related to the promotion of investments and financing for energy efficiency in their laws, decrees and bills, being these eleven out of the sixteen countries analyzed.

Figure 5. Share of countries that include aspects related to the promotion of investments and financing for energy efficiency in their legislation



Source: Compiled by authors

One of the figures that are repeated in the law frameworks of some of the countries is the creation of a trust or a specific fund for energy efficiency, which obtains said funds from a part of the State budget or through the contribution of others market agents (for example, energy sector unions, representative energy consumption sectors, suppliers of energy-consuming equipment and machines, in addition to the funds from international cooperation). These funds are intended to finance technical assistance in energy efficiency, promote research and development in energy efficiency and finance energy efficiency investment projects.

This scheme is used by six (6) of the countries studied: Argentina, Guatemala, Nicaragua, Panama, Peru and Uruguay; although it should be noted that, in the case of Mexico, there is a private trust (FIDE) currently in operation whose conformation is not included in any of the Laws related to the promotion of energy efficiency, but was developed as an initiative of the Federal Commission of Electricity (CFE) of that country, but which is one of the main tools at the level of financing to promote energy efficiency in that country.

As mentioned in the previous paragraph, Uruguay, within the framework of its Energy Efficiency Law presented in 2009, mentions the creation of the Uruguayan Energy Savings and Efficiency Trust (FUDAEE), which is approved and regulated through the decree 086-011 of the year 2011. Decree 086-012 gives the responsibility of the administration of FUDAEE to the National Development Corporation (CND) and also establishes the sources of contribution and capitalization thereof, which are obtained primarily through a contribution rate for sales of energy of companies providing energy services, contributions for fines established for inefficient and cost-effective practices of energy, funds from donations or loans from international organizations or other external sources, items determined by the Executive Power and funds that come from differential tax rates to inefficient equipment

(Presidencia de la República Oriental del Uruguay, 2012). The decree establishes a period of 15 years of FUDAEE, and it is designed to finance: research and development activities in energy efficiency and the promotion of renewable energies; the development of energy diagnostics for the public and private sector; education, promotion and outreach campaigns of energy efficiency for all energy users; control activities and monitoring of the energy efficiency labeling of equipment; the realignment and equipment of national laboratories to ensure the testing capabilities necessary to promote and develop energy efficiency; the costs associated with the operation of the trust; and, communication activities aimed at saving energy by users in the contexts of supply crisis.

On the other hand, in the case of Venezuela and Panama, tariff preferences are also established in the form of exemptions or tax subsidies for those equipment suppliers that import products with high energy efficiency standards. Referring to Panama, this incentive or subsidy can even benefit the final consumer as long as the equipment purchased is included in the list of equipment authorized by the Customs Service for this purpose.

It is worth mentioning that in several of the countries there is an initiative to create a national prize for energy efficiency, which is aimed at institutions or individuals that stand out in the implementation of the rational and efficient use of energy. This mechanism seeks to encourage investment in the development and implementation of energy efficiency through public recognition of the results achieved, which is transformed into positive publicity for the institutions or companies that implement them.

Additionally, there are specific cases of mechanisms used to encourage promotion and investments, such as the delivery of energy efficiency certificates to energy efficiency projects developed in Uruguay. Savings certificates granted to projects already in operation recognize the savings generated in the lifespan of the project and have a market price per unit of energy saved set for each year and that is a function of the energy efficiency target determined in the national plan.

In Uruguay, the sale of efficient equipment through energy distributors has also been implemented, an action that motivates the user to acquire this type of equipment with payment facilities granted through the energy service bill.

As can be seen, the mechanisms that each of the laws (including their related decrees) and the bills, in the cases in which they apply, use to encourage investments and financing for the development of energy efficiency are different. To show the mechanisms used in each country more clearly, a summary categorization is proposed, which is presented below in Table 5.

Table 5. Mechanisms used by countries to encourage investments and financing for the development of energy efficiency

	EE TRUST OR FUND	PROMOTION TO THE PRODUCTION OF EFFICIENT EQUIPMENT	STIMULUS FOR RESEARCH	STIMULUS FOR EDUCATION	EE AWARD	INCENTIVES AND SUBSIDIES FOR THE MARKETING OF EFFICIENT EQUIPMENT	EE CERTIFICATES	EE CREDITS WITH PREFERENTIAL RATES
<i>Argentina</i>	✓	✓				✓	✓	✓
<i>Brazil</i>			✓					
<i>Chile</i>					✓			✓
<i>Colombia</i>			✓	✓	✓			
<i>Costa Rica</i>								
<i>Dominican Republic</i>		✓	✓		✓			✓
<i>Ecuador</i>			✓	✓		✓	✓	✓
<i>El Salvador</i>								
<i>Guatemala</i>	✓				✓			
<i>Honduras</i>								
<i>Nicaragua</i>	✓				✓			
<i>Mexico</i>								
<i>Panama</i>	✓					✓		
<i>Peru</i>	✓		✓		✓			✓
<i>Uruguay</i>	✓		✓	✓			✓	
<i>Venezuela</i>			✓	✓		✓		✓

Source: Compiled by authors

It should be noted that many countries have specific credit lines for energy efficiency within the offer of financial intermediation entities or local development banks; however, they are not included in this analysis since they are not part of the legislation, but are instruments developed separately that do not respond to a policy instrument included in the Law.

Certification Mechanisms

Certification mechanisms have been considered as part of this study because it is observed that in most laws, decrees and bills there are references to this issue. However, the approximation that each of the countries gives to this aspect differs significantly in the different cases analyzed. For some countries, the certification is directly related to the labeling systems and conformity assessment mechanisms of energy-consuming equipment, materials, components, machines and appliances, while in other countries the certification refers to various issues ranging from emissions (Guatemala), energy savings to the consumers who apply energy efficiency actions in their processes (Ecuador), energy consumption avoided with the implementation of energy efficiency projects (Uruguay) or the certification of consultants specialized in energy efficiency issues (Peru).

Regarding the relationship of certification with energy performance standards and labeling systems, some of the countries, such as Argentina, Brazil, Chile, Dominican Republic, Panama (the latter also mentions the accreditation process of certification bodies) and

Venezuela mention directly the certification and labeling of the energy performance of energy consuming elements. The certification mechanism for laboratories that carry out tests and laboratory investigations that allow evaluating compliance with energy efficiency parameters is also referenced by Venezuela.

