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Energy Efficiency Laws in Latin America and the Caribbean

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Energy joins us

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Introduction

The awareness of the importance of energy efficiency globally continues to increase. It has been proved that energy efficiency has the real capacity to effectively influence global energy demand 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 energy policy of nations, giving the energy sector the necessary dimension to act on the demand side.

Energy efficiency is directly related to actions to mitigate climate change due to its ability to generate savings in energy consumption. Furthermore, both for developed economies and - although more importantly - for 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 respond to non-tariff barriers. For the potential benefits, promoting the development of energy efficiency in a country has a clear justification. However, in order to access the existing energy efficiency potential, it is necessary to overcome the various economic, regulatory, political, institutional, cultural, technological, information and financing barriers that block the development of an energy efficiency goods and services market.

In order to gain access to the existing potential for energy efficiency, it may be necessary to act on regulatory and legislative changes aimed at lifting the barriers present in each market. Acting to establish energy efficiency laws that incorporate policy instruments aimed at overcoming these barriers is an important step towards turning energy efficiency into a State Policy, without its development being subject to the will, vision or ideology of the current administration, which has the potential to generate direct benefits for consumers, protect and allocate available resources and protect 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 to claim the political system, companies and consumers. 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 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.

Because an energy efficiency law responds to the needs and realities of each of the countries, it is impossible to replicate existing success stories or generate a unique model of the law. However, it has been possible to identify the following elements that an energy efficiency law could include in order to overcome the different barriers present: institutional framework, planning, mechanisms to promote the technological and process transition, certification mechanisms, control mechanisms, penalties, economic incentives and implementation mechanisms, cultural change promotion and different sectoral policies. For this reason, this document presents a structure divided into four main parts that organize the aforementioned elements: institutional aspects, regulatory instruments to promote the technological and regulatory process transition, economic incentives and cultural change.

This work aims to show an analysis focused on the existing energy efficiency legislation, or in the process of definition, through a review of the published laws and also the bills, with the understanding that the bills are subject to modification

and may present substantial changes during the whole process of parliamentary discussion[1]. This review included examining each of the documents, classifying them according to the main policy instruments so as to identify overlaps between the legislation and present the approach of the different countries. On the other hand, it is important to clarify that this review did not include institutional frameworks or energy efficiency plans that countries may have developed without the support of an energy efficiency law. Finally, the study intends that the analysis of the legislative advances in the different countries will serve to provide a set of lessons learned and technical considerations on this issue.

Status 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 twelve countries in the region already have existing laws on energy efficiency or rational and efficient use of energy, and there are five other countries that have an energy efficiency bill that is under discussion.

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

Source: Own elaboration

[1] Although Honduras and El Salvador have had energy efficiency bills under discussion for some years, no analysis of these bills has been conducted.

Table 1 and **Table 2** present in detail the information regarding each law and bill on energy efficiency in the countries of the region. Table 1 is a compilation of all existing energy efficiency laws and shows that many countries have already had an energy efficiency law in place for several years - as is the case in Colombia, Costa Rica and Uruguay -; for others, such as Chile, Cuba and Ecuador, it is a relatively new component of their energy policy.

Table 1. Energy Efficiency Laws in the LAC region

	NAME	DETAILS	YEAR
	**Law N° 9.991**	Deals with the realization of investments in research and development in energy efficiency by the concessionary, permitting and authorized companies of the electric energy sector.	2000
	Law N° 10.295	Deals with the National Policy of Conservation and Rational Use of Energy.	2001
	Law N° 21.305	Law that aims to promote the rational and efficient use of energy resources.	2021
	**Law N° 20.402**	It grants the 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
	**Law N° 697**	Through which the rational and efficient use of energy is encouraged, the use of alternative energy is promoted and other provisions are dictated.	2001
	**Law N° 7.447 Law for the Regulation of the Rational Use of Energy**	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 the efficient energy use and replace them when it suits the country, considering the protection of the environment.	1994
	**Decree-Law N° 345 on the Development of Renewable Sources and the Efficient Use of Energy**	Establishes regulations for the development of renewable sources and the efficient use of energy.	2019
	**Organic Energy Efficiency Law N° 449**	It establishes the legal framework and operating regime of the National Energy Efficiency System - SNEE. It also seeks to promote the efficient, rational and sustainable use of energy in all its forms.	2019
	**Energy Transition Law**	Establishes the provisions to regulate the mechanisms and procedures that allow the implementation of the Law regarding the Sustainable Use of Energy, Clean Energies and reduction of Pollutant Emissions from the Power Industry.	2016

	NAME	DETAILS	YEAR
	**Law N° 956 on Energy Efficiency**	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
	**Law N° 69 of Rational and Efficient Use of Energy**	Establishes the general guidelines of the national policy for the rational and efficient use of energy in the national territory.	2012
	**Law N° 27.345 for the Promotion of the Efficient Use of Energy**	Declares of national interest the promotion of the Efficient Energy Use (UEE) 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
	**Law N° 18.597 for the Promotion of Efficient Use of Energy** **Law N° 18.719 of 05-01-2011:**	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. The Budget Law introduces changes to the Law 18,597 on the Efficient Use of Energy in the articles: No. 118, 821, 822 and 824.	2009 2011
	**Law of Rational and Efficient Use of Energy**	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: Own elaboration

Table 2. Energy Efficiency Bills in the LAC region

COUNTRY	NAME	YEAR OF SUBMISSION
Argentina	Energy Efficiency Bill	It has not been submitted
El Salvador*	Energy Efficiency Bill	2014
Guatemala	Energy Efficiency Bill	2012
Honduras*	Bill of Rational and Efficient Use of Energy	2014
Dominican Republic	Bill on Energy Efficiency and Rational Use of Energy	2018

* The energy efficiency bills of El Salvador and Honduras have not been made available, so they will not be included in the analysis.

Source: Own elaboration

From the review of the laws it was found that, in some specific cases, the law did not provide sufficient detail to contribute to the analysis of this document or, in other cases, it directly stipulated that certain aspects would be detailed in the decree regulating the law. For these reasons, this analysis also included a review of some of the decrees that regulate energy efficiency laws.

Table 3 presents those decrees whose revision was necessary to complement some details that were not developed in its energy efficiency law, with the understanding that the provisions of the decree do not have the same weight or hierarchical rank as those stipulated in the law. For this reason, throughout this document, reference will be made to the provisions of the decrees analyzed in order to avoid confusion between the provisions of the law and those of the decrees.

Table 3. Decrees analyzed that regulate energy efficiency laws in the LAC region

	NAME	DETAILS	YEAR
	**Decree N° 3.867**	Deals with investments in research and development of energy efficiency by concessionary, licensee and authorized companies in the electricity sector.	2001
	Decree N° 9.864	Deals with the National Policy of Conservation and Rational Use of Energy.	2019
	**Decree N° 3.683**	Law 697 of 2001 is regulated and an Intersectoral Commission is created.	2003
	**Decreto N° 25.584**	Provisions of the Rational Use Energy Regulation.	1996
	**Decree Regulation of the Energy Transition Law**	Establishes the provisions to regulate the mechanisms and procedures that allow the implementation of the Law regarding the Sustainable Use of Energy, Clean Energies and reduction of Pollutant Emissions from the Power Industry.	2017
	**Decree N° 398-2013**	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
	**Decree N° 053-2007-EM**	Regulates the provisions to promote the efficient use of energy in the country contained in Law No. 27345, Law for the Promotion of Efficient Use of Energy.	2007

Source: Own elaboration

It is important to note that the decrees regulating a law 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 indents to centralize the analysis in the provisions of the energy efficiency laws and those decrees of greater relevance[2] that have been identified in **Table 3**. **Table 4** exemplifies visually the above and presents the case of Uruguay, where as of 2009 several decrees regarding energy efficiency have entered into force.

[2] The analysis has included those decrees that complement an energy efficiency law that was not specific and that for several issues delegated most of the topics to the main decree that regulates it, as is the case of Colombia, Peru, among others.

Table 4. Decrees issued since the publication of the energy efficiency law in 2009 in Uruguay

DECREE	DETAILS	YEAR
N° 428-009	Deals with the energy efficiency labeling for compact fluorescent lamps.	2009
N° 429-009	Deals with the energy efficiency labeling for equipment and devices that consume energy from whatever source and that are intended for sale in national territory.	2009
N° 430-009	Deals with the energy efficiency labeling for accumulation electric water heaters.	2009
Nº 411-010	Provides the modification of IMESI rates applicable to the utility and passenger vehicles.	2010
Nº 329-010	The application of the transitional stage for electric refrigeration appliances for domestic use is provided.	2010
Nº 152-010	Provides the deadline for signing Energy Efficiency agreements with the MIEM.	2010
Nº 116-011	Provides the control of the Products included in the National Energy Efficiency Labeling System.	2011
Nº 131-011	Extends the period of validity of the transitory stage of conformity assessment of the Electric Accumulation Water Heaters.	2011
Nº 359-011	The MIEM will establish the modalities and deadlines for applying the National Energy Efficiency Labeling System.	2011
N° 086-012	Approval of the Uruguayan Savings and Energy Efficiency Trust (FUDAEE).	2012
N° 099-012	Provides the modification of applicable categories and rates of IMESI to hybrid vehicles.	2012
N° 154-012	The 2012 Energy Savings Economic Plan for the public sector is approved.	2012
N° 232-012	Bills subject to obtaining the subsidy established by Article 12 of the Law 18,860 of December 23, 2011.	2012
N° 246-012	MEF decree on IMESI in motor vehicles, motorcycles, scooters, motorbikes and all the other types of motor vehicles.	2012
N° 074-013	Incorporates integrated socket E14 and E40 to the list of exceptions to the common external tariff (AEC) to the compact fluorescent lamps (LFCs).	2013
N° 034-015	The global tariff rate that taxes item 8703.90.00.10 "Cars with electric propulsion engine only" is modified.	2015
N° 211-015	The National Energy Efficiency Plan 2015-2024 is approved.	2015
N° 289-015	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. DEC. No. 289/015	2015
N° 317-015	The Registry of Certified Energy Saving Agents is created that will work, be organized and administered by the MIEM through the DNE.	2015
N° 046-016	The Energy Efficiency Certificates Manual is approved.	2016

Source: Own elaboration

Part 1
Institutional Aspects

Institutional aspects are a fundamental pillar for the development of energy efficiency as a transversal and multisectoral policy. The institutional aspects include the institutional framework; planning, framed in the development of a National Energy Efficiency Plan, which will make it possible to outline the actions to be implemented in the future, the goals at the national level and identify the resources required; and, the establishment of mechanisms to evaluate and monitor the results of the implementation of the energy efficiency policy. The next three chapters analyze how the different laws and bills address the aforementioned institutional aspects.

Chapter 1

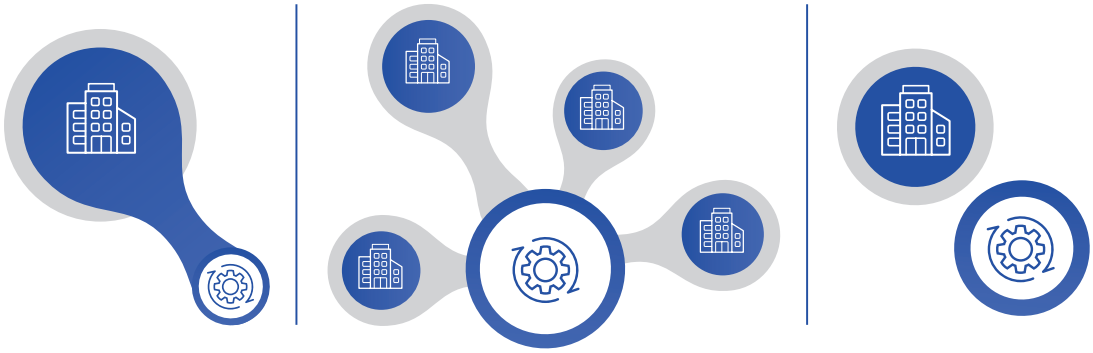
Institutional Governance Arrangements

An institutional arrangement that allows for the development of energy efficiency as part of sectoral policy both at the policy design level and for implementation and enforcement is a major aspect within the energy efficiency laws of the countries analyzed. An institutional framework with clear and well-defined responsibilities is a basis that facilitates the processes and actions necessary for the development of energy efficiency. However, and as will be discussed later, institutional arrangements may have a different structure in each country. The entity in charge of policy design will not necessarily be the one in charge of executive action on energy efficiency issues. Likewise, the entity in charge is not necessarily part of or attached to the ministry in charge of the energy sector and is not exclusively a single entity; there may be several institutions working on energy efficiency issues.

According to the laws reviewed, there are differences in the institutional structure selected for action and management of energy efficiency issues in the different countries. It should be borne in mind that the design and establishment of policies naturally falls at the level of the Executive Branch; however, as mentioned above, executive responsibility for the implementation of policies may lie with independent agencies not attached to the Executive Branch.

It is important to mention that although **Figure 2** illustrates the different institutional structures that have been found in the laws and bills analyzed, the figure does not disaggregate according to responsibilities, role (policy design or implementation) or whether they are completely state-owned or have private participation; this detail is found later in **Table 5** where the institutional framework for each country will be presented.

Figure 2. Institutional structures for energy efficiency management in the countries

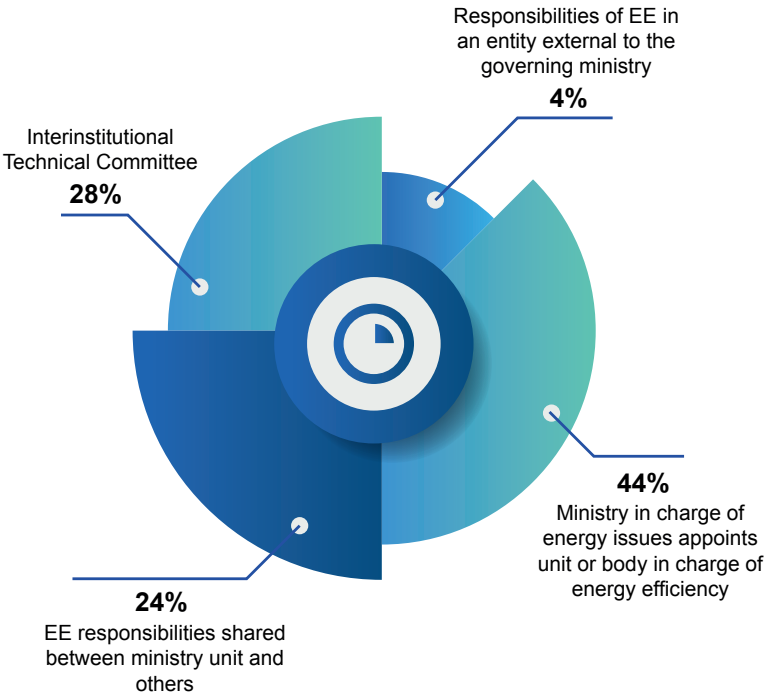


Source: Own elaboration

As can be seen below in **Figure 3**, 44% of the entities designated or created by the laws and bills provide that the lead ministry for energy issues is responsible for selecting a specific unit or body in charge of energy efficiency issues. This body is part of or reports directly to the sectoral ministry. On the other hand, in 24% of the cases, responsibilities are divided between two or more public entities, as in the case of Mexico, where the Federal Executive will exercise the powers related to energy efficiency and conferred by the Energy Transition Law through the National Energy Secretariat and the National Commission for Efficient Energy Use (CONUEE); Brazil's laws that grant differentiated responsibilities regarding energy efficiency to units

within the Ministry, to public energy research companies and to a committee that manages indicators of energy efficiency levels; or Venezuela's law, which provides for the creation of an Energy Management Unit in the different bodies and entities of the Public Power. 28% have the creation of an inter-institutional committee, council or commission to provide support and advice on energy efficiency issues and which can also support the implementation of certain actions. Finally, in 4% of the cases, an agency or entity autonomous from the Ministry is created, which is responsible for energy efficiency; this is the case of Chile, which created the Energy Efficiency Agency (now called the Energy Sustainability Agency of Chile).

Figure 3. Advances in energy efficiency legislation in the countries of the LAC region



Source: Own elaboration

Table 5 is a summary of the different institutions that have been assigned responsibilities regarding the different components associated with energy efficiency and also their different characteristics such as: name, scope, type, role, technical team and budget.