The paragraphs referring to the certification mechanisms of Uruguay outline the energy efficiency certificates (EEC) which are given to submitted projects that meet the established energy efficiency requirements; which are defined according to the guidelines of the National Energy Efficiency Plan and the Manual of Energy Efficiency Certificates - decree 046-016 (Presidencia de la República Oriental del Uruguay, 2016). This Energy Efficiency Certificate has a value in energy units (tons of oil equivalent - toe) equivalent to the total units of avoided energy weighted in the lifespan of the project. This term results from the sum of the estimated energy savings throughout the life of the project based on relevant technical parameters and the weighting of the energy avoided that the Ministry of Industry, Energy and Mining (MIEM) defines according to the type of project considered. For a project to access the EEC, energy users or energy service providers must cumulatively comply with the following:

- Each measure of efficient energy use must have been implemented at least one year before the certificate request.
- To have developed an annual evaluation of the results compliance by an Energy Savings Certifying Agent registered in the MIEM, and
- To have verified that each measure complies with the Energy Efficiency Condition under the conditions established in each call.

Finally, in the case of Mexico, a certificate is included to recognize excellence in energy efficiency which is managed by the National Secretariat of Energy with the support of the National Commission for the Efficient Energy Use (CONUEE). “Those interested in receiving the recognition of Excellence in Energy Efficiency must meet the requirements established for this purpose in the applicable regulations; which will include, among others, the prequalification that an independent professional will have to carry out,” says the institution.

Now, within the documents analyzed, it is found that the subjects of accreditation and certification are interchangeably covered. However, a distinction must be made for cases in which both terms have a different meaning. For example: accredited bodies are those that are able to certify issues related to energy efficiency (energy efficiency label of a certain energy consuming device); or the case in which through a certificate a certification is achieved to provide services.

In this regard, we observe the specific case of Uruguay and Brazil, which include their local accreditation and metrology entities, respectively, as part of their legislation and energy efficiency decrees, with the responsibility of: informing the Regulatory Units on ups and downs of the accreditations granted, in the case of Uruguay; and to accredit laboratories that assess the conformity of machines and energy-consuming devices in the case of Brazil. As for the Bill of the Dominican Republic, it contains a section related to the accreditation of

energy service providers, which is achieved through a certification issued by the National Energy Commission, an entity accredited by the Dominican Accreditation Body (ODAC) for this purpose. Table 6 shows the certification and accreditation mechanisms (making the distinction explained in the previous paragraphs) used by the countries, which are included in their laws, decrees and bills.

Table 6. Certification mechanisms of the countries analyzed

MECHANISM	DESCRIPTION	COUNTRIES
Certification	Energy efficiency certificates (reduction of CO2 emissions, projects, labeling)	Argentina, Brazil, Chile, Dominican Republic, Ecuador, Guatemala, Panama, Uruguay and Venezuela
	Certification of energy efficiency service providers	Argentina, Dominican Republic and Peru
	Certificates of excellence in energy efficiency	Mexico
Accreditation	Accreditation bodies with defined responsibilities (deliver information, accredit other organizations, etc.)	Brazil and Uruguay
	Organizations that obtain their accreditation through obtaining a certificate	Dominican Republic

Source: Compiled by authors

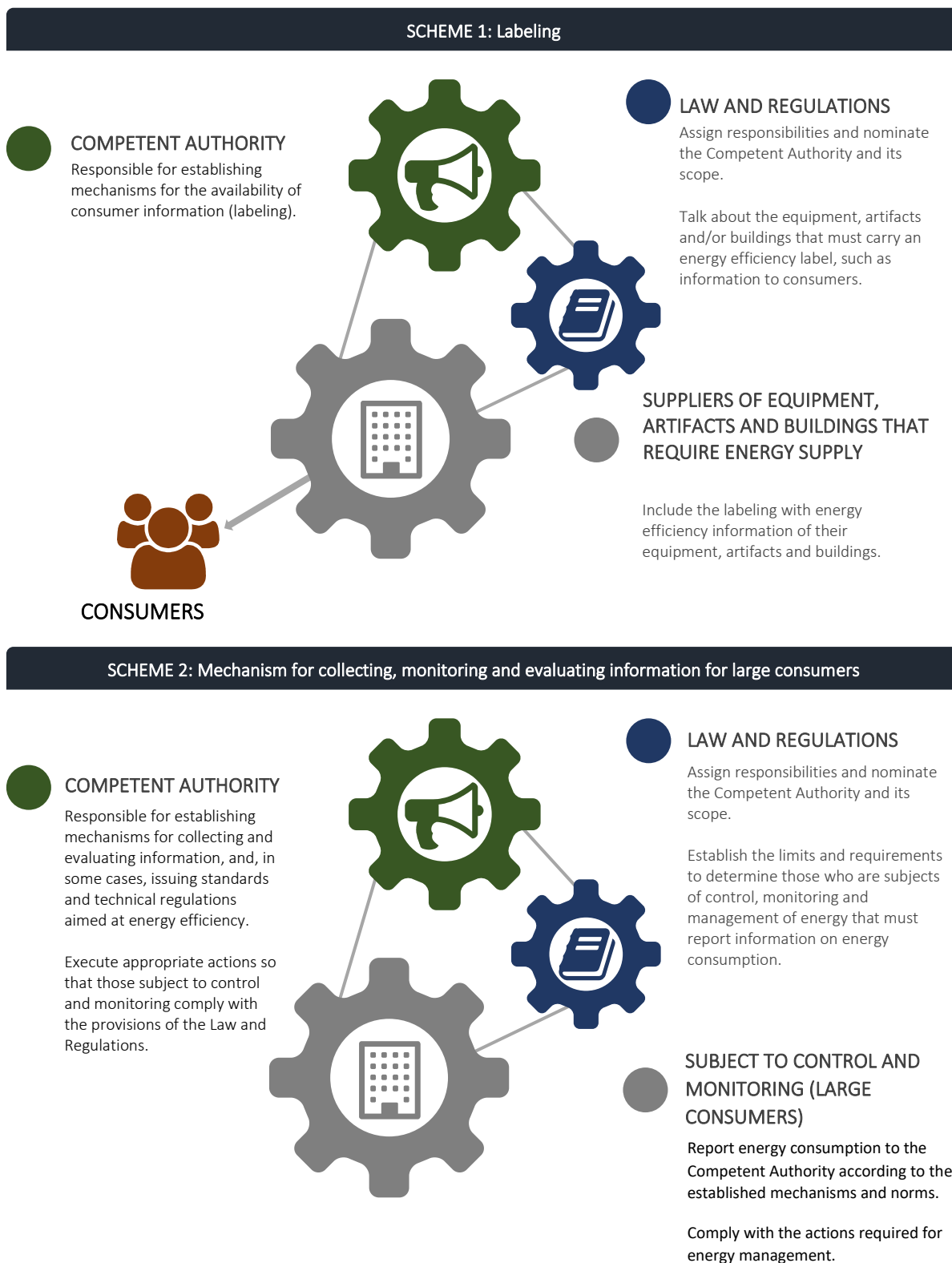
Information for monitoring and evaluation

Regarding the information for monitoring and evaluation, of the studied documents, it has been shown that two specific topics are generally contemplated. Regarding the information provided by suppliers and producers to their consumers - labeling -; and that which refers to consumption report information by consumers that exceed certain limits established by the Law or Regulation. Both schemes, which can be visualized in Figure 6, are mechanisms that the laws contemplate for two essential purposes.

The first is monitoring so that the technology that is marketed, distributed and, consequently, acquired in the country is subject to established standards, and also that the consumer has adequate information regarding the efficiency of the equipment. And the second is to ensure that those large energy consumers can be identified and that they can periodically report their energy consumption and, in some cases, implement actions to reduce it.

In reference to labeling, it is included in the Energy Efficiency Laws and Regulations of: Brazil, Chile, Colombia, Costa Rica, Panama, Peru, Mexico, Nicaragua and Uruguay. It stands out what is stated in the Energy Transition Law of Mexico where CONUEE must prepare and publish a catalog with the equipment and devices that must include the labeling, being exempted those equipment and devices that have the corresponding certificate. In addition, the Energy Efficiency Bills that contemplate the issue of labeling are from the countries of Argentina and Guatemala.

Figure 6. Identified schemes on information for monitoring and evaluation



Source: Compiled by authors

The Energy Efficiency Laws and Regulations that deal with the mechanisms for collecting, monitoring and reporting information on the energy consumption of large consumers or that exceed a certain established limit are: Costa Rica, Ecuador, Peru and Mexico. It is important to highlight what is stipulated in Costa Rica, where the Law authorizes the National Force and Light Company (CNFL), the Costa Rican Petroleum Refinery S.A. (RECOPE), the Costa Rican Electricity Institute (ICE), the Heredia Public Services Company (ESPH) and the Administrative Board of Electrical Services of Cartago (JASEC) that supply to MIRENEM, when requested, information of those customers who have had an annual electricity consumption of more than 240,000 kilowatt hours, greater than 360,000 liters of petroleum derivatives or a total energy consumption equivalent to 12 Tera joules. In addition, it provides that those who exceed the limits indicated above, must perform energy audits or a technical financial study of a rational energy use project. (Asamblea Legislativa de Costa Rica, 1994). Something similar to the case of Costa Rica, although in less detail and focused on the public sector, is what is stipulated in the Regulation of the Law for the Promotion of an Efficient Energy Use in Peru where it provides that those public sector entities that have a monthly billing for consumption of electric energy that exceeds 4 Fiscal Tax Units (UIT, acronym in Spanish), must perform energy audits. The Law of Ecuador establishes that the ranges for the classification of energy consumers will be contemplated in the Regulation of the Law, which, as of the date of preparation of this document, has not yet been published.

In the case of Mexico, the Energy Transition Law and its Regulations provide that CONUEE will implement and administer an Energy Transition Information System that will contain information provided by: the dependencies and entities of the Federal Public Administration, High-Consumption Patron Users, State productive companies, suppliers, qualified users, market participants and energy efficiency indicators by sector.

In addition, the Energy Efficiency Bills that contemplate the reporting of energy consumption information by large consumers are from: Argentina, Chile and the Dominican Republic. All projects set the thresholds to consider and qualify those consumers who must report the information.

In the Argentina Project, High Energy Consumption Users (UACEn) - are those who acquire or use for final use an amount greater than 1,000 Tons of Oil Equivalent (toe) annually - and Very High Energy Consumption Users (UMACEn) - are those who acquire or use for final use an amount greater than 3,000 annual toe - must provide the information as determined by the Application Authority. The Chilean Bill provides that they are all companies that have had an energy consumption equal to or greater than 50 tera-calories and the Bill of the Dominican Republic stipulates that they are all companies, associations and other entities that intervene in the energy sector.

Dissemination of information and training

The laws, regulations and bills that have been reviewed, give relevance to the issue of training and dissemination of energy efficiency information. Various instruments are identified to lift local information and capacity barriers, which is why they have been

classified into four: training programs and workshops for the public and private sectors; promotion of outreach and demonstration programs and campaigns; society participation, consultations and public access to information systems; and, inclusion of energy efficiency in the study programs, as shown in Figure 7.

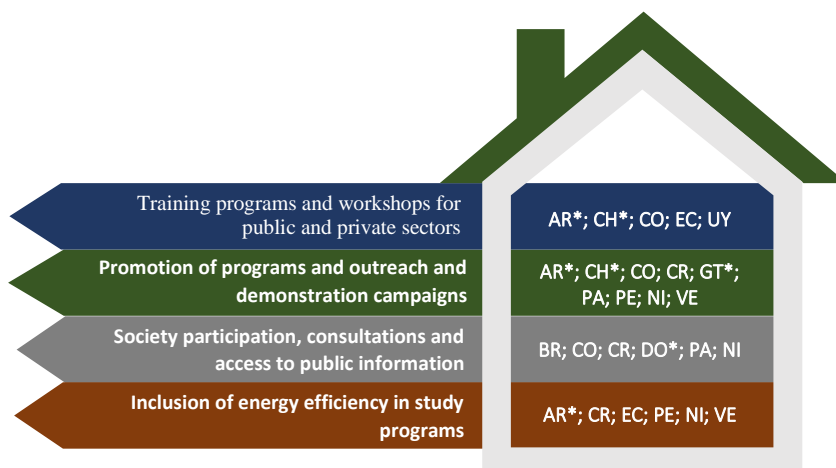
Figure 7. Mechanisms for information dissemination and training in energy efficiency



Source: Compiled by authors

Countries in their laws, regulations and bills choose different mechanisms and do not go into greater detail than is expressed in Figure 7, which is why the mechanism they contemplate is illustrated in Figure 8.

Figure 8. Countries and their contemplated mechanisms for the dissemination of information and training



*Bills

Source: Compiled by authors

Contracting mechanisms and marketing

Of the sixteen countries analyzed in this study, ten of them (Argentina, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Nicaragua, Panama and Uruguay) include in their documents aspects related to the contracting and marketing mechanisms that encourage the development of a market for energy efficient goods and services and include the issue in public procurement. In most cases, these mechanisms are related to the minimum energy performance that the equipment that consumes energy for their operation must have to be marketed in each of the territories.