Table 5. Details of the designations of institutional responsibilities regarding energy efficiency

	DESIGNATED ENTITY	SCOPE OF RESPONSIBILITIES	ROLE	TYPE	TECHNICAL TEAM	BUDGET
	The Executive Power determines the Authority of Application that will belong to the National Government Secretariat.	All the actions for the implementation of the bill and energy efficiency measures. Establish plans, policies, standards, sanctions, capacity building, among others.	Policy design and implementation	Government	Yes	Assigned as part of the Government Secretariat
	Inter-jurisdictional Energy Efficiency Council (CIEE)	Technical advisory body of the Energy Efficiency Enforcement Authority.	Collaborates with the implementation of the Energy Efficiency Policy	Government, it is only made up of government secretaries	No, political body	It does not have a budget as it is composed of government secretaries
	Ministry of Mines and Energy - Management Committee of Energy Efficiency Indicators and Levels	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. 9,864 (Presidencia de la República de Brasil, 2019) regulating the law establishes the creation of the Management Committee of Energy Efficiency Indicators and Levels. The CGIEE 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.	It is responsible for implementing the National Policy for the Conservation and Rational Use of Energy and also designing policies and programs	Mixed, composed of representatives of the ministries and representatives of civil society	No, political body with participation of private representatives (two specialists from civil society - one from a university and the other a citizen)	It does not have its own budget, made up of different ministers and invitations to civil society
	Ministry of Energy and Council of Ministers	In the law, it is stated 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.	Policy design and implementation	Government	Yes	Allocated in the State budget
	Chilean Energy Efficiency Agency (now called the Chilean Energy Sustainability Agency)	It was created 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.	Implementation	Legal person of private law, non-profit	Yes	Own
	Ministry of Mines and Energy	Promote, organize, ensure the development and monitoring of programs for the rational and efficient use of energy.	Policy design and implementation	Government	Yes	Allocated in the State budget
	Intersectoral Commission for the Rational and Efficient Use of Energy and Non-Conventional Sources of Energy (CIURE)	Created by Decree No. 3,683 of 2003 to advise and support the Ministry of Mines and Energy in the coordination of policies on rational and efficient use of energy and other non-conventional forms of energy in the national interconnected system and in non-interconnected areas.	Advice, consultation and support in policy design to the Ministry of Mines and Energy	Mixed, composed of representatives of the ministries and representatives of civil society	Yes, the decree indicates that the CIURE will have a Technical Secretariat exercised by the UPME	It does not have its own budget, made up of different ministers and invitations to civil society

	DESIGNATED ENTITY	SCOPE OF RESPONSIBILITIES	ROLE	TYPE	TECHNICAL TEAM	BUDGET
	Ministry of Natural Resources, Energy and Mines (MIRENEM)	Responsible for coordinating, applying, supervising and overseeing the national program for the rational use of energy. MIRENEM, CNFL, RECOPE, ICE, SNE, ESPH and JASEC are authorized to execute programs for the rational use of energy; to lease and sell equipment, accessories and technical or professional services; and to implement projects aimed at the rational use of energy by users.	Policy design and implementation	Government	Yes	Allocated as part of the Ministry's budget
	National Office for the control of the Rational Use of Energy (ONURE)	This office is attached to the Ministry of Energy and Mines and its function is to previously endorse the energy efficiency of the equipment that legal entities import, produce or commercialize in the country.	Implementation	Government	Yes	Allocated as part of the Ministry's budget
	Ministry in charge of public policies on renewable energy and energy efficiency	It will be responsible, among others, for establishing policies for the reduction of energy consumption, leading strategies among the different sectors for the promotion of energy efficiency and establishing information mechanisms.	Policy design and implementation	Government	Yes	Allocated as part of the General State Budget
	National Energy Efficiency Committee (CNEE)	Committee responsible for inter-institutional coordination in the field of energy efficiency and, among other functions, coordinating the operation of the SNEE. Its competencies include the following areas of action: Institutional, Legal and Regulatory, Policy, Planning and Projects and Financial Economic. The law indicates that the CNEE will be advised by an Advisory Council, made up of various representatives of society.	Advice and support in policy design to the Lead Ministry	Mixed, composed of representatives of the ministries and representatives of civil society	Yes	It does not have its own budget, made up of different ministers and invitations to civil society
	Ministry of Energy and Mines - National Energy Efficiency	The bill states that 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. It has administrative, functional and financial independence for the exercise of its functions.	Policy design and implementation	Mixed, composed of representatives of the ministries and representatives of civil society	No, it is a political body, but it may have occasional advisory services	Private funds and own budget
	Council (CONEE) National Commission for Efficient Energy Use (CONUEE)	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.	Technical advice and implementation of EE actions	Government	Yes	Own
	Energy Secretariat	The Secretariat leads the Strategy, whose main objective will be to promote the use, development and investment in renewable energy and energy efficiency.	Policy design and implementation	Government	Yes	Allocated as part of the General State Budget

	DESIGNATED ENTITY	SCOPE OF RESPONSIBILITIES	ROLE	TYPE	TECHNICAL TEAM	BUDGET
		The Secretariat shall coordinate with the other institutions on EE issues. Its responsibilities include identifying and promoting best practices in energy efficiency policies and programs, and identifying and promoting, with the support of CONUEE and energy distribution companies, areas of opportunity and energy efficiency programs by end-use sector.				
	Advisory Council for the Energy Transition	It is a permanent body for citizen consultation and participation that advises the Ministry of Energy on the actions necessary to comply with energy efficiency goals.	Advice, technical support and monitoring	Mixed, composed of representatives of the ministries, state institutions and representatives of the energy industry, academic institutions and NGOs	No	It does not have its own funds
	Ministry of Energy and Mines	Its responsibility is to organize, formulate, promote and ensure the development and monitoring of national programs for the rational and efficient use of energy. It can set up sectoral working groups to share information and coordinate strategies with the different stakeholders.	Policy design and implementation	Government, can constitute work tables	Yes	Allocated as part of the General State Budget
	Energy Efficiency Units	The law provides for the creation of an Energy Efficiency Unit in each public sector institution. They will serve as technical support in decision-making and compliance with actions related to energy efficiency.	Support in policy design and policy implementation	Government	Yes, the Energy Efficiency Units must have an Energy Administrator who will be in charge of energy efficiency issues	Allocated as part of the General State Budget
	National Energy Secretariat	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.	Policy design and implementation	Government	Yes	Assigned as part of the Government Secretariat
	Energy Committee	Each public institution will constitute an energy committee that will be coordinated by an energy administrator, under the supervision and approval of the National Energy Secretariat.	Implementation	Government	Yes	No, it is made up of each of the different public institutions

	DESIGNATED ENTITY	SCOPE OF RESPONSIBILITIES	ROLE	TYPE	TECHNICAL TEAM	BUDGET
	Energy Efficiency Index Management Committee	Created by the Energy Secretariat to prepare: energy efficiency indexes; minimum energy efficiency indexes for each type of equipment, machinery, buildings, materials and spare parts that use and/or recover energy; and to establish a program of goals with an indication of the evolution of the indexes prepared.	Implementation and technical advice	Mixed, composed of representatives of the State ministries and secretariats and representatives of civil society	No, political body made up of technical professionals	It does not have its own budget, made up of representatives of the ministries and secretariats and civil society
	Ministry of Energy and Mines	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.	Policy design and implementation	Government	Yes	Allocated as part of the General State Budget, but also from donations and international technical cooperation
	National Technical Committee for Energy Efficiency (CTNEE)	It is a collegiate and ex officio body for the detailed follow-up and support to the implementation of the bill in question.	Advice and implementation of some activities	Government, composed of several public institutions	No	It does not have its own budget, made up of representatives of the ministries, secretariats and other public institutions of the state
	Ministry of Industry, Energy and Mining (MIEM) creates the Energy Efficiency Unit	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.	Policy design and implementation	Government	Yes, the unit itself	Funded by the FUDAEE
	Ministry of the People's Power with competence in electrical energy	It must dictate the general and political guidelines on the rational use of energy.	Policy design	Government	Yes	Allocated as part of the General State Budget
	Energy Management Unit	The law provides that the bodies and entities of the Public Power will have an Energy Management Unit whose main function will be the formulation, monitoring, evaluation and control of the measures, actions, processes and procedures to be carried out in each facility.	Implementation	Government	Yes, the unit itself	Allocated as part of the budget assigned to the Public Power to which it belongs

Source: Own elaboration

It is also important to mention that of the 23 entities described in the Table 5 report, 17 are governmental, 5 are mixed (committees, councils or commissions made up of representatives from the public, private and civil society sectors) and 1 is private. From Table 5 it can also be identified that when the responsibilities for energy efficiency falls on a unit within the ministry of energy or equivalent, this entity is in charge of both policy design and implementation; this is not the case when the entity does not belong to the ministry and takes on more of an implementing role rather than a policy proponent and/or designer.

It is also interesting that the laws of several countries provide for the creation of a council, commission or committee to play an advisory role in the design of policies and programs and in some cases also to support the implementation of actions. This in turn becomes a space for representatives of the private sector and civil society to become involved as members of the council/commission/committee and in which they have the same voice and vote as technicians and authorities of ministries related to the sector. For this reason, these types of committees are of mixed composition and are usually led by the ministry responsible for the energy sector. However, due to their advisory and consultative nature, they are generally created by law to provide support to the executive body on energy efficiency issues and do not have the executive rank to implement actions. The exception to the latter is what is proposed in the Dominican Republic's bill, which provides for the creation of a technical committee that will be responsible for the implementation of all the provisions of the bill and, unlike other committees, will be composed mainly of representatives of state agencies.

Finally, with regard to the origin of the budget allocated to the entity in charge of energy efficiency issues, it was found that this will depend on the type and nature of the entity. The budget of those that are attached to the governing ministry originates from the General State Budget, and that which has been designated for that area (a particular case is that of Uruguay, whose Energy Efficiency Unit, which belongs to the Ministry of Industry, Energy and Mining, is financed through the Uruguayan Energy Savings and Efficiency Trust Fund - FUDAEE). The committees, commissions and councils (with the exception of Mexico's CONUEE), as they are made up of representatives of different institutions from the public and private sectors and civil society, do not have an assigned budget and are convened periodically. Finally, those entities, whether public (CONUEE) or private (Chilean Energy Sustainability Agency), that do not belong to the governing ministry of the energy sector have their own budget.

Chapter 2

Medium and Long Term Plans

Energy efficiency planning is an important instrument for the development of long-term public policy and is defined within an appropriate regulatory framework. The planning process for energy efficiency includes the elaboration 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 a defined period; all this must be reflected and consolidated within the elaboration of a National Energy Efficiency Plan. The energy efficiency law may provide on the preparation and characteristics of the Energy Efficiency Plan; however, the laws, bills and regulatory decrees analyzed vary with respect to what is stipulated in this matter. Some are more specific in terms of the preparation of energy efficiency plans, defining what the Plan must contain, and others do not specify or provide for the preparation of a Plan or deal with it in a general way without giving specific guidelines.

An example of those laws that have more detail regarding planning is the case of the Uruguayan law. It establishes 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 must consider a projection of 15 years and will be reviewed and evaluated at least every 5 years. Furthermore, the law 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.

A similar detail to the Uruguayan case is included in the Argentinean bill, which establishes that the National Energy Efficiency Plan will be for a period of 15 years with a review every 5 years. It is interesting to note that in said plan, the target is to generate a reduction of 23 MM tCO2 in the year 2030, with the obligation for the Enforcement Authority to monitor and create intermediate or new goals in the case of exceeding it. Something similar occurs with the Chilean law, which establishes that the Plan must have as a target a reduction of at least 10% of the country's energy intensity by 2030, based on the year 2019.

A special case is Ecuador, where the Energy Efficiency Plan was prepared and published in 2017 (within the framework of the Organic Law on Electric Energy Public Service), this before having an energy efficiency law approved; the bill was approved in 2019 at the level of the National Assembly and provides that the competencies over the Plan correspond to the governing ministry of the energy sector.

Another particular case is proposed in the energy efficiency bill of the Dominican Republic, where the planning instrument contemplated is a National Energy Efficiency Strategy (ENEE) and also Energy Efficiency Programs. According to the bill, the ENEE will act as a guide for the execution and achievement of the proposed objectives and is scheduled to be reviewed every four years.

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 Transition Program Energy and the National Program for the Sustainable Use of Energy (PRONASE). PRONASE establishes the energy efficiency goal and the Energy Secretariat, together with CONUEE, establishes the roadmap for meeting the energy efficiency goal (Table 6 provides more information on the deadlines, responsible parties and goals for each of these instruments).

Furthermore, in some cases such as Colombia, Costa Rica, Cuba and Nicaragua, it has been identified that reference is made to a National Program that actually has the characteristics of a National Plan because what it establishes has the same scope and objectives . 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

[3] La diferencia fundamental entre un Plan Nacional y un Programa Nacional de Eficiencia Energética es que el Plan marca el rumbo y las acciones necesarias que tomará el país en base a la eficiencia energética, mientras que un Programa Nacional es una cartera de proyectos de eficiencia energética enfocados a obtener resultados específicos.

comply with the minimum levels of energy efficiency. The Nicaraguan law includes the National Energy Efficiency Program (PRONAEE) that must establish the necessary objectives, goals, strategies and financing in the energy sector for energy efficiency.

Table 6 showcases the different National Energy Efficiency Plans that are detailed in the documents analyzed. Plans that have been developed without being contemplated within the framework of an energy efficiency law are not taken into account.

Table 6. Detail of the National Energy Efficiency Plans contemplated in the energy efficiency laws, bills and/or regulatory decrees

	NAME OF THE PLAN	TIME FRAMES	RESPONSIBLE FOR PREPARATION AND METHODOLOGY	DOES IT SPECIFY WHETHER THE PLAN SHOULD HAVE TARGETS?
ARGENTINA	National Energy Efficiency Plan of Argentina (PlaNEEAr)	Have a minimum prospective of 15 years from its implementation and must be reviewed, evaluated and, eventually, modified every 5 years.	The Enforcement Authority must prepare and approve the PlaNEEAr. The contents of the PlaNEEAr are outlined.	Yes, it provides that the Plan must contain targets on energy savings. Establishes a minimum energy consumption reduction target equivalent to 23 MMt CO2e of emissions.
CHILE	National Energy Efficiency Plan	It must be prepared every 5 years and the Ministry of Energy can update the targets, plans, programs, actions and the background considered for its determination. The Ministry will evaluate compliance in the middle of the term of its validity and at the end of the term.	The Ministry of Energy, in collaboration with the respective sectoral ministries, must prepare the National Energy Efficiency Plan. It also allows the participation of other people interested during the elaboration. The plan must be submitted to a Council of Ministers for Sustainability.	Yes, it provides that the Plan must establish short, medium and long term targets, as well as the plans, programs and actions necessary to achieve them. In addition, the law establishes that the Plan must have a target of reducing the country's energy intensity of at least 10% by 2030 based on the year 2019. Also, the CCGEs must have a target of reducing their energy intensity of 4% for the term of the Plan.
COLOMBIA	Program for the Rational and Efficient Use of Energy and Other Non-Convention al Forms of Energy (PROURE)	It is not established in the law or in the decree that regulates it.	The Ministry of Mines and Energy must promote, organize, ensure the development and monitoring of the programs for the rational and efficient use of energy that are part of PROURE.	No, it is intended to gradually apply programs for the entire energy chain and is permanently complying with the minimum levels of energy efficiency. The decree that regulates the law establishes its general guidelines.
COSTA RICA	National Program for the Rational Use of Energy	It does not set time frames.	The Ministry of Natural Resources, Energy and Mines will be in charge of coordinating, implementing, supervising and overseeing the national program for the rational use of energy, in accordance with the provisions of the law.	No, but has the objective to consolidate the participation of the State in the promotion and gradual execution of the program of rational use of energy. Likewise, it is proposed to establish the mechanisms to achieve the efficient energy use and replace them when it suits the country, considering the protection of the environment.

	NAME OF THE PLAN	TIME FRAMES	RESPONSIBLE FOR PREPARATION AND METHODOLOGY	DOES IT SPECIFY WHETHER THE PLAN SHOULD HAVE TARGETS?
CUBA	Program for the development, maintenance and sustainability of renewable sources and the efficient use of energy	Establishes that the Program has a scope of 5 years.	The Ministry of Energy and Mines controls the preparation and annual update of the Program. The Ministry of Economy and Planning approves the Program and the annual update. The Ministry of Energy y Mines, in conjunction with the Ministry of Economy y Planning, annually evaluates the Program's compliance results.	It does not have specific provisions, it states that the Program must include the targets to be achieved, the necessary human and financial resources, among others, and a timetable for its execution.
ECUADOR*	National Energy Efficiency Plan (PLANEE)	10-year horizon and must be updated every 2 years. It can be updated before, if it is deemed necessary.	The first PLANEE was prepared by the former Ministry of Electricity and Renewable Energies, and the energy efficiency law delegates the PLANEE's competencies to the Lead Ministry of the sector and to the ministries that make up the CNEE.	It is not specified neither in the energy efficiency law nor in the Organic Law of the Public Electricity Service.
GUATEMALA	Energy Efficiency Integral Plan (PIEE)	The Plan will be prepared with a 15-year projection, and will be reviewed and adjusted at least once every 5 years, although it may be done in a shorter period.	The National Energy Efficiency Council must prepare and execute the PIEE.	Yes, it indicates that it must establish investment requirements, impacts, targets, objectives and strategies to gradually apply programs and projects with short, medium and long term effects throughout the energy chain, from production to final consumption.
MEXICO	Transition Strategy to Promote the Use of Cleaner Fuels and Technologies	The law stipulates that the Strategy must contain a long-term component for a 30-year period and a medium-term component for a 15-year period and that it must be updated every 3 years.	The Energy Secretariat will prepare the Program and will approve and publish the Strategy and the PRONASE in terms of the Planning Law. CONUEE proposes energy efficiency targets which will be approved and included in PRONASE by the Ministry of Energy.	Yes, the Strategy components should establish targets and the roadmap for their implementation (including specific energy efficiency targets).
	Special Energy Transition Program	The Energy Transition Law establishes that these instruments must be reviewed annually.		The Program executes the policies and actions of the Strategy. This Program must be implemented every year.
	National Program for the Sustainable Use of Energy (PRONASE)	The Program and PRONASE are in line with the planning of the Strategy.		PRONASE is the instrument through which the Federal Executive, in accordance with the Planning Law, will establish the actions, projects and activities derived from the Strategy to achieve the Energy Efficiency Targets established in terms of the Energy Transition Law.
NICARAGUA	National Energy Efficiency Program (PRONAEE)	It is established that it should be prepared with a 5-year projection and should be reviewed and updated if necessary, at least once each year.	The Ministry of Energy and Mines must coordinate with the institutions of the public and private sector and Municipalities for the preparation of the PRONAEE.	Yes, the law provides that the PRONAEE must establish the objectives, targets, strategies and investment requirements for the development of activities throughout the energy chain, towards the rational and efficient use of energy.

	NAME OF THE PLAN	TIME FRAMES	RESPONSIBLE FOR PREPARATION AND METHODOLOGY	DOES IT SPECIFY WHETHER THE PLAN SHOULD HAVE TARGETS?
PANAMA	Strategic Plan for the Rational and Efficient Use of Energy	Decree 398 of 2013 establishes that the Ministry of Energy must review the contents of the Plan at least every 2 years.	It is the responsibility of the National Energy Secretariat to design and propose the Plan.	No specific provisions are included in the law.
PERU	Reference Plan for the Efficient Use of Energy	Neither the law nor the decree that regulates it indicates anything in relation to this.	The Ministry of Energy and Mines is the competent authority of the state for the promotion of the efficient use of energy, with powers for the preparation and execution of energy efficiency reference plans and programs.	Neither the law nor the decree that regulates it indicates anything in relation to this.
DOMINICAN REPUBLIC	National Energy Efficiency Strategy (ENEE)	The ENEE must be reviewed every 4 years by the CTNEE.	The Ministry of Energy and Mines must prepare the ENEE and submit it for approval to the CTNEE.	No, but it states that the ENEE is the medium and long term planning instrument that will serve as a guide for the execution of the processes that ensure the achievement of the objectives and guidelines of the Energy Efficiency and Rational Use of Energy Policy contemplated in the bill.
URUGUAY	National Energy Efficiency Plan	The Plan must consider a 15-year projection from the approval of the law and will be reviewed and evaluated at least every 5 years.	The Ministry of Industry, Energy and Mining will prepare the National Energy Efficiency Plan for approval by the Executive Power.	Yes, it establishes that it must include the avoided energy target for the effective period of the National Energy Efficiency Plan and the annual avoided energy targets for the fulfillment of the general target for the period.

* The PLANEE is included because, although the first preparation was not based on the framework of an energy efficiency law, it was in the framework of a National Organic Law. In addition, the current energy efficiency law has provisions regarding it.