The approach that each of the countries gives to the requirement of minimum energy performance standards is diverse, so the following briefly describes the approach that each of these countries presents:

- Argentina in its proposal stipulates that the contracts made by the national public sector must meet the minimum energy efficiency standards or maximum levels of specific energy consumption defined by the Application Authority. As for public tenders, the most convenient offers in terms of energy efficiency should be prioritized. Likewise, it provides that the Legislative Power, the Judicial Power and the Public Prosecutor's Office must incorporate in their contracting regimes the minimum standards of energy efficiency or maximum levels of specific energy consumption defined by the Application Authority.
- Brazil stipulates that with the implementation of energy performance standards developed and supervised by the National Institute of Metrology, Standardization and Industrial Quality (INMETRO) it is guaranteed that all energy consuming devices marketed or manufactured in the country comply with a minimum energy performance standard.
- Costa Rica requests the manufacturers or assemblers of energy consuming elements to obtain the authorization of the Ministry of Environment and Energy of this country regarding the energy efficiency of the goods to be used before starting production.
- The Dominican Republic provides the inclusion of energy rating of new buildings, buildings under construction and in those remodeled in more than 30% of the useful area.
- Ecuador, through the Ministry of Transportation and Public Works, defines the limits of energy consumption and emissions that new automotive vehicles must meet. Likewise, the Ministry of Urban Development and Housing in coordination with the National Energy Efficiency System defines the issuance of regulations focused on the construction of buildings intended for commercial and residential use to contemplate the fulfillment of the sectorial goals of energy efficiency.
- Panama establishes that energy consuming equipment and devices that do not have the energy certifications adopted and accepted by the General Directorate of Industrial Standards and Technology cannot be introduced to the market, and in the event that the certifications presented are not accepted, the importer must obtain

a certification from a nationally or internationally accredited certification body at its cost.

- Uruguay evaluates the energy consuming equipment intended to be marketed in the country in accordance with the corresponding labeling standard issued by the Uruguayan Institute of Technical Standards, whose access is universal and free through its website. On the other hand, for each equipment and device that is intended to be marketed in the country, a voluntary transition stage must be followed, followed by a mandatory final stage in terms of assessing their conformity.

In addition to the aforementioned requirements, there are marketing mechanisms aimed at encouraging the use of efficient equipment, such as those used by Uruguay, through which energy service companies can supply equipment that consumes energy, for domestic or commercial use, using commercial instruments or promotions associated with billing.

In the case of Argentina, this possibility is defined in the measures that should be encouraged through the trust, in addition, it is mentioned that it is recommended to evaluate, create and implement market mechanisms that encourage investment in energy efficiency measures in order to mitigate the effects of climate change. Likewise, it is indicated as one of the instruments to be implemented by the Fund for the Development of Energy Efficiency (FODEE), granting bonuses for the acquisition of efficient equipment and technology and also granting incentives for the production of efficient technology.

A similar case is found in the Colombian law, where it is stipulated that utility companies that generate, supply and market power and gas are required to carry out programs for the rational use of energy for users, however, the type of programs that would be implemented are not yet defined.

As for the Dominican Republic, in addition to the energy rating of buildings, it is also established that new vehicle sellers have the obligation to display information on fuel consumption and the emission of CO and CO₂, both at the sales site and at each one of the vehicles. Additionally, the use of renewable energy utilization technologies in new buildings of more than 300m² is required.

On the other hand, Nicaragua and Panama contemplate that energy service providers must be accredited by the bodies designated for this purpose in each of the countries, National Accreditation Council in Panama and the Ministry of Energy and Mines in Nicaragua.

Likewise, Nicaragua and Guatemala establish that in public procurement and contracting, the energy consumption and cost associated with the project life cycle should be considered in the evaluation; based on specific administrative guidelines and procedures designed for the application of this requirement.

Finally, Costa Rica's mechanisms include an exemption for the manufacture and importation of systems using renewable energy if a license is managed through the Ministry of Environment and Energy. Although this is not directly related to energy efficiency, it is mentioned because it is included in the law document of that country.

Table 7. Contracting and marketing mechanisms of the countries analyzed.

<i>COUNTRIES</i>	<i>TYPE OF CONTRACTING AND MARKETING MECHANISM</i>
<i>Argentina, Brazil, Costa Rica, Dominican Republic, Ecuador, Panama and Uruguay</i>	Approach related to the energy performance of energy consuming equipment and devices
<i>Uruguay</i>	Supply of efficient equipment through companies providing energy services
<i>Argentina</i>	Granting of bonuses for the acquisition of efficient equipment and technology and incentives for the production of efficient technology.
<i>Colombia</i>	Public utility companies that generate, supply and market electricity and gas have the obligation to carry out programs for the URE for users
<i>Dominican Republic</i>	Show information on energy consumption and emission of CO and CO ₂ for new vehicles for sale. The use of renewable technologies in new buildings of more than 300m ² is required
<i>Nicaragua and Panama</i>	Energy service providers must be accredited by the competent bodies to be able to provide their services
<i>Guatemala and Nicaragua</i>	For the procurement and contracting of public sector services, the consumption and cost of energy associated with the project life cycle must be taken into account
<i>Costa Rica</i>	Exemption for the manufacture and import of renewable energy systems when managing a license through the Ministry of Environment and Energy

Source: Compiled by authors

Sectoral actions

Given the diversity of structures of the law documents, decrees and bills that each of the countries presents, there are some concepts that can be repeated in two or more categories of those discussed in this document, for example, the mention of a Building labeling system may appear as a marketing mechanism, a certification mechanism or as a sectorial action. In this case, if the same concept intervenes in more than one category, it is analyzed separately in each category so that its analysis is facilitated and a real comparison can be made between the documents of all the countries analyzed.

Taking into account the aforementioned, eleven of the countries analyzed in this document include sectoral actions in their energy efficiency law documents, decrees and bills. These countries are: Argentina, Brazil, Chile, Costa Rica, Dominican Republic, Ecuador, Nicaragua, Panama, Peru, Uruguay and Venezuela.

The specific sectors to which the proposed measures are oriented in most of these countries are: the public sector, the transport sector and the building sector. However, as far as the public sector is concerned, there are two important differences regarding the way in which the actions to be taken are focused, on the one hand the obligations of said sector regarding the generation of policies and program design for the efficient use of energy, and on the other the measures that this sector must take in terms of reducing energy consumption.

Argentina, Chile, Nicaragua, Panama, Uruguay and Venezuela stipulate specific functions for their state portfolios in charge of issues related to energy efficiency to design and implement programs focused on other specific consumer sectors. This aspect has a certain relationship with the institutionality of energy efficiency, although in some occasions it contemplates the creation of specific institutes to execute these actions, as in the case of Panama, which in its

decreto 398-2013 establece la creación de un organismo privado, sin fines de lucro para apoyar y guiar al sector privado en el tema del uso racional y eficiente de la energía.




















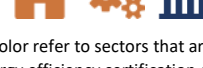
Asimismo, las medidas del sector público tomadas por Argentina, Chile, República Dominicana, Panamá, y Perú contienen acciones orientadas a lograr la reducción del consumo de energía en sus documentos relacionados con la legislación de eficiencia energética. Vale la pena mencionar que Chile, República Dominicana y Panamá incluyen en sus medidas el concepto de “Energy Managers” para el sector público, que consiste en designar un administrador de los recursos energéticos en cada uno de los edificios públicos, y quien es también responsable de gestionar la implementación de proyectos de uso racional de la energía. Por otro lado, el proyecto de Argentina establece que el proceso de compra pública debe cumplir con los estándares mínimos de eficiencia energética o niveles máximos de consumo específico de energía, además de que la documentación de licitación de compra pública debe priorizar aquellos ofertas que sean más convenientes en términos de eficiencia energética. Y finalmente, en el caso de Chile, el Ministerio de Energía, en coordinación con los Ministerios sectoriales, propone la elaboración de un plan de eficiencia energética de cinco años.

Respecto a los elementos relacionados con el sector de transporte, Argentina, Brasil, Chile, Costa Rica, República Dominicana, Ecuador, Nicaragua, Panamá, y Perú, citan al menos una referencia de acciones que deben tomarse en este sector. En este sentido, los proyectos de Argentina y Chile proponen el establecimiento de niveles máximos de consumo de energía y la incorporación progresiva de estándares de eficiencia energética para los nuevos vehículos vendidos en el país; y el establecimiento de estándares mínimos de rendimiento energético (MEPS) para la nueva flota de automóviles (aplicable a vehículos ligeros, medianos y pesados), respectivamente. En el caso de Argentina, también propone que la Agencia Nacional de Seguridad Vial incorpore, como requisito para obtener el permiso de conducir, la enseñanza de hábitos de conducción eficiente que serán definidos por la Autoridad de Aplicación. Asimismo, Ecuador establece que los vehículos de cualquier tipo que se comercialicen en el país deben cumplir con los estándares de consumo de combustible y límites de emisiones, y que cada vehículo debe mostrar claramente el etiquetado de eficiencia energética. Las acciones de la República Dominicana incluyen la implementación de una revisión técnica de vehículos, el uso de transporte público en instituciones, estaciones de recarga de vehículos eléctricos (esta última también incluida en el proyecto de eficiencia energética chileno) y cursos de conducción eficiente.

En cuanto a los edificios, el último de los sectores consumidores que es más considerado en las acciones de las leyes, decretos y proyectos de los países, se debe mencionar que todos los documentos que hacen una referencia descriptiva de este tema, refieren al sistema de etiquetado de edificios, añadiendo la inclusión de sistemas de energía renovable, como es el caso del proyecto de República Dominicana de eficiencia energética.

Adicionalmente, otros sectores como servicios, industria, marketing y educación son tomados en cuenta. No describen acciones específicas, pero son mencionados de manera general. La Tabla 8 muestra los sectores a los que cada uno de los países se refiere.

Table 8. Sectors referenced by each country

COUNTRY	CONSUMER SECTORS	KEY
Argentina		
Brazil		 Buildings
Chile		 Residential
Costa Rica		 Transportation
Dominican Republic		 Marketing
Ecuador		 Industry
Nicaragua		 Education
Panama		 Hydrocarbons
Peru		 Public
Dominican Republic		
Uruguay		
Venezuela		

* The icons in orange color refer to sectors that are not directly mentioned as a consumer sector that the Law focuses on, but are included in the energy efficiency certification or labeling programs.

Source: Compiled by authors

It is important to point out that although many of the countries included in this study contemplate the introduction of labeling systems that also directly affect the residential sector, in very few of the laws is this consumer sector mentioned specifically within the sector activity. For this reason, the labeling systems are referenced in the category of Information for Monitoring and Evaluation.

Control mechanisms

As with most of the categories in which this document is divided, there is no uniformity in the criteria used to define control mechanisms between the laws, decrees and bills of the sixteen countries analyzed. And, considering that eleven of the countries include some kind of control mechanism, it is difficult to establish coincidence points to group them.

However, it can be redeemed as a coincidence that some of the countries designate the regulatory bodies of the energy sector, and electricity in particular, as the entities responsible for monitoring and control (in some cases as the entity responsible for sanctioning) to comply with the provisions of laws, decrees and bills. The countries that establish this type of mechanism are: Ecuador, Nicaragua, Mexico, Peru and Uruguay.

On the other hand, it is the distribution companies or the Ministries of Energy, entrusted to follow up or control certain specific aspects. As is the case with the documents of Dominican Republic, Mexico and Nicaragua.

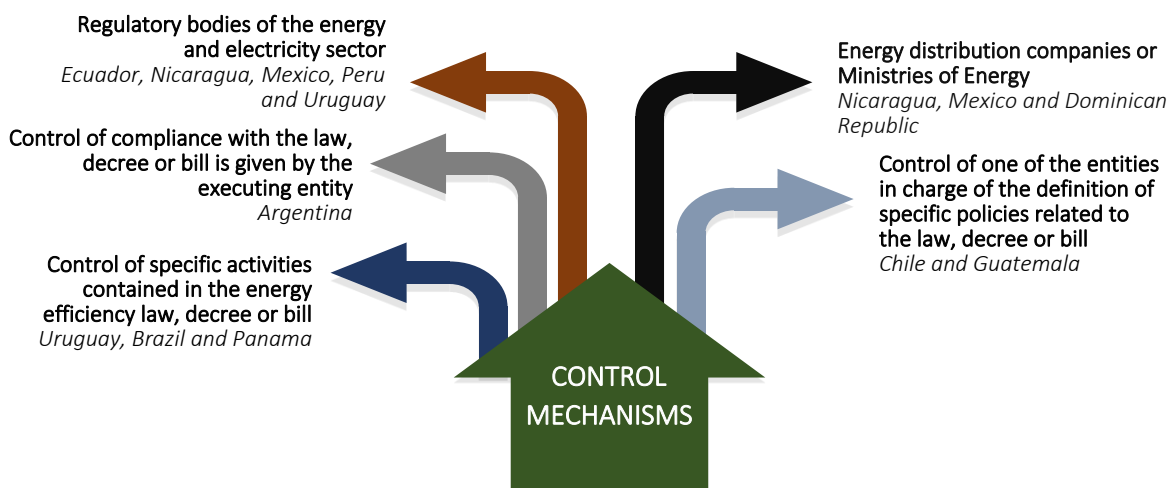
Additionally, there are particular cases, such as that of Guatemala, in which the bill is mentioned as a control mechanism to a procedure to oversee the financial and accounting operations of the National Energy Efficiency Council (CONEE), whose creation is also part of the preliminary draft. In particular, no additional control mechanisms are established for compliance with the law itself, but only for the control of the operation of CONEE.

Similar to this, the creation of the “National Registry of Housing Energy Evaluators of the Ministry of Housing and Urban Development” is included within the preliminary bill of Chile, and, on the other hand, the implementation and administration (including control) is under responsibility of the Technical Division of Study and Housing Development of the Ministry of Housing and Urban Development.

In turn, the bill of Argentina proposes that the entity in charge of control and monitoring be the Application Authority.

In the case of Panama, the control mechanism is aimed at reviewing the label and content of the equipment, machines, materials and spare parts that use and/or recover energy for its operation. Considering this, the entities responsible for developing control activities are the National Customs Authority and the Authority for Consumer Protection and Defense of Competition, respectively.