Source: Own elaboration

Beyond the Energy Efficiency Plans, the laws of some countries also include the elaboration of specific programs that contribute to the implementation of the plan. The most interesting case is Argentina, whose bill establishes the creation of four programs: the Rational and Efficient Use of Energy Program (ProUREE); the National Program for Labelling and Minimum Energy Efficiency Standards (ProNEEM); the Program for Energy Efficiency Labelling in Housing (ProdEV); and the Programs to promote the development of Rational and Efficient Use of Energy in MSMEs (UREE). **Table 7** provides more detail on the specific energy efficiency programs that are contemplated in Argentina's energy efficiency bill. Something similar is observed with the Dominican Republic's bill, which establishes that the CTNEE must prepare multi-year energy efficiency programs.

Table 7. Details of the Specific Energy Efficiency Programs contemplated in the energy efficiency bill of Argentina

	TYPE OF PROGRAM	IS IT PART OF THE EE PLAN?	RESPONSIBLE	DOES IT SPECIFY WHETHER THE PROGRAM HAS OBJECTIVES AND TARGETS?
ARGENTINA	National Program for Labelling and Minimum Energy Efficiency Standard (ProNEEM)	Yes	Enforcement Authority	Yes, it establishes the minimum objectives for the ProNEEM and the numerical target that, by 2030, 40% of residential energy consumption should correspond to labelled or energy-qualified products or goods.
	Program for the Rational and Efficient Use of Energy in the Public Sector (ProUREE)	Yes	Enforcement Authority	No, but it establishes the minimum guidelines that ProUREE must follow.
	Program for Energy Efficiency Labelling in Housing (ProdEV)	Yes	Enforcement Authority	No, but it establishes the minimum guidelines that ProdEV must follow.
	Programs to promote the development of Rational and Efficient Use of Energy in MSMEs (UREE)	Yes	Enforcement Authority	No, but it establishes the minimum guidelines that the Program for MSMEs must follow

Source: Own elaboration

Figure 4 shows the covers of some of the National Energy Efficiency Plans mentioned above and that have been published.

Source: Compilation from various documents

Chapter 3

Energy Efficiency Policy and/or Plan Monitoring and Evaluation Mechanisms

The monitoring and evaluation of public policies, plans and/or programs is an important instrument for identifying existing gaps and the measures needed to achieve the objectives and targets that have been set. The monitoring and evaluation of public policies, plans and/or programs is an important instrument for identifying existing gaps and the measures needed to achieve the objectives and targets that have been set. It also supports the decision-making process and provides objective information and data for public reporting and accountability.

As previously discussed, most countries that have an energy efficiency law or bill include the development of national plans for the implementation of energy efficiency measures and actions with a future horizon; some countries even have specific measures and targets already in the text of the law or bill. For this reason, it is important to analyze whether or not the laws or bills provide for specific monitoring and evaluation mechanisms and also, for those that do, to identify the entity in charge of these responsibilities. Below is a table showing the provisions of energy efficiency laws and bills related to this type of instrument.

Table 8. Provisions on monitoring and evaluation of the Energy Efficiency Policy and/or Plan in the countries of Latin America and the Caribbean

	RESPONSIBLE FOR MONITORING AND EVALUATION	DETAILS OF THE MECHANISM PROVIDED FOR IN THE LAW OR BILL
ARGENTINA	Enforcement Authority	Argentina's bill provides that the Enforcement Authority is in charge of preparing the National Energy Efficiency Plan and that it must contain, among other things, the establishment of expected results and the criteria for evaluating and monitoring progress. Furthermore, although it is not part of the monitoring and evaluation mechanism, it is important to note that the bill also provides for a specific minimum reduction target derived from the application of the future law. This target is a minimum reduction in consumption that is equivalent to 23 MMt CO2e of emissions. For the monitoring of this target, the Enforcement Authority will be in charge of defining the calculation and monitoring methodology and will also have to define the target for other future periods. It also has a specific target for the ProNEEM that by 2030, 40% of residential energy consumption should correspond to labelled or energy-qualified products or goods. The Enforcement Authority will also be in charge of developing the methodology for calculating and monitoring this target.

	RESPONSIBLE FOR MONITORING AND EVALUATION	DETAILS OF THE MECHANISM PROVIDED FOR IN THE LAW OR BILL
CHILE	Ministry of Energy	Chilean law provides that the Ministry of Energy, in accordance with the provisions of the regulations of the law (which as of the date of writing of this study have not been published), is responsible for evaluating compliance with the National Energy Efficiency Plan and its targets and establishes that this evaluation must be carried out at mid-term and at the end of the term of the plan. The Ministry must prepare a report with the results of the evaluation and submit them to the Mining and Energy Commissions of the Senate and the Chamber of Deputies.
COLOMBIA	Ministry of Mines and Energy and CIURE	Colombian law establishes that the Ministry of Mines and Energy is the entity responsible for, among other responsibilities, ensuring the development and monitoring of rational and efficient energy use programs. Furthermore, Decree 3,683, which created the CIURE, provides that its functions include, among others, to provide specific guidelines for the design, implementation and follow-up of PROURE and to monitor the targets to measure the progress of its implementation.
COSTA RICA	Ministry of Natural Resources, Energy and Mines	The law provides that MIRENEM is in charge of supervising and overseeing the National Program for the Rational Use of Energy. However, the law does not provide more detail about the evaluation and monitoring mechanism of this program.
CUBA	Ministry of Energy and Mines	Cuban law establishes that the Ministry of Energy and Mines, together with the Ministry of Economy and Planning are responsible for evaluating each year the compliance results of the Program for the development, maintenance and sustainability of renewable sources and the efficient use of energy.
ECUADOR	CNEE	Ecuador's law provides that the CNEE has among its functions the monitoring and evaluation of compliance with the progress in the execution of the programs and initiatives contained in the PLANEE, taking into account compliance with the targets established in the Plan. Furthermore, the CNEE is in charge of defining the guidelines for the monitoring and evaluation of energy efficiency programs and projects.
GUATEMALA	CONEE of the Ministry of Energy and Mines	The Guatemalan bill contemplates the creation of CONEE, which will be responsible for preparing and implementing the Energy Efficiency Integral Plan. CONEE will also be responsible for monitoring the execution of energy efficiency programs implemented in the country.
MEXICO	Energy Secretariat and Advisory Council	According to Mexico's Energy Transition Law, the planning instruments established in the law (Strategy, Program and PRONASE) must be evaluated periodically by the Secretariat and the Energy Transition Advisory Council. Additionally, these instruments must go through a process of continuous improvement, with an evaluation of partial results, the identification of barriers to the achievement of their objectives, the identification of other opportunities for improvement and the adoption of corrective measures in the event of not achieving the planned results in terms of compliance indicators. Furthermore, the Energy Secretariat is responsible for promoting compliance with the country's targets. For this, the Secretariat must, among other things, annually evaluate the fulfillment of the targets and adopt corrective measures in the event that these have not been achieved.

	RESPONSIBLE FOR MONITORING AND EVALUATION	DETAILS OF THE MECHANISM PROVIDED FOR IN THE LAW OR BILL
NICARAGUA	Ministry of Energy and Mines	Nicaraguan law provides that the Ministry of Energy and Mines is responsible for conducting evaluations, periodic inspections, and requesting reports to measure the degree of PRONAEE's execution. The law also provides for the participation of all stakeholders related to energy efficiency issues in the PRONAEE evaluation process.
PANAMA	Energy Committee (only for the Energy Efficiency Management Plan)	Neither Law 69 of 2012 nor its Regulatory Decree 398 of 2013 provide for a monitoring and evaluation mechanism for the Strategic Plan for Rational and Efficient Use of Energy. However, Decree 398 provides that the Energy Committee of each public institution must prepare the Energy Efficiency Management Plan. These institutional plans must include performance indicators and a monitoring plan.
PERU	Not detailed in the law or in the regulatory decree	Neither Law 27,345 of 2000 nor its Regulatory Decree 053 of 2007 provide for the monitoring and evaluation of the Reference Plan for the Efficient Use of Energy.
DOMINICAN REPUBLIC	CTNEE	The bill provides that the CTNEE will review the ENEE every 4 years. It also provides that the CTNEE may prepare multi-year energy efficiency programs and that they must include, among other things, actions for monitoring and periodic evaluation of progress in achieving the planned targets.
URUGUAY	Ministry of Industry, Energy and Mining	MIEM is responsible for preparing the National Energy Efficiency Plan and also for reviewing and evaluating it at least every 5 years.

Source: Own elaboration

As shown in **Table 8**, most of the countries that provide for the elaboration of a National Energy Efficiency Plan also establish, as a minimum, the responsible for monitoring and evaluating this Plan on a periodic basis. However, there is no evidence that most of the laws and bills analyzed provide more detail on the mechanism for monitoring and evaluating the Energy Efficiency Policy and/or Plan. This leaves to the discretion of the responsible entity the definition of the guidelines and parameters of the monitoring and evaluation mechanism.

Some countries, such as Mexico and Nicaragua, provide for the preparation of reports to monitor the performance of their plans in order to measure progress in execution. In the case of Mexico, its law provides for the need to implement corrective actions in case the performance indicators do not meet the planned results.

The case of Chile is interesting because it establishes that the reports with the evaluation of the National Energy Efficiency Plan must be shared with the Mining and Energy Commissions of the Senate and the Chamber of Deputies, i.e., they are subject to review by the Legislative Branch.

The provisions of Argentina's bill are also noteworthy because, as discussed in Chapter 2, it establishes a numerical target for reducing energy consumption. This target is a minimum, and monitoring and evaluation should also be part of the Enforcement Authority's obligations to achieve it. Chile's law provides for something similar (see Chapter 2) and it is also the responsibility of the Ministry of Energy to monitor and follow up on its compliance.

Another case that is important to mention is the case of Panama. This country's law does not provide for a monitoring and evaluation mechanism for the Strategic Plan for the Rational and Efficient Use of Energy, the national planning instrument. However, it establishes that the energy committees created in public institutions (see Chapter 1) must prepare an Energy Efficiency Management Plan; which should include performance indicators and a monitoring plan.

Part 2

Regulatory Instruments to Promote the Technological and Process Transition

Energy efficiency can be understood, fundamentally, as a technological transition and a cultural change at the level of energy users, in all its forms, aimed at increasing efficiency in the use of energy without impairing the function, purpose and effectiveness of energy-consuming products or processes. In the following chapters (Chapters 4, 5, 6, 7 and 8), reference will be made to those regulatory instruments that have been introduced in the laws or bills of the countries of the region to promote the technological and process transition towards energy efficiency. In Part 2 of the document, the following will be reviewed: mechanisms to promote the technological and process transition (Chapter 4); sectoral policies (Chapter 5); accreditation and certification mechanisms (Chapter 6); control mechanisms (Chapter 7); and sanctions (Chapter 8).

Chapter 4

Mechanisms to Promote the Technological and Process Transition

The provisions of an energy efficiency law also include different mechanisms to promote the technological and process transition. From the analysis of energy efficiency laws and bills in the region, it has been observed that these mechanisms are fundamentally disaggregated into three main groups: the first group includes mechanisms that establish obligations and guidelines for public sector procurement and contracting in order to promote energy-efficient practices, processes and technologies; the second group includes everything related to consumer information reporting - labelling for goods, appliances and machinery; and the third group includes the reporting of process energy consumption for large consumers, the corresponding obligations and mechanisms for the transparency of information reporting (energy audits).

The following describes how the different laws and bills analyzed address these specific regulatory instruments.

Group 1 - State Purchases and Contracts

State purchases are widely recognized as one of the main instruments for the promotion and formation of technological markets due to its importance within local economies. In fact, according to a study conducted by Canada›s International Development Research Centre (IDRC/CRDI), it is estimated that Latin American states spend around 24% of GDP on goods and services annually, making them the main consumers of local economies (Beláustegui, 2011). Thus, six of the countries (Argentina, Ecuador, Guatemala, Nicaragua, Panama and Uruguay) include in their energy efficiency law or bill the participation of state purchases as facilitators of the promotion of energy efficiency in local markets and include some aspect related to these.

It is important to mention that, given that several of the countries in the region have a specific entity in charge of government procurement, there may be cases in which these entities have their own provisions related to the promotion of energy efficiency as part of public procurement and, consequently, these aspects are not included in the energy efficiency law documents; therefore, the countries not mentioned in this section do not necessarily lack specific provisions related to government procurement.

The following is a summary of the measures or aspects related to government procurement in those countries where this aspect is included:

A continuación, se presenta un resumen de las medidas o aspectos relacionados con las compras estatales en los casos de los países donde se incluye este aspecto:

Table 9. Provisions related to government procurement included in energy efficiency laws, decrees and bills in Latin American and Caribbean countries.

	RESPONSIBLE FOR IMPLEMENTATION	DETAIL ON THE PROVISIONS INCLUDED IN THE LAW OR BILL
ARGENTINA	Not specified	Public works and execution of public works must comply with minimum energy efficiency standards or maximum levels of specific energy consumption. Government procurement tenders must prioritize suppliers that consider the energy performance of the goods and/or services they cover.

	RESPONSIBLE FOR IMPLEMENTATION	DETAIL ON THE PROVISIONS INCLUDED IN THE LAW OR BILL
ECUADOR	Public Procurement Service	The Public Procurement Service (SERCOP) must define agile contracting mechanisms for the acquisition of energy efficiency services, based on the improvement of performance and energy consumption.
GUATEMALA	Not specified	For the preparation of the Energy Efficiency Integral Plan, technical criteria on energy efficiency should be provided so that, in coordination with the competent agencies, they can be incorporated in the government's procurement and contracting processes. Public sector agencies that procure energy-intensive equipment must consider the energy consumption and cost associated with the life cycle of the products in the evaluation of proposals. When applicable, the terms and conditions of the tendering processes specified in Article 19 (Requirements of the tendering terms and conditions) of the Government Procurement Law must consider the energy efficiency factor within the general and specific characteristics of the goods. For this purpose, CONEE will work jointly with the competent agencies in the development of the regulations and the corresponding procedure for the application of this provision, besides providing technical support.
NICARAGUA	General Directorate of State Contracting in coordination with the Ministry of Energy and Mines	For the procurement of new equipment by public, municipal and regional entities, the evaluation of proposals should consider energy consumption and cost, as well as the operation and maintenance costs associated with the life cycle of the products.
PANAMA	Energy manager in each contracting public entity	In the case of Panama, government procurement management aimed at promoting energy efficiency is carried out through the figure of the energy manager in public institutions, who is in charge of suggesting and guiding the technical areas of engineering and maintenance, finance and administration, so that the equipment purchased for replacement or expansion meets high levels of energy performance, in addition to considering the life cycle of the product.
URUGUAY	Central Administration, Municipal Administrations, Autonomous Entities and Decentralized Contracting Services	For public procurements aimed at acquiring energy-intensive equipment, the contracting entities must consider within the analysis of the proposals, the costs associated with the life cycle of the products, considering the costs associated with the operating costs during the useful life period and the cost of final disposal of these.

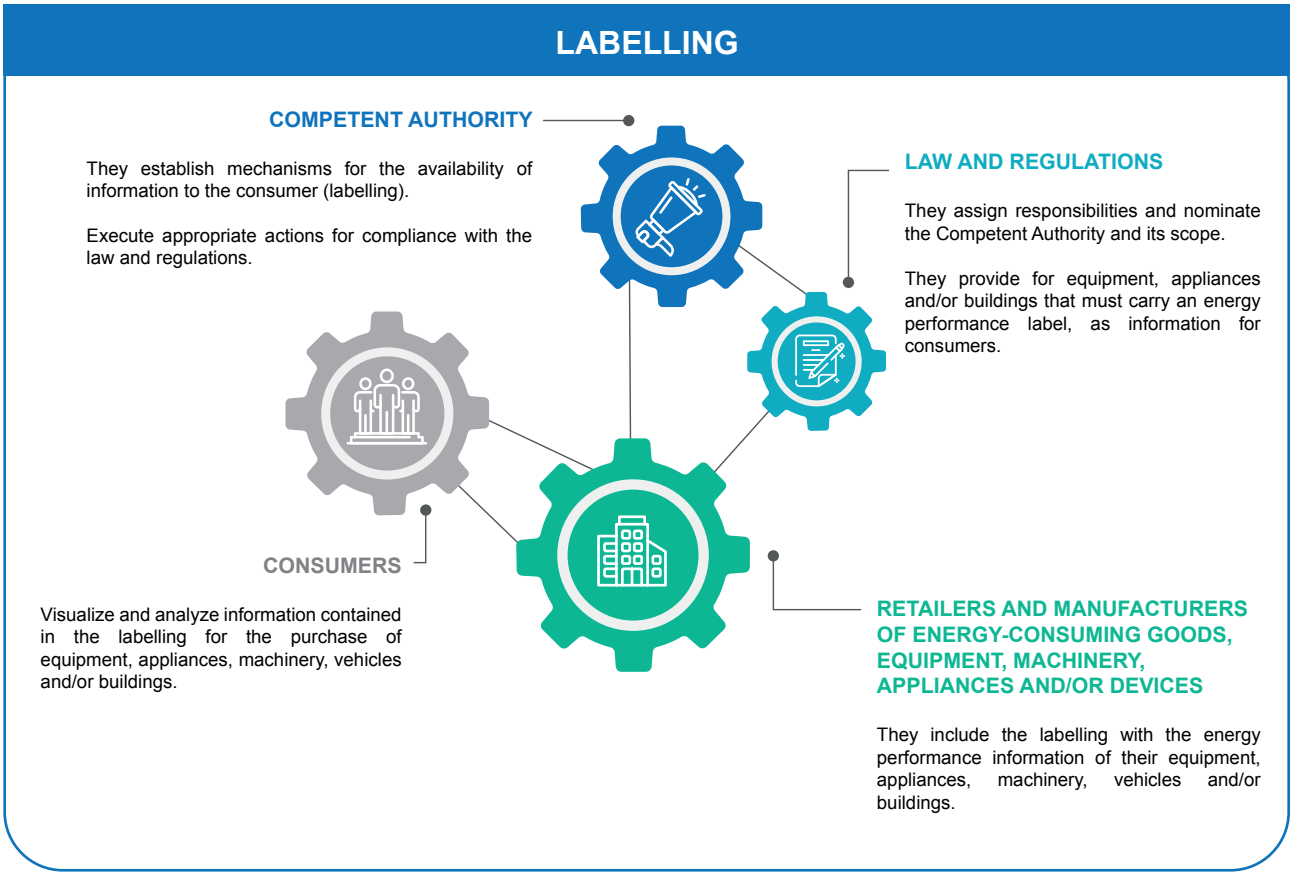
Source: Own elaboration

As can be seen in **Table 9**, among the aspects considered as part of the state procurement processes, the measure that is most frequently repeated is that related to the evaluation of the energy consumption and cost of products during their life cycle.