Figure 9. List of countries with their respective control mechanisms



Source: Compiled by authors

Tax schemes

A topic of special interest is the development of incentive instruments for the market development for energy efficiency goods and services, in this regard, fiscal and tariff incentives are part of the package of possible instruments to lift economic barriers to energy efficiency and that facilitates the entry of efficient technologies. Thus, tax schemes are an

aspect that, if considered in the efficiency laws, improve the conditions of a country for the adoption of new technologies that meet energy efficiency standards. Despite the importance of this issue, few energy efficiency laws, regulations and bills of those analyzed include these instruments.

The level of detail varies between what is stipulated in the different countries. In Uruguay there is flexibility so that the Executive Power can set differential rates of internal taxes or minimum levels of energy efficiency for equipment that consume energy, with its respective impact analysis of the measures.

The Law of Panama goes a little further, and apart from providing tax rates for equipment and machinery by the Ministry of Economy and Finance, it provides a 5% discount on the amount of interest paid to houses (of social interest) that incorporate energy efficiency measures.

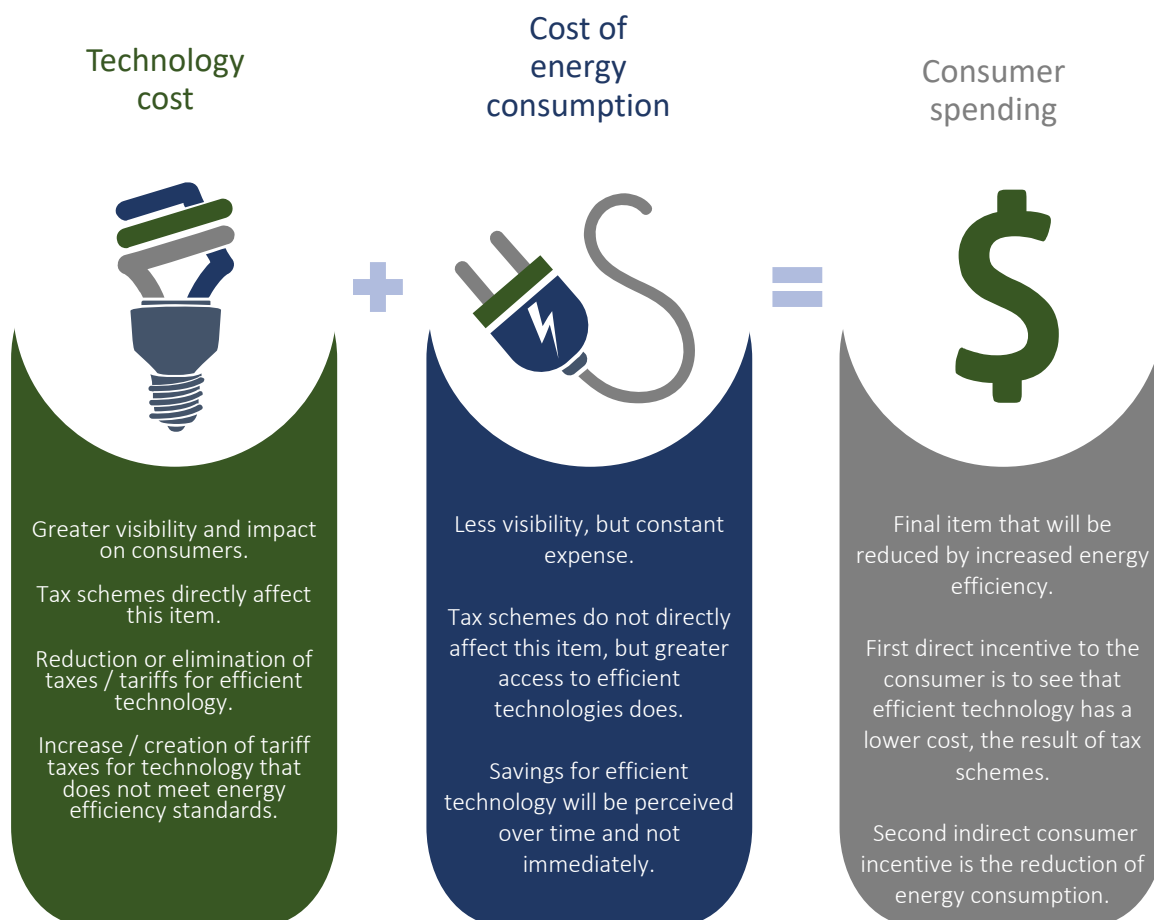
The Law of Costa Rica stipulates that several equipment listed in Article 38 of said Law is exempted from the payment of selective consumption tax.

Finally, in the case of Venezuela, it states that total or partial exemptions may be granted, from the payment of taxes on income, added value or imports, to the importers of household appliances, lighting and refrigeration that are energy efficient to cover the needs of the tourism, health, commerce and manufacturing sectors, or for programs to replace obsolete equipment with energy efficient equipment.

The Bill of Argentina contemplates the creation of the FODEE and as a tax scheme proposes that both the FODEE and the fiduciary, in any subject that is related to the FODEE, will be exempt from all existing national taxes, fees and contributions and those to be created in the future. In addition, it states that the Application Authority can implement a tax credit certificate, granted for energy efficiency projects - and investments of more than ten million dollars and that is defined with a maximum coverage of 20% of said investment - that generate energy savings or contribute to the diversification of the energy matrix; the same that can be applied to the payment of national taxes. Finally, the bill also stipulates that those property owners who have and present their energy rating label, may obtain an exemption from the Property Transfer Tax, Income Tax or any other tax that modifies or replace it (amount that will correspond to a maximum of 25% of these taxes) during the transfer or disposition of rights. On the other hand, the Dominican Republic proposes to establish fixed tax reductions - 50% reduction for current customs taxes and 50% reduction for the tax on the transfer of industrialized goods and services -, as an incentive, exclusively for devices of lighting, cooling, air conditioning and pumping systems.

Figure 10 illustrates the impact that tax schemes would have on the cost of efficient and non-efficient technology. It also allows the visualization as to how these types of schemes could generate the conditions so that energy efficient technologies can enter to compete in the local market and make them attractive to consumers. The effect is twofold because they not only reduce the cost of efficient technology (by reduction or elimination of tariff taxes), but it will also allow energy savings that translate into economic savings for consumers.

Figure 10. Effect of tax schemes on final consumer spending



Source: Compiled by authors

Sanctions

Ten (10) of the countries analyzed include in their: law documents, decrees or bills, some aspect related to the sanctions that apply in the case of non-compliance with the provisions of the Law. These countries are: Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Nicaragua, Mexico, Panama and Uruguay. In the case of the Law of Ecuador, in Article 16, it indicates that for large consumers, the Regulation of the Law may contemplate obligations regarding energy efficiency, the breach of which may result in penalties; however, as previously mentioned, the Regulation has not been published yet.