Group 2 - Labelling

Labelling is a regulatory instrument that serves to report information on energy performance and efficiency by retailers and producers of energy-consuming equipment, homes and buildings and/or vehicles to their consumers. This instrument allows the technology and goods that are commercialized, distributed and, consequently, purchased in the country to incorporate an informative and visible label with data about their energy consumption and performance categorization. In **Figure 5**, the scheme that summarizes the labelling process is presented.

Figure 5. General labelling scheme for energy-consuming goods, equipment, machinery and/or appliances



Source: Own elaboration

It is important to mention that it is the power of the sector›s governing authorities to establish minimum energy performance standards (MEPS) so that the different equipment and appliances that consume energy can be marketed in a country. The following table details the labelling aspects that each country has included in its energy efficiency law, bill or regulatory decree.

Table 10. Labeling issues in energy efficiency laws, bills, and regulatory decrees of Latin American and Caribbean countries

	SECTORS*	DETAILS	MEPS?
ARGENTINA	Construction, Commercial and Industrial	The Enforcement Authority, within its functions, has to develop the National Program for Labelling and Minimum Energy Efficiency Standard (ProNEEM) and to develop the Program for Energy Efficiency Labelling in Housing (ProdEV). The bill provides that the ProNEEM must meet minimum objectives (define the products and goods to be part of, prioritize them, develop indicators and define the maximum requirements of specific energy consumption) and also establishes a target that by 2030 forty percent (40%) of residential energy consumption should correspond to labelled or energy-qualified products or goods.	Yes, it provides that the Enforcement Authority must determine them.

	SECTORS*	DETAILS	MEPS?
		Regarding ProdEV, the bill provides for the guidelines that this program must contemplate (including, among others, the climatic characteristics and the label with unified information and characteristics for the whole country) and also indicates that those in charge of managing the labels are service providers for the rational and efficient use of energy that are listed in the registry. Furthermore, Art. 42 of the bill states that "Buildings intended for residential use that are constructed or reformed, affecting in whole or in part, directly or indirectly, public funds or guarantees of the National Public Sector, must comply with the minimum Energy Efficiency standards established by the Enforcement Authority."	
BRASIL	Construction, Commercial and Industrial	Brazil has the Brazilian Labelling Program (PBE) that began as a voluntary program and that over time was modified. Brazil's energy efficiency law does not explicitly provide for labelling issues; however, the law provides for the establishment of maximum energy consumption and MEPS and that manufacturers and importers of energy-consuming machines and appliances are obliged to adopt the necessary measures to comply with the maximum levels of specific consumption and MEPS. Furthermore, it provides that it is the importers' responsibility to prove compliance with the maximum levels of specific energy consumption, or MEPS, during the import process. It also states that energy consuming machines and appliances found on the market without the legal specifications must be collected. It also provides that the Executive Branch will develop mechanisms to promote energy efficiency in buildings constructed in the country.	Yes, it provides that the Executive Branch shall establish maximum levels of specific energy consumption, or minimum energy efficiency levels. After one year of the publication of these levels, a Program of Targets for progressive evolution will be established.
CHILE	Construction, Commercial and Industrial	Chile's energy efficiency law provides for the granting of an energy efficiency label to buildings that meet a specific energy rating. In turn, it provides that all types of residential, public, commercial and office buildings must have an energy rating. The law also includes the rules that must be followed for qualification and what is considered a breach. Regarding appliance labelling and MEPS, the law stipulates that these issues must be included in the National Energy Efficiency Plan.	Yes, it provides that they will be part of the National Energy Efficiency Plan.
COLOMBIA	Commercial and Industrial	The Rational and Efficient Use of Energy Law (URE) establishes the creation of the URE program (PROURE), whose objective is to implement programs that permanently comply with minimum energy efficiency levels. Furthermore, Decree 3,683, which regulates the law, provides for the issuance of technical regulations on energy efficiency related to the URE label for energy end-use equipment, as well as for the creation of the energy excellence seal and the conditions for the commercialization of this equipment.	It does not provide for the determination of MEPS, however, it indicates that PROURE programs must comply with minimum energy efficiency levels.
COSTA RICA	Commercial, Industrial and Transport	The Law for the Regulation of the Rational Use of Energy provides that manufacturers, importers and distributors of equipment, machinery or vehicles (determined by a list issued by MIRENEM) will be obliged to include a "plate or a special card" placed on the good, containing and informing about the energy consumption and the characteristics that influence it. Decree No. 25,584 that regulates the law provides that the MIRENEM shall set the data to be consigned on the plates or consumer notices, as well as the methods to determine such data.	No, however, Decree No. 25,584 provides that the list of equipment, machinery and vehicles, to which the inclusion of the informative plate applies, must include the energy characteristics and the levels of efficiency or energy consumption that determine the energy efficiency of each one of them.

	SECTORS*	DETAILS	MEPS?
ECUADOR	Transport	The law provides that in order for any new vehicle to be commercialized, it must have an energy efficiency label indicating compliance with the energy efficiency limits and conditions that have been established. The law does not directly provide for energy efficiency labels for other types of equipment and/or machinery; however, it does mention that incentive mechanisms should be established for those consumers who, among other things, implement energy efficiency labels. In other words, Ecuador's law encourages the implementation of energy efficiency labelling on a voluntary basis, but does not make it mandatory.	Yes, it states that the Ministry in charge of the transport sector, together with the CNEE, will establish the levels of consumption and emissions that new vehicles to be commercialized in Ecuador must comply with.
GUATEMALA	Commercial and Industrial	The bill provides that end-use equipment and appliances to be commercialized in Guatemala must include an energy efficiency label containing information regarding performance and energy consumption.	No.
MEXICO	Construction, Commercial and Industrial	The Energy Transition Law provides that equipment and appliances whose energy consumption is significant and which are determined in a catalog prepared by CONUEE must have an energy efficiency label; exempt are those equipment and appliances that fall within the scope of application of an Official Mexican Energy Efficiency Standard in force and have the corresponding certificate. Furthermore, the law provides for a voluntary certification and recognition process called "Excellence in Energy Efficiency," which consists of a label awarded exclusively to those products and buildings that meet the highest energy efficiency standards. This type of labelling is voluntary.	No.
NICARAGUA	Commercial and Industrial	The law stipulates that all equipment and appliances commercialized within the country must include a label with information on their energy consumption and performance.	No.
PANAMA	Construction, Commercial and Industrial	The law stipulates that all energy-consuming equipment, machinery, buildings and appliances commercialized in Panama that reduce energy consumption must carry a label. The label must contain information, among others, on energy consumption and its energy efficiency index.	Yes, the law prohibits the manufacture and import of energy consuming equipment with energy efficiency indexes lower than the minimum determined by the Energy Efficiency Index Management Committee.
PERU	Commercial and Industrial	The law provides that equipment and appliances that require energy supply must include information on their energy consumption in relation to energy efficiency standards on their labels, containers, packaging and advertising.	No, the law provides for the inclusion of energy consumption information in relation to energy efficiency standards, but they are not energy efficiency minimums.
DOMINICAN REPUBLIC	Commercial, Industrial and Transport	The bill provides that the Dominican Institute for Quality (INDOCAL) must develop the labelling standards for energy equipment. Furthermore, for the transport sector, it provides that importers and sellers of vehicles must display, by means of a label, on their sales stands, as well as on any advertising material, the performance related to fuel consumption and CO and CO_2 emissions.	Yes, the bill provides that the CNE will present the minimum energy efficiency criteria and parameters and these must be approved by the CTNEE.

	SECTORS*	DETAILS	MEPS?
URUGUAY	Commercial and Industrial	The law stipulates that only energy-consuming equipment that includes information on energy consumption and performance through energy efficiency labels or seals may be commercialized in the country. Furthermore, the MIEM will establish the modalities and deadlines for the application of energy efficiency labelling.	Yes, the law provides that the Executive Branch may set minimum energy efficiency standards based on minimum performance levels.

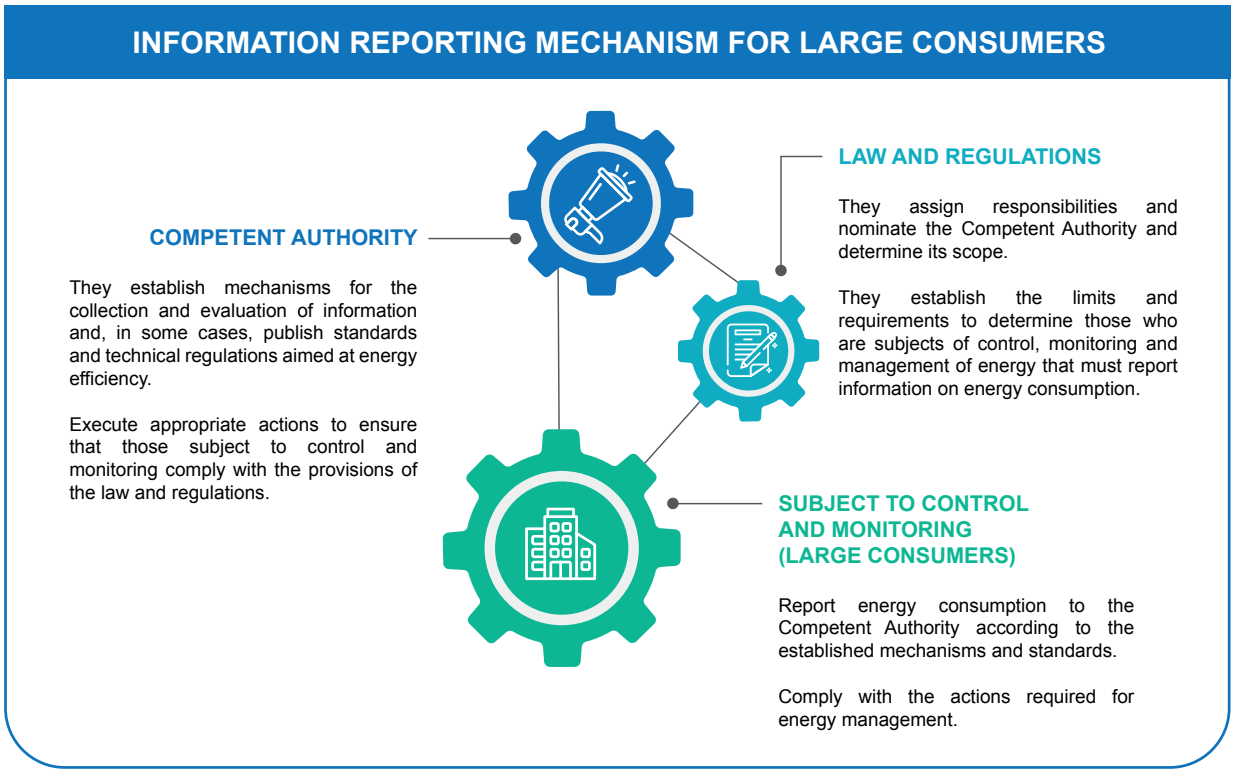
* There are 4 sectors involved in the labelling process depending on the type of good, equipment and/or apparatus to which the label is intended. Construction = label for buildings; Commercial and Industrial = label for energy consuming equipment, machinery or appliances; and, Transportation = label for vehicles.

Source: Own elaboration

Group 3 - Report on Energy Consumption, Control and Obligations of Large Energy Consumer

Raising the energy efficiency of processes that use and consume large amounts of energy is also an important aspect to consider in the framework of an energy efficiency law. Therefore, it is essential that the law provides for guidelines or mechanisms to characterize and identify those energy consumers that exceed a certain limit established on the basis of technical criteria («large consumers») and that it also provides for the obligation of this type of consumers to periodically report their energy consumption. This information is especially useful for developing and implementing actions to increase the efficiency of your processes and/or to monitor consumption and establish whether your processes are subject to observations and/or sanctions. In this section we will try to explain which laws or bills contemplate this mechanism and also detail what they provide about it. **Figure 6** summarizes the general outline of this reporting mechanism, indicating the main parties involved and their function.

Figure 6. General labelling scheme for energy-consuming goods, equipment, machinery and/or appliances



Source: Own elaboration

The energy efficiency laws and bills that provide for mechanisms to collect, monitor and report information on energy consumption of large consumers or those that exceed a certain established limit are: Chile, Costa Rica, Ecuador 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 other words, in the case of Costa Rica, the obligation to report information on energy consumption does not fall on large consumers, but on public companies that provide energy services. Furthermore, 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).

Chilean law requires all companies with energy consumption equal to or greater than 50 tera-calories to report annually their energy consumption and intensity for the previous calendar year to the Ministry of Energy. It also provides that, based on this information reported by energy consumers, the Ministry of Energy will publish a list of such consumers who will be categorized as "Consumers with Energy Management Capacity (CCGE)," which must comply with other provisions of the law (*see Other Obligations of Large Consumers*).

Ecuador's law provides three categories for energy consumers: large energy consumers, medium energy consumers, and small energy consumers. It also establishes that the classification ranges will be contemplated in the regulations of the law, which, as of the date of preparation of this document, have 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. Furthermore, it provides that the Energy Secretariat is in charge of establishing the criteria to determine when a user has a High Energy Consumption Pattern and how they should submit information on their energy consumption.

The energy efficiency bills of Argentina and the Dominican Republic contemplate the reporting of energy consumption information by large consumers. Both bills establish the thresholds to qualify those consumers who must report the information. In Argentina's bill, High Energy Consumption Users (UACEn) - those that acquire or use for final use an amount greater than 1,000 Tons of Oil Equivalent (TOE) per year - and Very High Energy Consumption Users (UMACEn) - those that acquire or use for final use an amount greater than 3,000 TOE per year - must provide the information as determined by the Enforcement Authority. The bill also provides that the levels of consumption that define the UMACEn may be staggered over time depending on the technical and operational characteristics that the Enforcement Authority evaluates.

Finally, the Dominican Republic's bill stipulates that all companies, associations and other entities involved in the energy sector must report information on an annual basis and the CNE will implement a registry for monitoring and the design of energy efficiency policies.

Other Obligations of Large Consumers

The determination of large energy consumers is useful to be able to land on specific actions and obligations, different from the energy audits that will be discussed in the following section, that these consumers must comply with to increase the energy efficiency of their processes. The cases identified in five countries (Argentina, Chile, Cuba, Dominican Republic and Ecuador) and other measures for the adoption of energy efficiency actions are presented below with respect to the obligations of large energy consumers, which are mostly related to the implementation of an energy management system (EMS)[4].

Regarding this issue, the case of Chile stands out due to its level of detail. The law provides that CCGEs must implement one or more EMS and that these must cover at least 80% of their total energy consumption. The EMS that are implemented must remain in force as long as the consumer is considered as CCGE and must maintain it for one more year after they are no longer

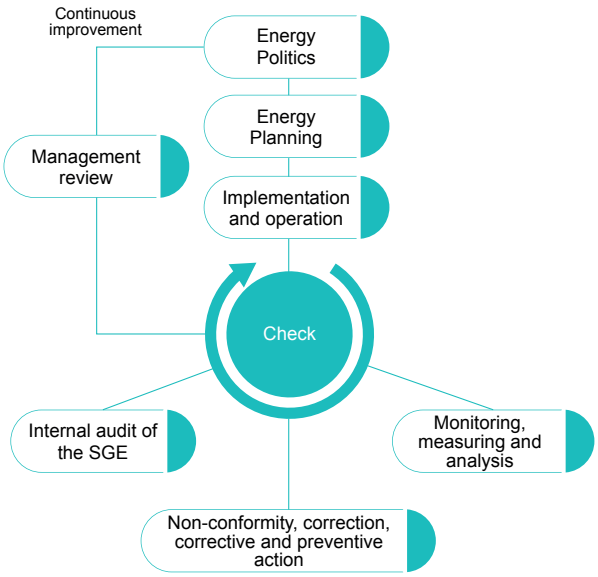
[4] An EMS (see general outline in **Figure 7**), as defined by the energy efficiency bills of Argentina and the Dominican Republic, is a *"set of mutually interrelated or interacting elements to establish an energy policy and objectives, and the processes and procedures necessary to achieve those objectives serves to develop and implement an energy policy."*

considered CCGE. The law also goes into detail on the minimum characteristics that the EMS must have, which are: an internal energy policy, objectives, targets, action plans, and energy performance indicators; a not necessarily exclusive energy manager, operational control, measurement and verification. Moreover, together with the annual energy consumption information report, the CCGEs must also send information to the Ministry of Energy on energy efficiency opportunities and actions carried out and projected.

Cuban law provides that all legal entities must implement EMS in accordance with the requirements of the Cuban and international standard NC ISO 50001.

In less detail are the provisions of the bills of Argentina and the Dominican Republic, which also contemplate the implementation of an EMS. In the case of Argentina, the bill provides that those consumers that are categorized as UMACEn must certify an EMS and must prove that it is valid and updated at least once every four years. The Dominican Republic bill provides that the Ministry of Energy and Mines, with the collaboration of the CNE, will design the necessary guidelines for the implementation of an EMS in the private sector. The bill contemplates that this system will facilitate periodic monitoring and reporting of the progress made in reducing energy consumption.

Figure 7. General scheme of the EMS



Source: Energy Management System (EMS) (Energy Sustainability Agency, 2021)

A special case is that of Ecuador, which not only refers to large consumers, but also contemplates that energy consumers in the public, industrial, commercial, tourism and recreational sectors must implement energy efficiency actions. These actions include the purchase of new technologies, design and implementation of business awareness policies and actions to optimize the use of energy in its processes. Furthermore, it provides for the establishment of incentives for those consumers who implement, among other things, EMS. The law also indicates that the regulation to this law (as of the date of writing this document is not available) may contemplate obligations for large energy consumers in terms of energy efficiency.

On the other hand, Costa Rican law provides that, based on the information reported by large consumers, MIRENEM can arrange for the execution of an energy audit (see Energy audits) or the development of a technical-financial study for a rational energy use project containing measures to reduce the energy index. Once the audit or rational energy use project has been

submitted to MIRENEM, this entity will determine the low investment cost measures to be developed by the company within six months. The law also contemplates incentives for companies that develop high-cost or high-investment measures (measures with an investment or cost higher than 15% of the company's annual energy cost).

Energy audits

A fundamental mechanism for transparency in the reporting of information on energy consumption are energy audits. Energy audits can be internal or external, they can be part of an EMS or a monitoring and control mechanism by a state authority. Energy audits allow obtaining reliable information on the energy consumption of a specific company or consumer, as well as to determine those areas where there is a higher consumption and, therefore, identify opportunities to carry out corrective actions or improvements to reduce it. **Table 11** compiles a summary of what is available on energy audits in the laws and bills of the countries that contemplate this mechanism.

Table 11. Details on energy audits in the laws and bills of the countries analyzed

	DETAILS
ARGENTINA	The bill provides that, unlike UMACEn, UACEn must conduct and accredit energy audits at least once every four years and submit them to the Enforcement Authority. UMACEn and those UACEn that certify and have an Energy Management System do not have to perform Energy Audits.
CHILE	Chilean law provides that the CCGEs must carry out energy audits every three years to verify the correct operation and maintenance of the EMS described in the previous section. The law also describes the minimum requirements for audits. Furthermore, in order to verify the truthfulness and accuracy of the information submitted, and for justified reasons, the Superintendence of Electricity and Fuels may require an independent external audit up to once a year.
COSTA RICA	Costa Rican law provides that one of the requirements that MIRENEM may request from large energy consumers is to carry out an energy audit. The objective of this is to present a report in which the projects aimed at reducing the energy index are identified. The MIRENEM, based on the audit report, will determine the measures to be adopted by the energy consumer.
CUBA	The law provides that ONURE, together with the National Office for Standardization of the Ministry of Science, are responsible for controlling, auditing and inspecting the process of implementation of the EMS of legal entities.
ECUADOR	Ecuador's law provides that pertinent, timely and effective incentive mechanisms must be established for consumers who apply energy efficiency actions to their processes, through the preparation of energy audits, labelling, implementation of EMS, among others. It is not mandatory to carry out energy audits.
PERU	The Regulations of the Peruvian Law for the Promotion of Efficient Use of Energy stipulate that those public sector entities that have a monthly invoice for electricity consumption that exceeds 4 Tax Units (UIT) must carry out energy audits.

Source: Own elaboration

Chapter 5

Sector Policies

Previously, this document reviewed the medium and long-term plans, which constitute the main structure for the development of energy efficiency in the countries. However, there is an aspect that works in parallel to define the necessary guidelines and promote the deployment of energy efficiency measures.

This aspect refers to sectoral policies, which are defined as those policies specifically adopted to modify the production, marketing and consumption of goods and services, focused on a specific sector or activity.

Taking into account the above, thirteen of the countries analyzed in this document include provisions related to sectoral policies in their energy efficiency laws, decrees and bills. These countries are: Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Nicaragua, Panama, Peru, Dominican Republic, 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, the building sector and the industrial sector. The following are the most relevant provisions included in each country's documents for each sector.

Public Sector:

The law documents of Chile, Panama and the Dominican Republic include in their provisions the concept of "Energy Managers" for the public sector, which consists of appointing an administrator of energy resources in each of the public buildings, who is also in charge of managing the implementation of projects for the rational use of energy. The Chilean law also states that the Ministry of Energy, in coordination with the sectoral ministries, proposes the preparation of a five-year energy efficiency plan.

Transport Sector:

Argentina, Brazil, Chile, Costa Rica, Dominican Republic, Ecuador, Nicaragua, Panama, Peru and Uruguay include at least one specific provision related to the transport sector in their legal documents. Specifically, Chile's law and Argentina's bill propose the establishment of maximum energy consumption levels and the progressive incorporation of energy efficiency standards for new vehicles commercialized in the country; and the establishment of minimum performance standards (MEPS) for the new vehicle fleet (applicable to light, medium and heavy vehicles), respectively.

In the case of Argentina, it also provides for the implementation of efficient driving courses as a measure to improve energy efficiency levels in the transportation sector. Similarly, Ecuador establishes that, progressively, fuel consumption and pollutant gas emission limits will be established for vehicles of any type commercialized in the country, which will be shown through a label. The Dominican Republic's law mentions the implementation of technical vehicle inspections, the use of collective transportation in public institutions, electric vehicle charging stations (the latter is also included in Chile's energy efficiency law) and efficient driving courses.

Cuba, for its part, provides for the gradual replacement of vehicles powered by internal combustion engines with electric vehicles.

Buildings Sector:

As for the specific provisions for the building sector included in the laws, decrees and bills of the countries, it should be mentioned that all the documents that make a descriptive reference to this issue refer to the building labelling system, in addition to the inclusion of renewable energy systems in the case of the proposed energy efficiency law of the Dominican Republic.

Although other sectors are mentioned in the law documents, proposals and decrees, such as the service, industrial, commercial and education sectors, no specific actions are described in them, so no detailed description of these sectors was made.

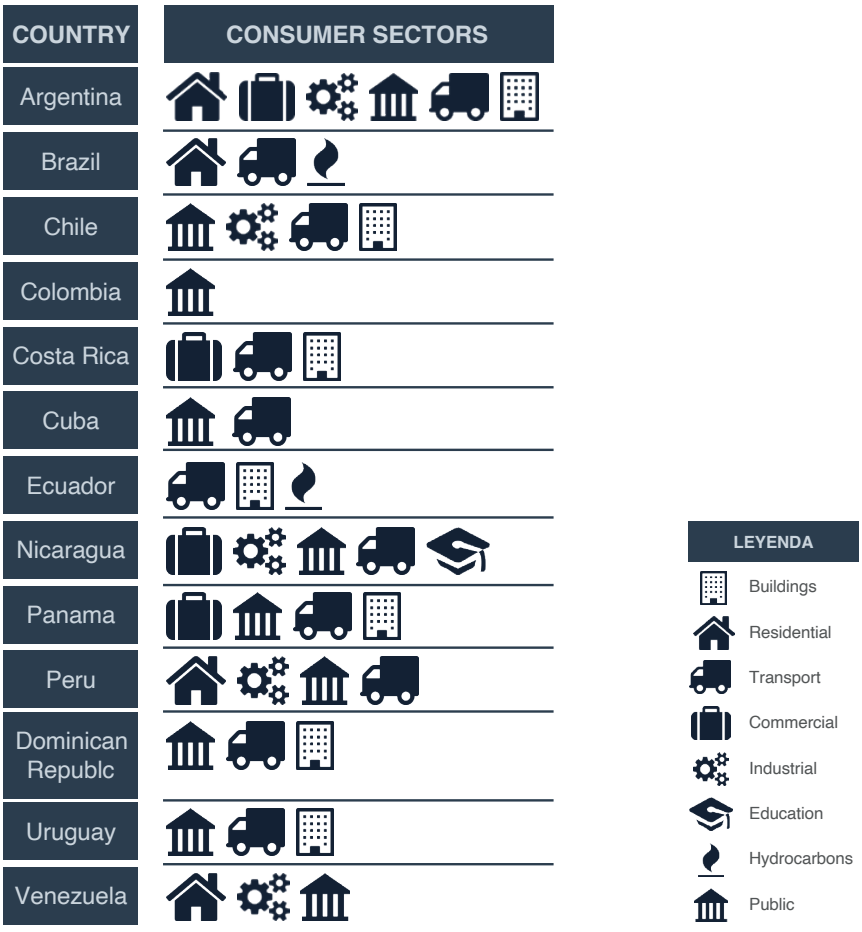
Industrial and Commercial Sector:

The Chilean and Costa Rican legal documents are the only ones that include provisions related to these sectors, and in both cases it is stipulated that companies that exceed a certain level of energy consumption per year are required to report annually the information necessary to calculate energy intensity indexes for their operations.

On this basis, it is also stipulated that proposals must be submitted to improve energy performance indexes, and in the case of Chile, as previously mentioned, it is also stipulated that companies with energy management capacity must implement an EMS covering at least 80% of their total energy consumption.

The sectors for which provisions are included in each of the countries can be seen in **Figure 8**.

Figure 8. Consumer sectors mentioned in the laws, bills and decrees, for each of the countries



Source: Own elaboration

It is important to note that although many of the countries included in this study contemplate the introduction of labelling systems that also directly affect the residential sector, very few of the laws mention this specific measure within the sectoral activity. For this reason, labelling systems are included both in this chapter and in the specific section on the labelling mechanism.

Chapter 6

Certification Mechanisms

One of the tools for guaranteeing the sustainability of energy efficiency measures is the certification mechanisms; through them, the different elements that make up the energy efficiency value chain can be standardized: labelling programs, energy audits, measurement and quantification of results, etc.

As such, most laws, decrees and bills include provisions related to certification mechanisms; however, the approach that each country takes to this aspect differs significantly in each case.

For some countries, the approach regarding 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 that are generated due to the functioning of equipment and machinery (Guatemala), energy savings from the consumers who apply energy efficiency actions in their processes (Ecuador), energy consumption avoided with the implementation of energy efficiency projects (Uruguay), or until the certification of consultants specialized in energy efficiency issues (Peru).

As mentioned at the beginning of this chapter, in order to achieve sustainability of the provisions included in the energy efficiency laws, it is necessary to have standardized processes for the evaluation and quantification of results; therefore, the certification mechanisms analyzed in this section will be related to labelling systems, testing and evaluation laboratories, certification of savings generated, and energy service companies and independent evaluators.

Energy efficiency labelling allows users to provide information on the energy performance of equipment and appliances in a simple way, making it a very useful tool to improve user decision-making in relation to the acquisition of products with high levels of energy efficiency. These labelling programs are supported by specific energy performance standards for each type of product, which include classification levels, as well as evaluation procedures.

However, in order to validate the information on the label regarding the energy performance of each product, certification systems are required to validate the testing process and the results obtained. Complementarily, the certification of energy performance evaluation laboratories is part of the chain of certification of energy efficiency measures and the results achieved. Similar to this is what happens with the implementation of measures by independent consultants and energy service companies (ESCOs), where in order to make an accurate assessment of the results achieved, some kind of endorsement is required on the processes used, the technical capacity of the evaluators and the reliability of the results, making it necessary to have adequate certification mechanisms to standardize the results achieved.

Finally, after the implementation of different energy efficiency measures, there is perhaps an even more important point, referred to the certification of the energy savings achieved with these measures, through the establishment of procedures that allow standardizing the quantification of the results achieved.

Next, **Table 12** shows the certification mechanisms used by the different countries that have an energy efficiency law in force, or in the approval process.

Table 12. Certification mechanisms included in the energy efficiency law documents of the Latin American and Caribbean countries

	CERTIFICATION AREA	DETAILS	CERTIFICATION BODY
ARGENTINA	Savings Generated	Users of high and very high energy consumption must pass energy audits and certify an energy management system every 4 years, respectively. The savings generated as a result of the implementation of the energy efficiency programs of the public service providers must be accredited before the corresponding regulatory entity.	Not specified
	ESCO and/or evaluators	Promote access to certifications and training for service providers related to the rational use of energy.	Not specified
BRAZIL	Laboratories or certifying bodies	Through its local metrology body, the Brazilian energy efficiency law establishes the need to certify equipment testing laboratories for labeling, as well as the need to certify compliance with energy efficiency levels. of the tested equipment.	INMETRO, National Institute of Metrology
CHILE	ESCO and/or evaluators	The Chilean energy efficiency law includes a specific aspect related to energy rating (labelling) in the building sector, which establishes the creation of the National Registry of Evaluators, within which the Ministry of Housing and Urban Development is responsible for: registration requirements, grounds for inability and incompatibility to register and remain in it, the entities or professionals that may perform the evaluation for the issuance of the report and labelling, the mechanisms for evaluation, accreditation and registration, and the powers to monitor compliance with the requirements set forth in the regulations.	Ministry of Housing and Urban Development
CUBA	Labelling system	The National Office for the Control of the Rational Use of Energy (ONURE) guarantees the energy efficiency of household appliances for refrigeration, air conditioning, ventilation, lighting, television, food cooking, water heating, washing, ironing clothes and others that are imported, produced or marketed in the country, based on the product certification scheme based on the results of tests carried out in laboratories and the technical regulations in force.	National Office for the Control of the Rational Use of Energy (ONURE)
NICARAGUA[5]	ESCO and/or evaluators	Natural or legal persons, whether public, private or mixed, interested in providing energy services may optionally register in the National System of Energy Service Providers to be established by the MEM for this purpose, in order to have a database of reference consultants; however, in order for such consultants to be eligible to provide services under PRONAEE and FONDEFEER, they must be registered as service providers with the MEM. The requirements and procedures to register as an energy service provider will be established by the MEM via Regulations.	Ministry of Energy and Mines (MEM)
PANAMA	Laboratories or certifying bodies	The National Accreditation Council must accredit public and private certification, inspection, testing, calibration and other bodies for the conformity assessment of equipment and/or machines, spare parts, heat insulating materials, efficient buildings, labels and energy efficiency indexes. Likewise, the Council must provide information on the certification of internationally accredited laboratories, energy-consuming equipment and products, materials that reduce energy consumption, and any other in the energy sector.	National Accreditation Council

[5] The regulations in which the requirements and procedures for registration are included are not specified, so it is not possible to determine if it is a certification as such.

	CERTIFICATION AREA	DETAILS	CERTIFICATION BODY
	ESCO and/or evaluators	Natural persons, public and private companies, providers of energy services that offer consumers information, energy audits and studies, tests, inspections, measurements and/or studies of consumption habits to promote the adoption of best practices to improve the rational and efficient use of energy in their facilities must be accredited in each of the services they wish to provide before the National Accreditation Council of Panama, of the Ministry of Commerce and Industries. The National Accreditation Council must use evaluation criteria based on the standards for conformity assessment companies, as well as the technical regulations established on energy matters. The Engineering and Architecture Technical Board of the Ministry of Public Works will certify the suitability of the company's personnel or natural person.	Engineering and Architecture Technical Board
PERU	ESCO and/or evaluators	The Ministry of Energy and Mines, in coordination with the Consumer Defense Institute (INDECOPI), establishes the requirements for the certification of natural or legal persons as energy efficiency consultants or ESCOs, as established by law. Consultants and ESCO certification is carried out by organizations authorized and supervised by the Ministry. Said certification will be valid for two (02) years, which can be renewed for the same period. The Ministry, through the Interactive System for the Efficient Use of Energy, keeps the list of certified consultants and ESCOs updated.	Authorized organizations not specified, supervised by the Ministry of Energy and Mines
DOMINICAN REPUBLIC	Labelling system	The National Energy Commission (CNE) must submit for approval purposes to the National Energy Efficiency Technical Committee (CTNEE), the criteria and minimum parameters of energy efficiency based on the technical regulations of energy efficiency adopted by the country for the equipment, devices and characteristics of the materials used in the Dominican Republic. These criteria and parameters must be presented in order to be updated by the CTNEE within a maximum period of five (5) years. The Dominican Accreditation Body (ODAC) must define the mechanism for accepting certifications of origin, in order to recognize as good and valid the information contained on the labels of equipment entering the country.	Dominican Accreditation Body (ODAC)
	ESCO and evaluators	The Dominican Accreditation Body (ODAC), or a third party authorized with the necessary competencies, must accredit the National Energy Commission (CNE), to certify energy service providers. Said certification will be an essential requirement to provide energy management services. The list of certified providers will appear on the CNE website.	Dominican Accreditation Body

	CERTIFICATION AREA	DETAILS	CERTIFICATION BODY
URUGUAY	Labelling system	For each equipment and appliance to be marketed or planned to be marketed, a transitional stage of voluntary adherence followed by a mandatory definitive stage is established for its conformity assessment. During the transitory stage, the manufacturer or importer must submit to the Energy and Water Services Regulatory Unit, a Certificate of Compliance with the UNIT energy efficiency labelling standard corresponding to the equipment and appliance, granted by a Certification Body with commercial presence in the country, and recognized by the referred regulatory body.	Energy and Water Services Regulatory Unit
	Savings Generated	The Ministry of Industry, Energy and Mining issues Energy Efficiency Certificates, calculated in energy units equivalent to the total energy units avoided during the life cycle of the project. All energy users and suppliers that submit energy efficiency projects with at least one year of operation prior to the application are entitled to access these certificates, as long as the first annual evaluation of compliance with results by an authorized certifying agent has been submitted.	Qualified certifying agents not specified (certification of savings generated) / MIEM (certifying agent certifier)
VENEZUELA	Labelling system	For the granting of the Energy Efficiency Certificate for equipment, the National Executive, through the Ministry of the People's Power with competence in trade, certifications and metrology, will promote the creation of a network of laboratories to carry out tests and trials to evaluate the quality and safety of materials, construction systems and energy consumption equipment in order to determine compliance with the energy efficiency parameters established in the national regulations and the international protocols adopted.	Ministry of the People's Power with competence in of trade, certifications and metrology

Source: Own elaboration

Although most of the countries in the region have labelling programs, only four of the countries' energy efficiency regulatory documents mention specific provisions related to the certification of these programs, and, in the case of Panama's law document, which mentions labelling certification, it does not include specific provisions related to the processes or requirements for obtaining certification. However, it is important to mention that the fact that the laws do not mention provisions related to labelling may have to do with the fact that labelling programs in the countries have already been working prior to the drafting of the laws, bills and decrees, so their regulations are included in specific regulations, different from the laws analyzed in this document. This includes the certification of equipment energy performance testing laboratories.

In turn, ESCO/evaluator certification is the type of certification that is most frequently repeated in the laws, decrees and bills analyzed, showing the interest of the countries in developing markets for specialized energy efficiency services as one of the fundamental tools for improving energy performance levels at the national level.

Chapter 7

Control Mechanisms

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

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 (and 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.

In a complementary manner, the distribution companies or the Ministries of Energy are entrusted with the task of monitoring or supervising certain specific aspects, as is the case of the documents of Nicaragua, Mexico and the Dominican Republic.

In this regard, Argentina's bill proposes that the entity in charge of control and supervision should be the Law Enforcement Authority itself.

Regarding the control activities contemplated in the different law documents, there are particular cases, such as that of Guatemala, whose bill mentions, as the only control mechanism, a procedure to control the financial and accounting operations of the National Energy Efficiency Council (CONEE), whose creation is also part of the bill, and does not establish specific control mechanisms for compliance with the law itself.

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.

Table 13 shows a summary of the types of aspects subject to control that are included in the legal documents, related to the countries that consider them:

Table 13. Aspects subject to control, in relation to the countries that include them in their legal documents

	ASPECTS SUBJECT TO CONTROL	COUNTRIES
01	Compliance with the goals and objectives of the specific instruments for the development of Energy Efficiency (National Energy Efficiency Plans and Programs, including labelling programs).	Argentina, Brazil, Colombia, Mexico, Nicaragua, Dominican Republic[6], Venezuela
02	The work of public bodies and personnel in charge of planning, implementing and reporting the results of the current Energy Efficiency programs.	Argentina, Mexico, Panama
03	The results of the implementations carried out with public funds collected from the energy distribution companies.	Brazil
04	The planning instruments for Energy Efficiency initiatives, through the quantitative and qualitative assessment of their execution results, in order to identify barriers to the achievement of their goals, opportunities for improvement and the need to incorporate additional policies, programs, actions and projects.	Mexico

Source: Own elaboration

[6] In the case of the Dominican Republic, it is mentioned that the CNE will have the function of supervising, controlling and following up on the compliance and execution of the decisions of the National Energy Efficiency Technical Committee, among which are Energy Efficiency plans and programs.