Within the documents of the countries that refer to the sanctions some coincidences appear on the way in which the infractions are classified and on what they refer to those infractions.

For example, in the case of Chile, Dominican Republic and Nicaragua, a system of classification of the infractions is established according to their seriousness, which is also related to the level of sanction received.

Another way to impose sanctions is the one used in Brazil and Costa Rica, where the sanctions are directly related to non-compliance with the regulations for the labeling systems of energy consuming equipment, and where the sanction is applied through the withdrawal of the equipment that fails to comply with these regulations and with the collection of fines that can be up to 100% of the sales value of these equipment for the case of Brazil, and 25% for the case of Costa Rica.

Some of the documents establish their sanction mechanisms through national energy efficiency programs or other documents related to the energy sector. Colombia, Costa Rica, Panama and Nicaragua are an example of these cases, since in the first case the sanctions scheme is based on what was established in the PROURE; while in the case of Costa Rica, the Tax Reform Law, No. 4961, of March 10, 1972 is used as a sanction base; in Panama it is established that the Consumer Protection and Competition Defense Authority will sanction in accordance with Law 45 of October 31, 2007; and finally, in Nicaragua the sanction procedure operates in accordance with the provisions of Law No. 482 Protection of the Rights of Consumers and Users of July 11, 2013.

A special case that does not fall within the aforementioned classifications is that of the bill of Argentina, which provides that any breach of the obligations provided in the text of the law, as well as in related and subsequent regulations, will be subject to sanction, which will be determined by each of the jurisdictions according to the corresponding police power. This provides a freedom of sanction adjustment by each jurisdiction, however, it also establishes sanctions for the national jurisdiction, which can be used in a supplementary manner in case a jurisdiction does not have a sanctions regime.

The way in which the sanctions are executed and on the basis on which they are supported to determine how to execute them has been discussed; however, it has not been mentioned which are the actions that the said sanctions produce. In this regard, not all countries that mention sanctions clearly establish the breaches that result in a sanction, resulting in some ambiguous cases.

Despite this, it has been found that most countries include a clear description of the aspects that result in a sanction. Among those countries we can mention: Argentina, Brazil, Chile, Costa Rica, Mexico, Panama and Uruguay.

- Argentina: the breach of obligations provided by law and/or its subsequent regulations will be subject to a penalty determined by each jurisdiction that may not be less than the penalties determined for the national jurisdiction. There are two of these sanctions which will be graduated and applied according to the seriousness of the infraction. The first is a warning. And the second is a fine that can be between 15 - 50,000 Penalty Units. The Penalty Unit is equivalent to the MWh price determined by the Wholesale Electricity Market Ltd Company of Argentina and is paid by electricity distributors and large users in the wholesale electricity market.
- Brazil: establishes that energy-consuming machines and devices that are present on the market without complying with the technical specifications included in the specific regulations in force must be collected by manufacturers or importers within

a maximum term of 30 days, in addition to being subject to a fine that can be equal to 100% of their sales value.

- Chile: the infractions are determined to the breach of the norms that regulate the energy qualification of the houses by the evaluators of energy performance of the registered building, and they are classified in: slight, less serious, serious and very serious. Similarly, non-compliance with the labeling program and minimum performance standards has associated sanctions.
- Costa Rica: establishes that the natural or legal person that distributes or sells equipment of any type that needs energy for its operation, and that does not have a consumption notice will be sanctioned with a fine according to the consumer sale price of said equipment. The fine can be up to 25% of the sale value of the equipment, and double in case of recidivism.
- Mexico: sanctions may come from two different entities. On the one hand, CONUEE establishes sanctions for users with a high energy consumption pattern that does not provide the information referred to in the Law; and on the other hand, the Federal Consumer Attorney's Office sanctions manufacturers, importers, distributors or marketers of equipment that: does not include information about the energy consumption of the devices or that does not include it according to the regulations (fine of 100 to 10,000 times the minimum wage); or include false or incomplete information to the equipment that implies deception to the consumer or constitutes a practice that can lead to error (3,000 to 14,000 times the minimum wage if it only includes this information, or 5,000 to 20,000 times the minimum wage if such equipment including this information is imported, distributed or marketed).
- Panama: sanctions importers, distributors and sellers of equipment, machines, materials and spare parts that use and/or recover energy for their operation, which do not carry a label indicating at least their energy consumption under normal operating conditions.
- Uruguay: two types of sanctions are contemplated:
 - One, related to Decree 429-009 in which it is established that the equipment and devices that consume energy destined for marketing in the national territory must be evaluated in accordance with the UNIT standard of energy efficiency labeling that corresponds, but which must go through a transitional stage of voluntary adhesion and a final stage that will be mandatory. Failure to comply with the provisions in the aforementioned decree will result in the application of sanctions by the Regulatory Unit of Energy and Water Services, in accordance with the article 14, literal m, of the Law No. 17,598 of December 13, 2002.
 - And two, sanctions referring to users who make inefficient use of energy in contexts of energy supply crisis, in accordance with the following types of sanctions: observations or fines, depending on the seriousness of the infraction and without excluding the possibility of cumulative application.

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Table 9. List of countries with their respective actions subject to sanction

COUNTRIES	ACTIONS SUBJECT TO PENALTY
Argentina	Failure to comply with the obligations provided by law and/or its subsequent regulations.
Brazil	Failure to comply with the legal specifications of the specific regulations in force on the equipment present in the market
Chile	Failure to comply with the regulations governing the energy rating of housing by registered evaluators. Failure to comply with the labeling program, MEPS and construction standards.
Colombia	Failure to comply with the guidelines included in PROURE, in addition to non-compliance with current regulations.
Costa Rica	Failure to comply with guidelines and characteristics indicated by the Ministry of Natural Resources, Energy and Mines on the equipment, machinery or vehicles manufactured or assembled in the country.
Dominican Republic	Overall non-compliance of the Law.
Nicaragua	Failure to comply with the standards and technical regulations.
Mexico	Failure to deliver the consumption related information by users with a high energy consumption pattern. Omission, placement of false or incomplete information that deceives the consumer or constitutes a practice that may lead to error by manufacturers, importers, distributors or marketers of equipment and devices.
Panama	Failure to have a label that indicates at least the energy consumption under normal operating conditions of the energy consuming equipment to be marketed in the country.
Uruguay	Inefficient and costly use of energy in contexts of energy supply crisis; and, non-compliance with the conformity assessment process in accordance with the UNIT standard corresponding to each energy consuming equipment.

Source: Compiled by authors

Lessons Learned and Conclusions

From the revision of the legislative documents referring to the energy efficiency of the countries, it has been found that they embrace the fundamental policy instruments aimed at lifting the barriers of energy efficiency: institutionality, planning, investment promotion and financing, certification mechanisms, information for monitoring and evaluation, dissemination of information and training, contracting and marketing mechanisms, sector actions, control mechanisms, tax schemes and sanctions.