Regarding the agencies in charge of overseeing the different aspects mentioned in the table above, in most cases this task is entrusted to the Energy Ministries or Secretariats in the countries (or agencies attached to them), as in the case of: Costa Rica, Mexico, Nicaragua, Panama and the Dominican Republic.

The Argentinean bill mentions that the agency in charge of oversight is specific to each program. In the case of the Labelling Program (ProNEEM), the same authorities in charge of its implementation are responsible for evaluating the results and proposing updates, while the monitoring and control of energy efficiency programs is the responsibility of the utility companies, together with the utility regulators.

In the case of Colombia, the ministries and agencies in charge of preparing energy consumption statistics by source and sector are responsible for guaranteeing the quality of the proposed measures.

In all the cases mentioned, the bodies in charge of control are already existing bodies. However, in the case of Brazil and Mexico, the creation of a specific body to monitor the implementation of measures has been established: the Management Committee for Energy Efficiency Level Indicators (CGIEE), and the Advisory Council for the Sustainable Use of Energy, in Brazil and Mexico, respectively.

In summary, only seven of the countries that have a legal document in force or in the process of being drafted have specific provisions for monitoring compliance with the implementation of any of the programs or measures included in such documents. And, on the other hand, most of the countries (5 out of 7) entrust the control tasks to the organizations in charge of the implementation, instead of entrusting this task to specific bodies.

Chapter 8

Sanctions

As a complement to the control measures, it is necessary to have some type of instrument that helps to guarantee the fulfillment of the objectives for which a law is created. It is here where the sanction mechanisms play an important role as a last resort to guarantee the implementation of the provisions, as well as the fulfillment of the objectives set by the law.

Ten of the countries analyzed include in their legal documents, decrees or bills, some aspect related to the sanctions applied in the event of non-compliance with the provisions. These countries are: Argentina, Brazil, Chile, Colombia, Costa Rica, Nicaragua, Mexico, Panama, Dominican Republic and Uruguay. In the case of Ecuador's law, Article 16 indicates that for large consumers, the regulation of the law may contemplate energy efficiency obligations; however, as previously mentioned, the regulation has not yet been published, so there is no knowledge of the penalties that would be included.

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

For their part, both in Brazil and Costa Rica, 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 legal documents establish their sanction mechanisms through national energy efficiency programs or other documents, such as decrees and regulations, 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 proceeds in accordance with the provisions of Law No. 482 Protection of the Rights of Consumers and Users of July 11, 2013.

In the case of Argentina's bill, the sanctioning regime establishes that the seriousness of the offenses will be determined by each jurisdiction, establishing two types of sanctions: warnings and fines. 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 what is the basis on which they are supported to determine how to execute them was previously mentioned; however, it has not been mentioned which are the actions that the said sanctions produce. In this regard, not all the countries that mention sanctions clearly establish which are the offenses that result in a sanction, being ambiguous in some cases.

Despite this, it has been found that most of the 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. Considering that the present analysis is based mainly on the review of the law documents, with some decrees relevant to each of these, the main sanctions provided within the law documents are shown in **Table 14** below, as an example.

Table 14. Sanctionable actions, penalties and entities in charge of executing them, of the law documents, bills and main decrees.

	ACTIONS AND SUBJECTS OF SANCTION	TYPE OF OFFENSES/SANCTIONS	SANCTIONING BODY
ARGENTINA	Breach of obligations provided by law and/or its subsequent regulations.	There are two types of sanctions, which are applied according to the seriousness of the offense. The first is the warning, and the second is a fine that can include between 15 - 50,000 Penalty Units. A Penalty Unit is equivalent to the price per MWh, determined by Compañía Argentina del Mercado Mayorista Eléctrico S.A., which is paid by distributors and large electricity users in the wholesale electricity market.	Not specified
BRAZIL	Failure to comply with the technical specifications of the specific regulations in force on the equipment present in the market. Applies to manufacturers or importers of energy consuming machines and devices.	**INFRACTIONS:** Infractions are not specified. **SANCTIONS:** Immediate removal of energy consuming machines and devices that do not meet the established specifications, within a period of no more than 30 days. Additionally, a fine of up to 100% of the sales value of these products is applied.	The sanctioning body is not specified
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.	**INFRACTIONS:** Minor infractions: written warning. Minor errors that do not influence the final result of the evaluation or the label. Less serious offenses: suspension of registration from one to thirty days and a fine of up to five tax units per year. Failure to comply with deadlines for evaluation, corrections or recidivism in at least 3 minor infractions during a year. Serious offenses: suspension of registration from thirty-one days to one year and a fine of up to ten tax units per year. Errors or omissions that produce changes in the evaluations, performing evaluations despite inconsistencies, not performing the visual inspection to perform the evaluation, or incurring in two less serious offenses during one year. Very serious infractions: suspension of the registry from one year and one day to five years or elimination of the registry and a fine of up to twenty tax units per year. Malicious adulteration of documents that affect the evaluation of the building and incur at least 2 times in a serious offense. **SANCTIONS:** Sanctions are not specified.	Ministry of Housing and Urban Development
COLOMBIA	Non-compliance with the guidelines included in the PROURE, in accordance with current legal regulations.	The infractions and applicable sanctions are not specified.	National Government

	ACTIONS AND SUBJECTS OF SANCTION	TYPE OF OFFENSES/SANCTIONS	SANCTIONING BODY
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. Individuals or legal entities that distribute or sell equipment of any kind that requires energy for its operation.	**INFRACTIONS:** Equipment of any type that does not have a consumption notice plate. **SANCTIONS:** Fine according to the consumer sales price of such equipment. The fine can be up to 25% of the sale value of the equipment, and double in case of recidivism.	Ministry of Energy and Mines (MEM)
NICARAGUA	Failure to comply with the standards and technical regulations.	The infractions and applicable sanctions are not specified.	Directorate General for the Protection of the Rights of Consumers and Users (DIPRODEC)
MEXICO	Failure to deliver the consumption related information by users with a high energy consumption pattern.	The infractions and sanctions are not specified.	CONUEE
	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. Applicable to manufacturers, importers or distributors of consumer devices.	**INFRACTIONS:** Not specified. **SANCTIONS:** Fine of 100 to 10,000 times the minimum wage, for not including information about their energy consumption. Fine of 3,000 to 14,000 minimum wages for including false or incomplete information that misleads the consumer. Fine of 5,000 to 20,000 minimum wages to anyone who distributes or markets equipment that includes false or incomplete information, which implies deception of the consumer.	Federal Consumer Protection Office
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. Applies to importers, producers, distributors and sellers of equipment, machines, materials and spare parts that use and/or recover energy for their operation.	**INFRACTIONS:** Sanctions will be carried out in accordance with Law 45 of October 31, 2007, which establishes the obligation of the supplier to inform the consumer clearly and truthfully about the characteristics of the product, including the label with the energy performance conditions. **SANCTIONS:** In the case of trade practices that violate the provisions of consumer protection, from warnings to fines of up to twenty-five thousand balboas (B/. 25,000.00). In the cases of infractions for which there is no specific sanction, with a fine of up to ten thousand balboas (B/.10,000.00).	Authority of Consumer Protection and Competition Defense

ACTIONS AND SUBJECTS OF SANCTION	TYPE OF OFFENSES/SANCTIONS	SANCTIONING BODY
Overall non-compliance of the law. The subjects of sanctions are not specified; however, from the details of the infractions, it is inferred that depending on the offense, the subject of the sanction would apply.	**INFRACTIONS:** **Minor infractions:** Delays or tardiness in complying with the requirements of the law, if this has not resulted in damage or harm to third parties or to the public interest. **Serious infractions:** a. Failure to comply with the guidelines established in the plans or programs approved in the development of the law. b. Delays or tardiness in complying with the requirements of the law, if this would have resulted in damage or harm to third parties or to the public interest. c. Failure to comply with the obligation to apply the energy equipment labelling system or the information contained therein on energy efficiency and energy consumption. d. The refusal or failure to deliver, within the term established by the competent authority, the information on production, export, import, consumption and sale of fuels or derivatives (liquid and gaseous), by entities involved in the transport sector. e. The absence or lack of information on vehicle performance, especially performance related to fuel consumption and carbon monoxide (CO) emissions. f. The refusal or failure to deliver within the term established by the competent authority, the information on purchases and sales of electricity, by entities involved in the electricity sub-sector. g. The recidivism in the commission of the minor infractions. **Very serious infractions:** a. Failure to comply with the objectives and obligations of the plans and programs derived from the law. b. The putting into operation of equipment, devices, materials, machinery and accessories by individuals or legal entities, owners or lessees of real estate, without having the authorizations required by law. c. Actions or omissions that constitute electrical fraud, in relation to energy saving and efficiency measures; without prejudice to other penalties or sanctions that may be established for the commission of other infractions. d. The concealment or alteration of the data necessary for the preparation of the reports under the law, as well as the resistance or repeated delay in providing them, provided that these are not adequately justified. e. Falsifying, adulterating or altering any of the requirements approved for obtaining the incentives established by law. f. The resistance of the owners or lessees of real estate to allow access or provide the information required for the preparation of reports or implementation of permits, when there is a legal or regulatory obligation to comply with such request for access or information. g. Failure to comply with the application of the regulations related to the energy performance of buildings, in the case of expansion, modification, reform or rehabilitation works carried out on existing buildings.	Ministry of Energy and Mines

ACTIONS AND SUBJECTS OF SANCTION	TYPE OF OFFENSES/SANCTIONS	SANCTIONING BODY
	h. Failure to comply with the implementation of the energy rating system for buildings in newly constructed buildings and in those that are subject to remodeling of more than 30% of the useful surface area. i. Failure to comply with the use of renewable technologies in new public and private buildings of new construction with a usable area of more than 300 m². j. Failure to apply the energy equipment labelling system, by means of which information is provided. k. The deviation or non-use for the purposes authorized by the competent authority, of the equipment, machinery, accessories, parts and components, favored by the Tax and Tariff Incentives under the law. l. Declare equipment and machinery with energy efficiency levels that do not correspond to those declared. m. The recidivism in the commission of the serious infractions. **SANCTIONS:** a) **Minor infractions,** written reprimand if no damage or harm to third parties or to the public interest has resulted; otherwise, a fine from one hundred (100) to two hundred (200) minimum wages, of the highest established for the public sector, in force at the time the sanction is imposed; b) **Serious infractions,** a fine from two hundred and one (201) to three hundred (300) minimum wages, of the highest established for the public sector, in force at the time the sanction is imposed; together with the provisional suspension of the benefits and incentives established in the law, for a period of 180 working days; c) **Very serious infractions,** with a fine from three hundred and one (301) to five hundred (500) minimum wages, of the highest established for the public sector, in force at the time the sanction is imposed; together with the revocation of all benefits and incentives received under the law, until the date of the imposition of the sanction, and their reinstatement by the offender for the benefit of the Administration.	
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 corresponding to each energy consuming equipment. It applies to any natural or legal person, national or foreign, private or public, who in the exercise of their activities violates the Efficient Use of Energy Law.	**INFRACTIONS:** Infractions are not specified. **SANCTIONS:** Two types of sanctions apply: 1. Observation. 2. Fines, the amounts of which shall be fixed annually by the Executive Branch, and shall be between 1 and 50 UR (readjustable units).	Ministry of Industry, Energy and Mining

Source: Own elaboration

The most frequently sanctioned aspect, or the one that is most often considered as the object of sanctions, is that which has to do with non-compliance with labelling programs, whether it be non-compliance with the technical characteristics of the consumer equipment, or for not including or altering the information on energy performance.

Part 3
Economic incentives

New technologies or new processes face barriers that reduce their competitiveness when entering an established market with technologies and processes that have already been developed, optimized and matured. The costs associated with new technologies and processes are an important barrier since they are generally higher than the costs associated with conventional technologies and processes. For this reason, in order to increase the supply of energy-efficient goods and services on the market, States have the power to implement economic incentives to break down this barrier. In this part of the document, Chapters 9 and 10, the types of economic incentives that have been established within the existing energy efficiency legislation are reviewed. Chapter 9 presents what the energy efficiency laws or bills provide on tax exemptions and subsidies in order to promote the consumption of goods or services whose energy performance generates savings. On the other hand, chapter 10 describes the implementation mechanisms that facilitate the development of energy efficiency measures, including some of the most widely used measures in the countries of the region, such as trusts and specific funds for energy efficiency.

Chapter 9

Tax Exemptions and Subsidies

A topic of special interest is the development of incentive instruments for the development of a market for energy efficient goods and services. In this sense, tax reductions (exemptions, deductions and/or exemptions) and subsidies are part of the package of possible instruments to lift economic barriers to energy efficiency and facilitate the entry of efficient technologies. Despite the importance of this issue, it was found that few of the energy efficiency laws, regulations and bills analyzed include these instruments. This chapter presents details of those countries that have tax exemptions and those that use subsidies for the development of energy efficiency.

Tax Exemptions

Tax exemptions are basically waivers by the state to collect a portion of taxes, which are used as a form of incentive to encourage and facilitate the entry into the market of certain types of goods or services. In the case of energy efficiency, those goods and services that, due to their performance and efficiency, generate energy savings, are the ones that will usually benefit from this incentive. Below is the detail of those countries that contemplate tax exemptions within their energy efficiency laws or bills.

Argentina's bill includes three types of incentives that include the granting of credits and tax exemptions to boost energy efficiency. The first one proposes that the Enforcement Authority may implement a tax credit certificate, granted for energy efficiency projects that generate energy savings or contribute to the diversification of the energy matrix, which may be applied to the payment of national taxes. The scope and limits of said credit are also stipulated within the bill. The second type of incentive is through the creation of the Fund for the Development of Energy Efficiency (FODEE) and it is stipulated that both FODEE and the trustee, in all matters related to FODEE, will be exempt from all existing national taxes, fees and contributions and those to be created in the future. 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.

Costa Rican law stipulates exemptions as the only instrument to encourage energy efficiency. Article 38 of the law lists several imported and domestically manufactured equipment and materials that will be subject to the tax exemption. The exonerated taxes are: the selective consumption, ad valorem, sales tax and those stipulated in Law No. 6,946 of 1984. Interestingly, the law also provides that, based on technical criteria, the list of equipment and materials may be updated by the Executive Branch to adapt it to scientific advances.

The Cuban law contains a section on tariff and tax incentives and benefits, which provides that, when economically justified, the Ministry of Finance and Prices may grant tariff exemptions and rebates to legal entities that import raw materials, components, parts, pieces, equipment and accessories to improve energy efficiency. That is, it is an incentive that will be applied at the discretion of the Ministry of Finance and Prices and the economic situation.

Ecuador's energy efficiency law provides for the establishment of relevant, timely and effective incentive mechanisms, but does not include details about what these incentives will be and whether they will be in the form of subsidies or tax exemptions. It also indicates that the Decentralized Autonomous Governments must establish incentives to promote electric mobility.

The Dominican Republic bill proposes to establish reductions of fixed tax amounts - 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 lighting, refrigeration, air conditioning and pumping systems. The reduction will be staggered for a period of 10 years (5% for each year), it will be without effect once said period has concluded.

The case of the Dominican Republic is interesting because it is the only country that includes a tax on inefficient equipment in its bill. It provides that all equipment and devices that have an energy efficiency lower than the minimum established in the regulation of the law will be subject to an additional 50% tax on current customs duties and an additional 50% for the tax on the transfer of industrialized goods and services. If the bill is approved, the Dominican Republic will regulate the competitiveness of energy inefficient technology, which can be understood as an indirect incentive for efficient technology.

In Uruguay, there is flexibility for the Executive Branch to set differential internal tax rates or energy efficiency minimums for energy-consuming equipment. For this, the Executive must consider the socioeconomic impact of these measures, the adaptation of national production to more efficient technologies and also the ease of access of the population to more efficient technologies.

Finally, in the case of Venezuela, it is provided that total or partial exemption 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.

Subsidies

On the other hand, subsidies are incentives that are granted by the state in order to promote the consumption of a specific good or service. Its role is to cover a portion of the costs associated with a good or service so that the cost of sale to consumers is lower. Of the documents analyzed, only Panama's law establishes the creation, through the National Energy Secretariat in coordination with the Ministry of Economy and Finance, of a program of incentives and subsidies for the rational and efficient use of energy. This program contemplates that the equipment, materials and spare parts that consume energy, and that comply with the norms or technical regulations of rational and efficient use of energy of the Ministry of Commerce and Industries, will enjoy incentives and subsidies. The determination of the amount or percentage falls to the Ministry of Economy and Finance. Furthermore, the law provides for a 5% discount on the amount of interest paid on housing (of social interest) that incorporates energy efficiency measures. The latter is part of a Mortgage Program for the Rational and Efficient Use of Energy and the National Energy Secretariat, together with the Ministry of Economy and Finance, is responsible for establishing the parameters for its evaluation.

Table 15. Summary of countries that use tax exemptions and/or subsidies

COUNTRY	Subsidies	Tax Exemptions
Argentina		✓
Costa Rica		✓
Cuba		✓
Ecuador*	✓	✓
Panama	✓	✓
Dominican Republic		✓
Uruguay		✓
Venezuela		✓

* It does not specify if the incentive will be through subsidies or tax exemptions.

Source: Own elaboration

It is important to mention that, of the 12 countries that have an energy efficiency law, 5 provide for tax exemptions, 1 provides for the creation of subsidies and 1 (Ecuador) does not define the type of incentive to be implemented; likewise, 2 of the 5 countries with a bill on energy efficiency provide for tax exemptions. It should also be noted that most of the countries that contemplate these types of incentives provide sufficient flexibility for the values or percentages to be applied as subsidies and/or tax exemptions to be determined by the Executive Branch. Some countries such as Panama and the Dominican Republic establish percentage values for incentives in their laws and bills, respectively.