Concerning *institutionality*, it was shown that countries choose three (3) different options to entrust responsibility for the design of energy efficiency policies and their execution. Most laws and bills assign responsibility for energy efficiency to the ministry governing energy-related matters through a specific administrative unit or body responsible for these subjects. Other countries opt for schemes that include several public entities that are responsible for carrying out differentiated activities regarding energy efficiency. Finally, in the case of the bill of the Dominican Republic, an agency or autonomous entity of the Ministry is created, which will be responsible for energy efficiency. It is relevant to highlight that beyond the choice of a scheme that includes the responsibility assigned to a single entity responsible for the design and definition of policies, as well as the implementation of the policies or institutional schemes that divide between the role of the policy maker and implementing agencies, it is clear that the existence of an institutional arrangement is essential for the development of energy efficiency.

Regarding the *planning*, the review showed that the approach of the countries differs in terms of what is provided by the energy efficiency law or bill. In some cases, the laws include the elaboration of a National Energy Efficiency Plan and determine its periodicity, main issues that should be included and those that will be in charge of preparing it. In other cases, the laws include the elaboration of a National Energy Efficiency Program and/or Strategy. It is clear that, for the development of energy efficiency in a country, it is important to set and establish clear goals, axes, scenarios and actions of short, medium and long term. In addition, it is important to take advantage of the space and weight that an Energy Efficiency Law provides to include the aspect of energy efficiency planning as part of the country's energy policy.

When talking about the *promotion of investments and financing* of energy efficiency, it is important to mention that 62.5% of the countries analyzed include some aspect related to this issue. The lifting of barriers to energy efficiency requires the allocation of resources that the market itself does not have the capacity to allocate, this is why the energy efficiency actions must include mechanisms to guarantee the financing of the various policy instruments destined to the promotion of energy efficiency and the establishment of incentive schemes.

In the same way, the concept that is most repeated is that of the formation of a trust, or specific fund, which is made up of funds from the state and funds from other sources such as: private contributions, international cooperation, among others. Other mechanisms for promoting investments are shown, such as exemptions, tariff preferences and awards for

excellence. All these concepts have shown good results in many of the countries where they have been implemented and they ensure the development of market for energy efficient goods and services.

To ensure compliance with energy efficiency standards for the provision of services and products, it is necessary to have mechanisms for labeling and certification of products. In this regard, the concept that is most repeated is that of certifications and/or accreditations related to labeling systems, whether seen from the point of view of the certification of energy consuming equipment or of the entities that manage and evaluate the equipment compliance.

The mechanisms established in the legislative documents regarding the **information for monitoring and evaluation** differ in two main schemes, for labeling and for the collection, monitoring and evaluation of information for large consumers. Not all countries analyzed opt for both schemes, some focusing only on labeling and others only on the reporting of information by large consumers. It is noteworthy the importance of information both for the supply of machinery, equipment and buildings to the consumers as well as for the control and monitoring of the consumption of those who are determined as large consumers. The relevance of labeling lies in the availability of information on efficient technology to consumers, who when informed will make an economically rational decision that incorporates the cost of the life cycle of the products purchased. While the collection of consumer information by large energy consumers will allow control, establish corrective actions and establish recognition or sanctions if necessary.

Another relevant issue is that of the **dissemination of information and training** regarding energy efficiency issues. The following four mechanisms that have been included in the different documents reviewed have been identified: training programs and workshops for the public and private sectors; promotion of outreach and demonstration programs and campaigns; society participation, consultations and public access to information systems; and, inclusion of energy efficiency in the study programs. This issue is important because it is responsible for generating capacities and knowledge about energy efficiency in the various sectors of society.

Another aspect related to the development of energy efficiency is that of **contracting and marketing mechanisms**, where most of the countries that include this aspect in their documents refer to the obligation to meet minimum energy performance standards in order to be allowed its marketing in national territory. However, there is another point of view related to the incentives for its marketing, among which the case of Uruguay stands out, where through the companies providing energy services, efficient equipment can be supplied using commercial instruments or promotions associated with the energy service invoice.

By mentioning the areas in which the actions (**sectoral actions**) of the laws, decrees and bills of energy efficiency are focused, we find that the consumption sectors where more actions are observed are the public sector, the transport sector and the building sector. The inclusion of the public sector in most countries is obvious since they are sectoral actions,

mainly because this is the way to encourage the development of energy efficiency towards other consumer sectors.

It is important to mention in this point that, although it is true that the residential sector is not directly named as an objective of sectoral actions, most countries in their documents include actions related to the labeling of energy consuming equipment, which indirectly affect the residential sector (especially if one takes into account that normally the labeling programs and energy performance standards begin with the regulation of household appliances).

In order to maintain the achievements in energy efficiency, it is important to define **supervision and control mechanisms**, which is why 11 of the 16 countries analyzed include this aspect in their documents. And, within this aspect, most countries establish control mechanisms aimed at complying with the articles referred to in the documents related to the energy efficiency law, for which the relevant energy authorities of each country are designated (ministries, regulatory agencies, etc.).

The incorporation of new technology into a market will always face barriers, which is why establishing **tax schemes**, either in the form of reduction/elimination of tariffs and/or other taxes for efficient technology, or in the form of creation/increase of tariffs and/or other taxes for non-efficient technology, is taken into account within the laws, regulations or bills of some of the countries analyzed. While this issue has not been covered by most countries in this study, it is certainly a very important aspect of entering energy efficiency into the market.

Finally, there is one aspect that cannot be ignored, which refers to **sanctions**. 10 of the countries analyzed include aspects related to sanctions in their documents, demonstrating the importance of this issue. As a relevant aspect to the **sanctions**, it can be mentioned that most countries establish a mechanism in which the infractions are categorized, and depending on the severity of the same, the respective fines are established. These fines are related to basic salaries in most cases where this system is used, which allows maintaining the same "level" of sanction independent of the variations experienced by the local economy. Regarding the behavior that give rise to a sanction, it is evident that the most common aspect among countries is that of non-compliance with regulations referring to labeling programs and energy performance standards, although there are particular cases where the infraction may occur for the non-compliance of specific regulations or plans.

To complete the analysis it is important to highlight that it is not possible to have a unique model of the Energy Efficiency Law applicable to all LAC countries. Each country presents a structure of barriers to energy efficiency that is particular to its own market and therefore the effective policy instruments are specific to each situation. Likewise, legislation on energy efficiency should be understood as another element of the actions aimed at establishing a long-term energy policy, but it should be borne in mind that an Energy Efficiency Law is not an end in itself but a legal instrument that allows the development of a market for energy efficient goods and services. A Law should not be identified as the first element of an action in the field of energy efficiency, but should derive from previous work aimed at establishing energy efficiency as one of the specific components of an energy policy.

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