Chapter 10

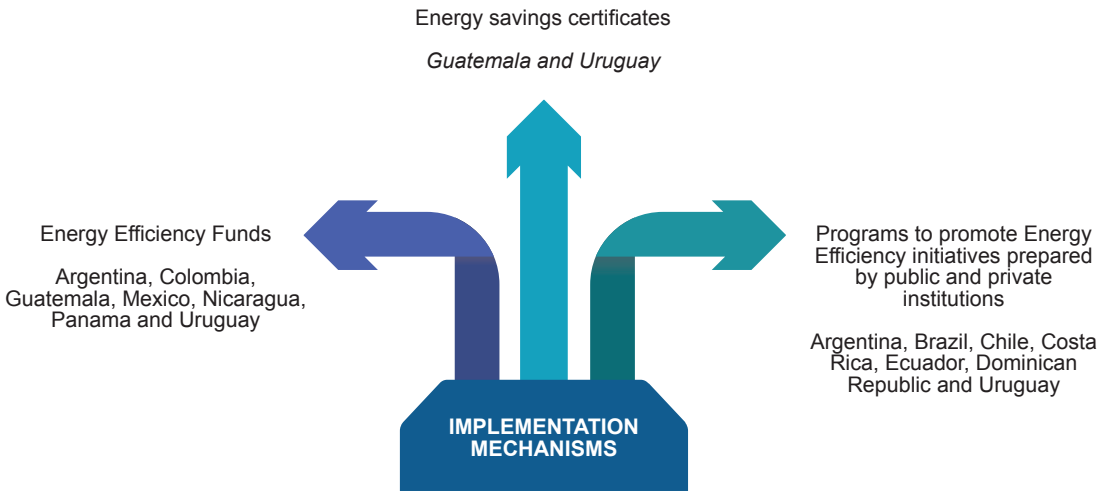
Implementation Mechanisms and their Functioning

One of the factors that provides the greatest impetus to the development of energy efficiency is the generation of implementation mechanisms aimed at facilitating the development of a market for energy efficiency goods and services. In this regard, policy instruments aimed at eliminating barriers to access to financing for the acquisition of energy efficiency products and services are recurring themes in energy efficiency laws.

For this particular study, the implementation mechanisms analyzed are energy efficiency funds, schemes for issuing savings certificates and programs to promote energy efficiency initiatives developed by public and private institutions.

In **Figure 9**, the countries that include in their legal documents, decrees or proposals, some of the aspects to be considered as implementation mechanisms are shown.

Figure 9. Types of implementation mechanisms used in each of the countries



Source: Own elaboration

Energy Efficiency Funds

One of the figures that are repeated in the legal frameworks of some of the countries is the creation of a trust or a specific fund for energy efficiency, which obtains such funds from the State budget, contribution rates for energy sales (one of the mechanisms that allow a higher collection rate), or through the contribution of other market agents (for example, energy sector associations, energy users, energy-consuming equipment and machinery traders, international cooperation funds, among others), for the purpose of financing technical assistance, promoting research and development and financing energy efficiency investment projects.

This scheme is used by seven of the countries studied: Argentina, Colombia, Guatemala, Mexico, Nicaragua, Panama and Uruguay, which are shown in **Table 16** below.

Table 16. Energy Efficiency Funds included in law documents, decrees and bills.

	TYPE	NAME	DESCRIPTION
ARGENTINA	Public Trust	Trust Fund for the Development of Distributed Generation (FODIS)	**ADMINISTRATOR:** Banco de Inversión y Comercio Exterior Sociedad Anónima (BICE) **SOURCE OF FUNDS:** - National Treasury Funds - Funds generated by the fund's own operation - Contributions from multilateral credit organizations **FINANCED ACTIVITIES:** Incentives for investment in energy efficiency projects and measures, bonuses for the acquisition of efficient equipment, production of efficient technology, financing of training activities, dissemination, research, financing of activities developed by CeNEREE, development of sectoral energy studies, energy audits, granting of guarantees to support EE projects, among others. **OBSERVATIONS:** Since the main purpose of FODIS is not directly to finance Energy Efficiency initiatives, a separate trust account will be created from which these initiatives will be financed. FODIS is constituted with an initial contribution from the National Treasury, with annual contributions as required, with the National Government as trustee and the BICE as fiduciary.
COLOMBIA	Public Trust	Unconventional Energy and Efficient Energy Management Fund (FENOGE)	**ADMINISTRATOR:** Trust entity selected by the Ministry of Mines and Energy. **SOURCE OF FUNDS:** - Resources from the Financial Support Fund for the Energization of Non-Interconnected Zones (FAZNI) - Resources of the Nation's General Budget - Multilateral Organizations - International cooperation - Public or Private Entities **FINANCED ACTIVITIES:** Implementation of generation programs with non-conventional sources and energy efficiency projects (purchase of equipment, energy audits, adaptation of facilities, etc.), aimed at the residential sector of strata 1, 2 and 3. **OBSERVATIONS:** FENOGE is one of the main instruments for mobilizing projects related to the reduction of Greenhouse Gases, especially in the mining, energy, transport, industry, services and residential sectors.
GUATEMALA	Public Fund	Energy Efficiency Fund (FODEE)	**ADMINISTRATOR:** National Energy Efficiency Council (CONEE) **SOURCE OF FUNDS:** - One-time contribution from the Government at the beginning of operations, together with contributions made as a percentage of the total amount collected from the Tax on the Distribution of Crude Oil and Petroleum Derived Fuels (IDP). - Contributions from international cooperation. - Contributions of climate funds. - Resources of the Nation's General Budget **FINANCED ACTIVITIES:** Promotion of investment programs and projects, technical assistance, training, dissemination, research and development in the rational and efficient use of energy. **OBSERVATIONS:** Individuals, public and private legal entities can access the funds, as long as they comply with the provisions of the regulations established by the fund's board of directors.

	TIPO	NOMBRE	DESCRIPCIÓN
MEXICO	Public Trust	Fund for the Energy Transition and Sustainable Use of Energy (FOTEASE)	**ADMINISTRATOR:** National Bank of Public Works and Services, National Credit Society, Development Banking Institution, Trust Division (BANOBRAS). **SOURCE OF FUNDS:** - Funds of the Federal Public Administration. - Public and private, national or international resources. **FINANCED ACTIVITIES:** Any type of project or program, as long as it is aligned with the objectives of the National Strategy for Energy Transition and Sustainable Energy Use. **OBSERVATIONS:** The process of obtaining resources through FOTEASE is developed through scheduled sessions where private and public organizations present their proposals including: justifications, use of resources, expected results, beneficiaries, and expected energy and environmental savings. From here, the projects are analyzed by the Fund's Technical Committee, which decides which of these are authorized. The authorized projects are financed through BANOBRAS.
NICARAGUA	Public Fund	Energy Efficiency Fund (FONDEFEER)	**ADMINISTRATOR:** Ministry of Energy and Mines (MEM) **SOURCE OF FUNDS:** - Public funds from the collection of the VAT from the importation of refrigerators, air conditioners and electric motors. - Other sources not specified. **FINANCED ACTIVITIES:** Investment programs or projects, technical assistance, training, dissemination, research, development and other activities related to the rational and efficient use of energy.
PANAMA	Public Fund	Fund for the Rational and Efficient Use of Energy (UREE Fund)	**ADMINISTRATOR:** Trustee not specified. **SOURCE OF FUNDS:** - Extraordinary appropriation from the Ministry of Economy and Finance for the initial constitution of the Fund, as well as subsequent annual budget appropriations to reinforce the capital available to grant financing and cover the possible deficit between operating expenses and income. - Reimbursable and non-reimbursable contributions from bilateral and multilateral financing agencies. - Technical cooperation. **FINANCED ACTIVITIES:** - Finance energy studies and audits. - Grant direct or intermediated credits, as well as guarantees that support credits from other financial institutions, for the execution of Energy Efficiency projects in the sectors of interest established by the SNE. - Support initiatives that promote permanent changes in the structure and behavior of the technologies, products and services market, focused on the development of Energy Efficiency. **OBSERVATIONS:** The Fund includes the creation of a public-private supervision, monitoring and control committee, chaired by the SNE. It also includes the creation of a technical advisory committee, which will be responsible for reviewing and approving the criteria for affiliation of technical consultants or companies that provide consulting services to the Fund's beneficiaries, and for defining the technical requirements and standards that projects financed by the Fund must meet.

	TYPE	NAME	DESCRIPTION
URUGUAY	Public Trust	Uruguayan Energy Savings and Efficiency Trust (FUDAEE)	**ADMINISTRATOR:** National Development Corporation. **SOURCE OF FUNDS:** FUDAEE's contribution and capitalization sources are obtained mainly through a contribution rate on energy sales by energy service providers, contributions from fines established for inefficient and wasteful energy use practices, funds from donations or loans from international organizations or other external sources, items determined by the Executive Branch and funds from differential tax rates on inefficient equipment. **FINANCED ACTIVITIES:** - Research and development in Energy Efficiency. - Energy diagnostics for the public and private sector. - Education, promotion and dissemination campaigns on Energy Efficiency. - Control and monitoring of labelling. - Refurbishment and equipping of national laboratories to ensure testing capacities. **OBSERVATIONS:** By decree, the FUDAEE has a duration of 15 years.

Source: Own elaboration

It is important to note that the funds described in the table above correspond only to those mentioned in the law documents and bills of the countries of the region. However, there are several more examples of this type of mechanism that have already been in operation for several years, and that have yielded excellent results in the countries where they have been implemented.

Savings Certificates

Within the mechanisms for implementing measures, we find savings certificates as a viable alternative to encourage the development of energy efficiency measures that generate energy savings and, at the same time, increase the demand for energy efficiency services and products.

The main strength of this type of mechanism is that the higher the levels of savings achieved, the greater the number of savings certificates obtained, thus providing an incentive to improve the effectiveness of solutions focused on increasing the levels of energy efficiency of both products and services.

Savings certificates can be directed to energy savings, such as GHG savings, varying based on this the savings calculation methodology and the monetary values per unit saved.

In the case of the legal documents analyzed, only Guatemala's bill and Uruguay's law include savings schemes in their provisions.

However, considering that in the case of Guatemala this is a draft document, there is still no regulation that determines the operating mechanism of the CO_2 savings scheme, so it is only mentioned in Article 31 of the bill that: "For projects whose rational and efficient use of energy shows a significant impact on the reduction of greenhouse gas and energy units, as established in the Regulation, CONEE must provide technical support in coordination and taking into consideration what is established by the competent body, for the granting of the certificate of greenhouse gas emission reduction."

On the other hand, in the case of Uruguay, Decree No. 46-016, of 2016, approves the manual for Energy Efficiency Certificates, which specifies all aspects related to the general operation and functioning of the mechanism, of which it is shown a summary below in **Table 17**.

Table 17. Description of the mechanism of Energy Efficiency Certificates of Uruguay

ASPECT	DESCRIPTION
Eligibility of Energy Efficiency projects	All energy users and energy service providers who cumulatively meet the following requirements can access the Energy Efficiency Certificates: • Each measure of efficient energy use must be implemented at least one year before the certificate request. • To have developed for the project an annual performance evaluation by an Energy Savings Certification Agent registered with the MIEM. • To have verified that each measure complies with the Energy Efficiency Condition under the conditions established in each call. • Specific conditions established in each call.
Reference prices for Energy Efficiency Certificates	The reference price of the Energy Efficiency Certificates will be determined for each call, based on the annual funds available and the goal of accumulated avoided energy in the average useful life of the projects.
Value of the Energy Efficiency Certificate	The Energy Efficiency Certificate is quantified in Tons of Oil Equivalent (TOE), and is equivalent to the total of avoided energy units weighted in the life of the project, which 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 avoided energy defined by the Ministry of Industry, Energy and Mining (MIEM) according to the type of project considered.
Requirements for the presentation of projects	• Comply with the corresponding regulations in force, and may be excluded in the event of non-compliance, even after the Certificates have been granted. • Evaluate and endorse by a Certifier registered in the MIEM registry the technical information to be presented, related to the implemented Energy Efficiency measures. • Use the International Measurement and Verification Protocol (IPMVP) of the Efficiency Valuation Organization (EVO) to measure the savings of the projects submitted to the calls for certificates.
Evaluation of projects and issuance of Energy Efficiency Certificates	• After the deadline for the presentation of projects has expired, the MIEM evaluates them and quantifies the Certificates in accordance with the criteria defined in the previous items, in addition to those specific criteria of each call. This may require additional information or inspections to verify implementation. • In order to manage and follow up on the Certificates issued, it is considered to have an updated registry with relevant information (issuance, cancellation, etc.) regarding the Certificates. • In cases where there are no irregularities and the Certificate holder is up to date with the corresponding regulations in force, the MIEM will issue the payment order to the CND, as FUDAEE's fiduciary agent. Payments are made in accordance with the conditions of the call.

ASPECT	DESCRIPTION
Project monitoring and follow-up	• The certificate holder has the obligation to report the savings generated in the period, the continuity of the original conditions of the measures. In the event of any modifications or decommissioning of these, it must be reported immediately, together with a justification. • Any deviation of the savings, in relation to those originally presented, must be justified. • The degree of progress of the measures can be inspected at any time during their lifetime. • In case of irregularities detected in the holder of a Certificate, the MIEM may exclude the holder from future calls for applications, as well as from any other benefit scheme promoted by this Ministry. These measures can last between 1 and 3 years, depending on the seriousness of the infraction, the intentionality and the background of the sanctioned holder. • In order to manage and follow up on the Certificates issued, it is considered to have an updated registry with relevant information (issuance, cancellation, etc.) regarding the Certificates. In cases where there are no irregularities and the Certificate holder is up to date with the corresponding regulations in force, the MIEM will issue the payment order to the CND, as FUDAEE's fiduciary agent. Payments are made in accordance with the conditions of the call.

Source: Own elaboration

Other Instruments to Support Implementation

In addition to the implementation support mechanisms discussed earlier in this chapter, there are other types of instruments, with different approaches, from modalities for marketing efficient equipment to obligations on public and private companies to encourage the use of energy-efficient systems or promote them through their customers.

Of the legal documents of the countries analyzed, six of them (Brazil, Costa Rica, Ecuador, Uruguay, Argentina and the Dominican Republic) contain measures related to this type of instrument. The main characteristics of these mechanisms, included in the legal documents and bills of the countries in question, are shown in **Table 18** below:

Table 18. Other implementation instruments

TYPE OF INSTRUMENT	COUNTRY	DESCRIPTION
Promotion of credit facilities	**Argentina**	**MECHANISM:** Agreement with banking entities to establish specialized credit lines. **RESPONSIBLE BODY:** Not specified. **ACTIVITIES TO PROMOTE ENERGY EFFICIENCY:** Financing of Energy Efficiency projects and measures related to: studies, tests, audits, measurements, certifications, installations, designs, implementations and planning of measures.
	Dominican Republic	**MECHANISM:** Development of soft loans at preferential interest rates through financial intermediation entities. **RESPONSIBLE BODY:** National Energy Commission. **ACTIVITIES TO PROMOTE ENERGY EFFICIENCY:** Investment in technologies, equipment and services that contribute to energy efficiency and the reduction of energy consumption.
Specific financial resources for the implementation of Energy Efficiency measures	**Argentina**	**MECHANISM:** Reinvestment of at least 35% of the energy savings from the implementation of ProdEESP. **RESPONSIBLE BODY:** Executive Branch of the Nation. **ACTIVITIES TO PROMOTE ENERGY EFFICIENCY:** Financing of Energy Efficiency improvements for the National Public Sector.
	Brazil	**MECHANISM:** Allocation of 0.05% of net operating income by energy distributors **RESPONSIBLE BODY:** Energy distribution companies **ACTIVITIES TO PROMOTE ENERGY EFFICIENCY:** Implementation of energy efficiency programs in the final use of energy.
	Costa Rica	**MECHANISM:** Use of 50% of the value obtained by collecting fines by MINEREM **RESPONSIBLE BODY:** MINEREM **ACTIVITIES TO PROMOTE ENERGY EFFICIENCY:** Execution of communication programs or campaigns focused on the rational use of energy.
	Ecuador	**MECHANISM:** Channeling of non-reimbursable allocations from national and international cooperation agencies **RESPONSIBLE BODY:** Energy governing body **ACTIVITIES TO PROMOTE ENERGY EFFICIENCY:** Development of projects in the field of Energy Efficiency.

TYPE OF INSTRUMENT	COUNTRY	DESCRIPTION
Efficient equipment marketing mechanisms	**Uruguay**	**MECHANISM:** Supply of energy efficient consumer equipment for the residential and commercial sector, with payment through the energy bill. **RESPONSIBLE BODY:** Energy service providers. **ACTIVITIES TO PROMOTE ENERGY EFFICIENCY:** Commercialization of energy efficient consumer equipment.

Source: Own elaboration

It is important to emphasize that the mechanisms described in this section correspond only to those mechanisms that are contemplated in the legal documents and bills, which does not mean that they are the only existing mechanisms in each of the countries of the region.

This clarification has special emphasis in the case of efficient equipment supply mechanisms, since there are several successful cases of this type of mechanism in different countries of the region, such as Mexico, for example.

Part 4
Cultural Change

Understanding the influence that the cultural component has on the behavior of societies and individuals is especially important in order to take action so that new energy-efficient measures, goods and services can be adopted by users. For this reason, a change in the culture of consumers is necessary in order to reduce their opposition or resistance to change, promoting measures for the promotion of cultural change (MPCC). Chapter 11 addresses this issue, detailing which MPCCs have been chosen by countries that have an energy efficiency law or bill.

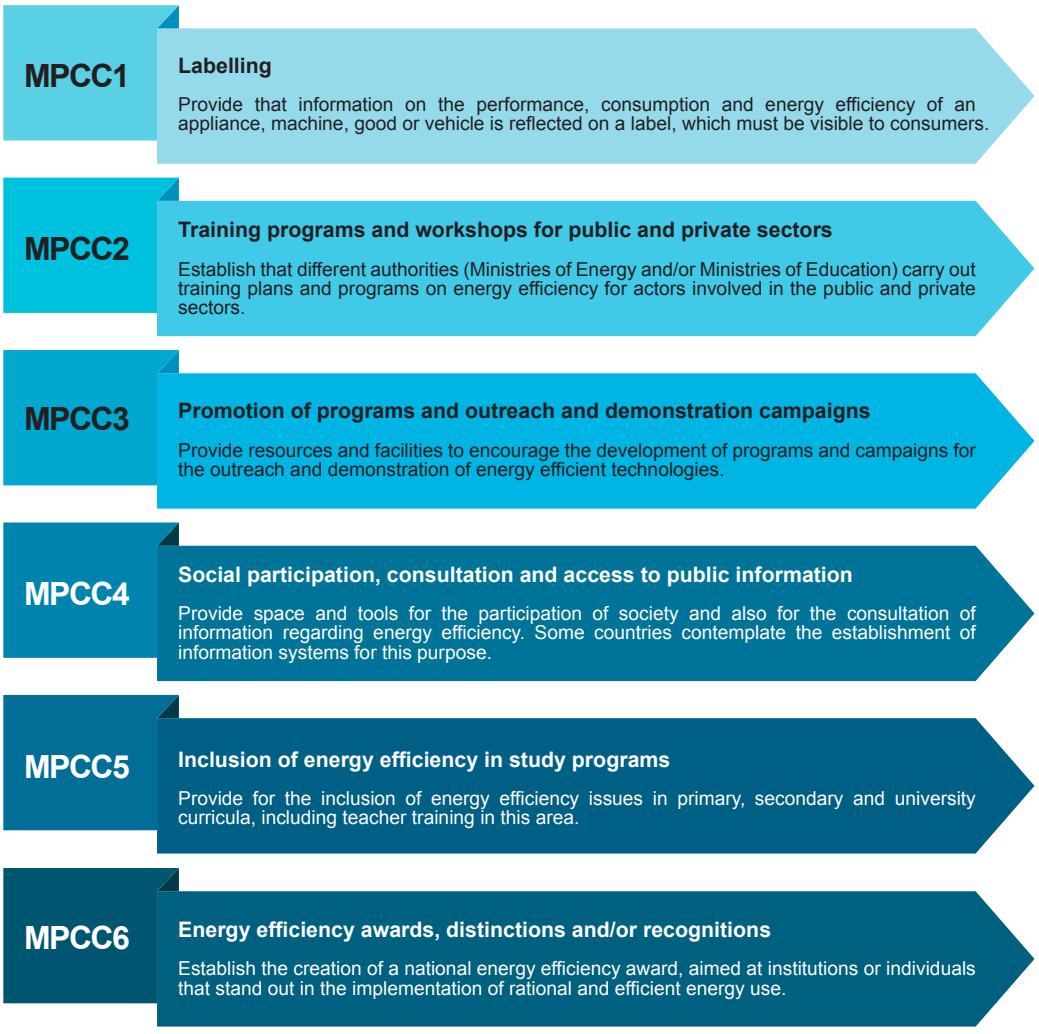
Chapter 11

Promoting Cultural Change

The previous chapters discussed those regulatory instruments that are necessary to promote technological and process transition in order to increase energy efficiency. As was also mentioned previously, a fundamental component is the promotion of a cultural change at the consumer level. Final energy consumers must have all the necessary tools to choose and demand technology and processes that are increasingly efficient in their energy consumption. Measures for the promotion of cultural change (MPCC) focus mainly on the dissemination and availability of information to consumers (including labelling and outreach and demonstration campaigns/programs), training of different stakeholders, creation of spaces for social participation, consultation and access to information, inclusion of energy efficiency in school curricula, and the awarding of energy efficiency prizes and recognitions for the efforts made by different sectoral stakeholders (see Figure 10).

From the legal documents analyzed, it has become evident that there is no greater detail on the different mechanisms and actions described (excluding labelling); most of the laws, bills and regulatory decrees analyzed present similarities in terms of the detail presented and to avoid being repetitive, a summary of the mechanisms is presented in **Figure 10**.

Figure 10. Summary of the main measures used to promote cultural change



Source: Own elaboration

Table 19 shows a summary of the measures contemplated by the different countries and which were presented in the Figure 10.

Tabla 19. Países y medidas para la promoción del cambio cultural

COUNTRY	MPCC1	MPCC2	MPCC3	MPCC4	MPCC5	MPCC6
Argentina	✓	✓	✓		✓	
Brazil	✓			✓		
Chile	✓	✓		✓		
Colombia	✓	✓	✓	✓		✓
Costa Rica	✓		✓	✓	✓	
Cuba					✓	
Ecuador	✓	✓			✓	
Guatemala	✓		✓	✓		✓
Mexico	✓	✓		✓	✓	✓
Nicaragua	✓		✓	✓	✓	✓
Panama	✓		✓	✓		✓
Peru	✓		✓		✓	✓
Dominican Republic	✓		✓	✓	✓	✓
Uruguay	✓	✓	✓		✓	✓
Venezuela			✓		✓	✓

Source: Own elaboration

As can be seen, the main objectives of the measures presented in this chapter are the dissemination of and access to information, training, awareness raising, and the awarding, recognition and/or distinction of demand-side energy efficiency issues. These measures are crucial in order to inform, educate and encourage consumers to adopt consumption patterns that favor energy efficiency - both during the purchase of technologies and in the direct consumption of electricity or other energy sources in their daily lives. Cultural change among consumers can only be stimulated if the conditions are in place to understand the importance of energy efficiency, differentiate between the technology options available on the market, adopt and correct consumption patterns, and understand the potential benefits of adopting this change. In this sense, the analysis carried out allows identifying that, although most of the countries with an energy efficiency law or bill already include some of these measures, no country contemplates all the measures, which would be ideal to have all the possible tools and ensure an effective promotion of cultural change.

Conclusions

Lessons Learned

The premise that energy efficiency is one of the most efficient tools to achieve energy and environmental sustainability is a fact that is increasingly accepted and used by nations worldwide, including the Latin American and Caribbean region. As a result, in many of the countries of our region, different actions related to energy efficiency have been developed, with a greater or lesser degree of success.

The degree of success that some of these measures have achieved is directly linked to the lack of specific regulations that define the minimum levels of energy performance of certain technologies, to the lack of market rules that allow improving the supply of efficient energy consuming equipment, the need to have mechanisms for monitoring the results of the implemented measures, the lack of implementation of measures to promote cultural change, etc.

That said, it is clearly important to have a specific regulatory instrument for energy efficiency to facilitate the sustainability of the actions implemented, as well as to establish mechanisms to overcome the barriers that have hindered the development of energy efficiency in several Latin American and Caribbean countries. This study has made it possible to point out a series of lessons learned that are the result of the review of existing legislation in the countries of the region and that make it possible to take into consideration critical aspects when drafting an energy efficiency law. Said lessons learned are presented below, broken down according to the different chapters of this document.

Institutional Governance Arrangements

The analysis of energy efficiency laws and bills has revealed that, although countries have responsibilities and institutional arrangements for the development of energy efficiency, this is different for each country. Although a clear majority designate energy efficiency responsibilities to the lead ministry for the sector, there are countries where responsibilities are divided among several agencies or even the designated agency is autonomous from the lead ministry. This can influence the capabilities and scope that the agency may have, which translates into the level of adoption and implementation of the necessary measures for the development of energy efficiency in a country.

It is worth noting that several countries have established a committee, council or commission of a consultative nature with the function of advising on energy efficiency. The interesting thing about the latter is that they become spaces for the participation of different sectors of society (industry, commerce, academia, civil society, etc.), where they have the opportunity to analyze, give their opinions and work on key aspects for the development of energy efficiency. This not only nourishes the discussion with diverse criteria and points of view, but also provides the necessary support for decision-making. For this reason, and also due to its nature, this type of body can work together with the entity that has executive responsibility for energy efficiency.

Based on the above, it can be stated that the definition of roles and responsibilities for the design, execution and implementation of energy efficiency actions is a main aspect that must be addressed within the framework of an energy efficiency law. Without an institutional framework in charge of executing and implementing the provisions of the law; of responding to objectives and goals set at the national level; and, of promoting and ensuring compliance with energy efficiency measures, energy efficiency efforts and actions are reduced to individual and reactive initiatives of certain actors and do not solidify as part of a public policy with a real possibility of generating a profound change.

Medium and Long Term Plans

Energy efficiency actions, together with their long-term impact, expected results and required resources, must be supported by a National Energy Efficiency Plan. As presented in this analysis document, not all countries contemplate the development of a National Plan within their energy efficiency laws or bills. Even some of those who address the issue, do so without going into greater detail about what the minimum contents of the plan will be and whether it must have goals or time frames. Providing for these issues in an energy efficiency law establishes a framework of action for the agency in charge of developing the

National Plan, preventing its development and scope from being subject only to the discretion of the current administration. It is worth mentioning that Chile's law and Argentina's bill set minimum numerical targets for the reduction of energy intensity (Chile) and energy consumption (Argentina) that their respective plans must meet. The role of a National Plan is precisely to use prospective models and simulations, analyzing the available resources, the current situation and inputs from the different stakeholders, in order to determine ambitious, real and achievable targets. For this reason, the law must provide sufficient flexibility for these numerical targets to be set during the process of preparing the National Plan. Setting a minimum value to be included in a target may generate difficulties in compliance if these values have not been technically analyzed in relation to the country's realities and possibilities.

Finally, according to the definition proposed in this document, a National Energy Efficiency Plan sets the country's general guidelines for developing energy efficiency, while a National Energy Efficiency Program refers to a set of specific actions with a defined target and objectives. However, some of the countries use the terms National Program and National Plan interchangeably to refer to their general planning documents regarding the development of energy efficiency. This can generate a certain degree of confusion regarding the hierarchy of each document, although, on the other hand, the diversity of approaches in each of the countries makes it difficult to reach a consensus on the accepted terminology to refer to this aspect.

Energy Efficiency Policy and/or Plan Monitoring and Evaluation Mechanisms

It is important to institute that Energy Efficiency Policies and Plans must be elaborated with the inclusion of a monitoring and evaluation mechanism for their objectives, targets and actions. Most of the countries with an energy efficiency law do not contemplate these mechanisms.

Without this mechanism, there would be no basis for verifying that the targets and objectives have been achieved, which weakens the execution and implementation of these instruments and constitutes a barrier to transparency and public accountability and does not allow for measuring the impact of the actions carried out.

Although an energy efficiency law should contemplate the minimum provisions for monitoring and evaluation of the policy or plan, such as the entity responsible for monitoring and evaluation or its periodicity, sufficient flexibility should be provided so that the responsible entities can define the system's guidelines and adjust them to the types of planning and policy instruments to be evaluated and monitored.

Mechanisms to Promote the Technological and Process Transition

This study has made it possible to analyze the different mechanisms that countries use, within the framework of their energy efficiency law or bill, for a technological and process transition. First, there is the mechanism to promote energy efficiency in government procurement and contracting. Considering the importance of the state in local economies, the inclusion of specific provisions related to state procurement processes in energy efficiency laws and decrees is one of the fundamental facilitators for the development of energy efficiency markets, especially in the early stages of the introduction of new technologies. Despite this, only six countries in the region contemplate this mechanism at the level of law or bill.

Labelling is a very important aspect that, as could be seen in this study, is included in most countries that have an energy efficiency law or bill. As this is a process that involves coordination with various sectors and significant changes in the chain of production and marketing of goods and technology that consume energy, it is important that it is supported by a law so that all these changes can be implemented and also so that the process is not subject to the provisions of the administration in office. Additionally, it should be noted that, although the issue of MEPS should be included in a general law, it has been shown that the laws and bills provide sufficient flexibility for the Executive Branch to establish them and provide for their updating in accordance with technological and market advances by means of resolutions or ministerial decrees.

Regarding the categorization and identification of those energy users who are obliged to report their energy consumption, it was confirmed that this is a very important component to be able to design and adopt energy efficiency policies aimed at those large consumers who can and should take actions to reduce their energy consumption and intensity in the different processes they carry out. However, of the laws and bills analyzed, only six countries in the region have contemplated this mechanism within their energy efficiency law or bill. In other words, by not having this type of mechanism, the countries do not have a basis to be able to identify and determine the obligations of large energy consumers. The energy efficiency of

production processes not only has the potential to reduce energy consumption and generate savings, but it is also a factor that can contribute to the development of an economy of scale in the country's industries.

Regarding the obligations of large energy consumers, the implementation of an EMS is the most recurrent of the laws and bills of the countries that contemplate such obligations. The importance of an EMS lies in the continuous improvement of energy-consuming processes. By having large energy consumers implement them, it ensures that in the future their energy consumption decreases, and that they have a constant review and improvement of their processes. However, despite their importance, EMS have not yet been made mandatory within the framework of an energy efficiency law by most of the countries in the region.

Sectoral Policies

Sectoral policies have the advantage of allowing the definition of specific regulations for the development of energy efficiency actions in specific areas where the greatest potential for improvement in energy performance is identified, or in areas where implementation can be more easily achieved.

Thus, the public, the transport and building sectors have been identified as the ones that most countries emphasize in their legal documents.

In the case of the public sector, a greater feasibility of implementing measures is identified, and at the same time, considering the importance of this sector as a market generator, it is a highly recommendable alternative to improve the visibility of the measures implemented and to facilitate the development of technologies, especially in the early stages of implementation.

The transport sector is one of the main energy consuming sectors in most of the countries of the region, therefore, the potential for improving energy performance has the same potential. However, due to the political complexity related to the transport unions, the implementation of measures is not always easy to achieve.

As for the building sector, like the transportation sector, due to its importance as a consumption sector (especially in areas with extreme climates), high potentials for improving energy efficiency levels have been identified, and in this case measures can be defined that are perhaps more feasible to implement, although joint work with producers, importers, distributors and local standardization and normalization entities is required.

In short, the definition of aspects focused on specific sectors has the convenience that they can be established according to the reality of each one of them and with the objective of overcoming specific barriers. Although, on the other hand, the specific provisions for certain sectors may indirectly affect consumers, due to the increased operating costs derived from the initial investment requirements in some specific cases.

Certification Mechanisms

The effectiveness of energy efficiency measures depends on each of its components. That is, the design of the measurements, the materials and equipment used, the use given to these elements, and finally, the quantification of the results achieved.

It is in this aspect where the importance of having systems that allow standardizing the measures to be implemented, the design and implementation procedures for energy efficiency actions, the energy performance of equipment and materials, and the processes for quantifying energy cost savings lies. However, once standards are in place for each of these parts, it is necessary to have compliance certifications, so that it is possible to verify that each of the stages meet the expectations, and, therefore, the expected outcomes.

An analysis of the legal documents of the countries in the region shows that many of them have provisions related to the certification of companies and individuals engaged in energy performance audits and the implementation of energy efficiency measures. This shows the degree of progress in energy efficiency in the region, as it is a clear indication of the intentions to develop specialized energy services markets.

Few cases were observed where specific provisions related to labelling schemes were cited in the legal documents analyzed, despite the fact that they have proven to be a highly successful measure for improving energy performance levels in the countries where they have been implemented. However, this does not mean that countries that do not include provisions related to this issue do not see it as a relevant aspect, but rather that in many cases they are programs that have already been working prior to the development of the law documents, and therefore have well-defined structures and do not need to be included in these documents.

One point that draws attention is the absence of specific provisions regarding the certification of savings generated, which is included in only one of the documents analyzed. This aspect would seem to be one of the main incentives to generate ever greater results in terms of improving energy performance levels, especially if it is accompanied by complementary measures that allow access to specialized credit lines or tax incentives, for example.

This absence of the savings certifications can give rise to various interpretations. On the one hand, it may show an early stage in the implementation of energy efficiency actions in the countries, which shows a greater interest in the development of activities to improve energy performance levels than in the evaluation, and, on the other hand, it may show the little attention given to the quantification of savings generated as a complement to the implementation of energy efficiency actions.

Control Mechanisms

Like certification mechanisms, control mechanisms are equally important in terms of guaranteeing the effectiveness of the measures implemented, and within these mechanisms, the entities in charge of control have a special role to play.

With regard to the control agencies, it is important that they be independent specialized agencies, so as to ensure transparency and the necessary technical expertise to monitor compliance with the relevant standards, the implementation of measures, the quantification of the results achieved, etc., without conflicts of interest.

From what can be observed in the analysis, most of the countries entrust the control tasks to the agencies in charge of implementation, which can yield the expected results, provided that there are transparent and traceable control mechanisms, or that there are external control entities that audit the control procedures used and the results reported.

Sanctions

Although the design of policies and laws focused on the development of energy efficiency is not carried out with the purpose of sanctioning, but rather as an action to encourage and provide the conditions for this to occur voluntarily, it is necessary to have a sanctioning regime, at least in the most relevant aspects that have the greatest impact on energy consumption, such as compliance with minimum energy performance standards for energy consuming equipment and appliances. In this regard, an analysis of the countries' legal documents shows that compliance with energy performance standards and the provisions of the labelling systems is precisely the aspect that receives the most attention in relation to sanctions.

However, another important point to consider in the design of these sanctioning schemes, which is not found in all the documents analyzed, has to do with the recommendation to define concisely which actions are subject to sanctions, which sanctions are related to them and which are the bodies in charge of applying them. In this regard, the definition of sanctioned actions will depend directly on the energy priorities of each government, but as long as there is a clear definition of the mechanism for applying sanctions, they can be effectively applied.

Tax Exemptions and Subsidies

An energy efficiency law also creates the conditions for new technologies to break into a market dominated by technologies that have had sufficient time and demand to mature. It is important to consider that, at the level of production and marketing costs, mature technologies have a clear advantage and superiority over new technologies. It is for this reason that tax reductions and subsidies become important instruments to allow new technologies to enter the market and have the opportunity to be competitive; however, the study found that few energy efficiency laws and bills include these instruments. Of those countries that include this type of instrument, most have tax reductions.

Implementation Mechanisms and their Functioning

Implementation mechanisms are perhaps the main instrument for the promotion and development of energy efficiency in the countries, since they facilitate the user with access to specialized technologies and services, thus achieving the development of specific energy efficiency markets.

In this regard, among the implementation mechanisms, the creation of specific energy efficiency funds is the scheme that has been most tested in several of the region's countries and has achieved the best results, which is why it is the one most often mentioned in energy efficiency law documents. This has the advantage that, in countries that are still in the implementation stage, they will have at their disposal several cases that serve as examples and that can be studied to achieve the development and operation of their own fund in an optimal manner.

In addition to efficiency funds, there are other mechanisms that encourage the implementation of specific energy efficiency measures that have a high potential for generating improvements in energy performance, for example, mechanisms related to the issuance of savings certificates, which, despite not having the same level of introduction in the countries of the region, also have a high potential for generating significant results in terms of energy use in the countries. However, its design and implementation would have to be carried out more cautiously, due to the few experiences available at the regional level.

Promoting Cultural Change

The promotion of cultural change is a fundamental pillar for the advancement of energy efficiency as it focuses on changing consumption patterns (both technology and energy-consuming services) on the demand side.

Recurring measures that countries adopt have been identified among the documents analyzed. These measures, as presented earlier, are crucial in order to inform, educate and encourage consumers to adopt consumption patterns that favor energy efficiency - both during the purchase of technologies and in the direct consumption of electricity or other energy sources in their daily lives.

Cultural change among consumers can only be stimulated if the conditions are in place to understand the importance of energy efficiency, differentiate between the technology options available on the market, adopt and correct consumption patterns, and understand the potential benefits of adopting this change. In this sense, the analysis carried out allows identifying that, although most of the countries with an energy efficiency law or bill already include some of these measures, no country contemplates all the measures, which would be ideal to have all the possible tools and ensure an effective promotion of cultural change.

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