

Developing a thorough regional monitoring in Latin America

Energy efficiency, as a cost-effective and scalable solution, is seen as a key strategy for addressing climate change targets, including reducing Greenhouse Gases emissions. In Latin America, energy efficiency has not been a priority for most countries because of large resources in renewables (hydro, geothermal in Central America, as well as wind and solar) and in hydrocarbons for some countries. However, this situation is changing rapidly. Indeed, a specific project was launched by the Economic Commission for Latin America and the Caribbean (ECLAC) and the French Agency for Ecological Transition (ADEME) ten years ago to monitor energy efficiency trends in Latin American countries.

This article aims at tracking this inflexion and at monitoring the reinforcement of energy efficiency measures. It will also highlight the specificities of the measures implemented in the region. It relies on an energy efficiency policy database and a report developed in the framework of the BIEE¹ project.

The BIEE project

Good information is crucial to define and evaluate energy efficiency policies. This has been recognised ten years ago by ECLAC and ADEME, who initiated the BIEE project on energy efficiency indicators, with the objective of monitoring energy efficiency trends in Latin American countries. Enerdata has been associated to the project from the beginning to provide the technical support to the project. BIEE is presently in its third phase (2020-2023), in which it was extended to the monitoring of policy measures and to renewables and energy access. This phase was supported by the Euroclima programme of the European Commission, through AFD, Agence Française de Développement.

To organise and disseminate all the information gathered, BIEE relies on four comprehensive databases and tools² covering 16 Latin American countries aimed at describing and monitoring the impact of policies implemented:

¹ Base de Información de Eficiencia Energética

² All these data bases and tools are publicly available in Spanish and English at <https://biee-cepal.enerdata.net/en/>

- a database on indicators, called “data mapper” and including 100 indicators related to energy efficiency, renewables and energy access;
- a “policy database”, compiling policy measures, mainly linked to energy efficiency;
- a web tool, displaying on a map the degree of implementation of the main measures by country (“policy mapper”)
- a “policy impact tracker” showing how the measures have impacted the energy consumption by sector or end-use.

BIEE policy database: 250 active measures across 16 countries

The BIEE policy database compiles all policy measures in 16 Latin American³ countries related to energy efficiency, energy access and end-use renewables. The information has been first collected in 2021 by national representatives of each of these countries and updated in the third quarter 2022. The database contains presently almost 300 measures, of which around 250 are active, the others are either ended or proposed.

Policy measures can be queried in English or Spanish⁴ by keywords (e.g. “energy poverty”, “LED”), by sector or by type (e.g. mandatory information, regulation, financial (e.g. subsidies, soft loans), fiscal). Additional filters can be used for a more refined query:

- By measure subtype: e.g. for regulation, Minimum Energy Performance Standards (MEPS), obligation for large consumers (e.g. mandatory audits).
- By end-use or type of appliance.

The measures are input by national teams, who have to characterise the measures by selecting keywords, a sector, a type and a subtype and an end-use. They also have to add a description of the measure and document its impact (if an evaluation has been made). Enerdata acts as a coordinator to check the accuracy of the classification of measures to ensure homogeneity and interacts for correction with national teams if necessary.

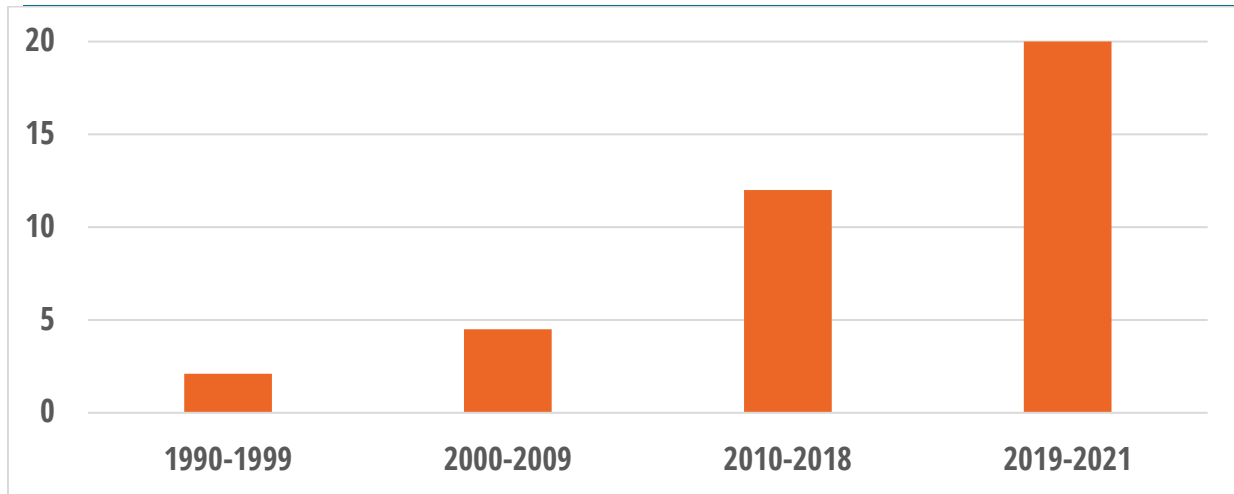
The strongest impact: household measures

There is clearly an intensification of the implementation of energy efficiency measures since 2010 in Latin America, as shown in Figure 1: 12 new measures per year over 2010-2018 and 24 per year since 2019, compared to 4 per year over 2000-2009. Around 70% of the measures have been introduced since 2010 and 30% since 2019.

³ Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay.

⁴ English English: <https://biee-cepal.enerdata.net/en/measures> ; Spanish: <https://biee-cepal.enerdata.net/es/medidas>

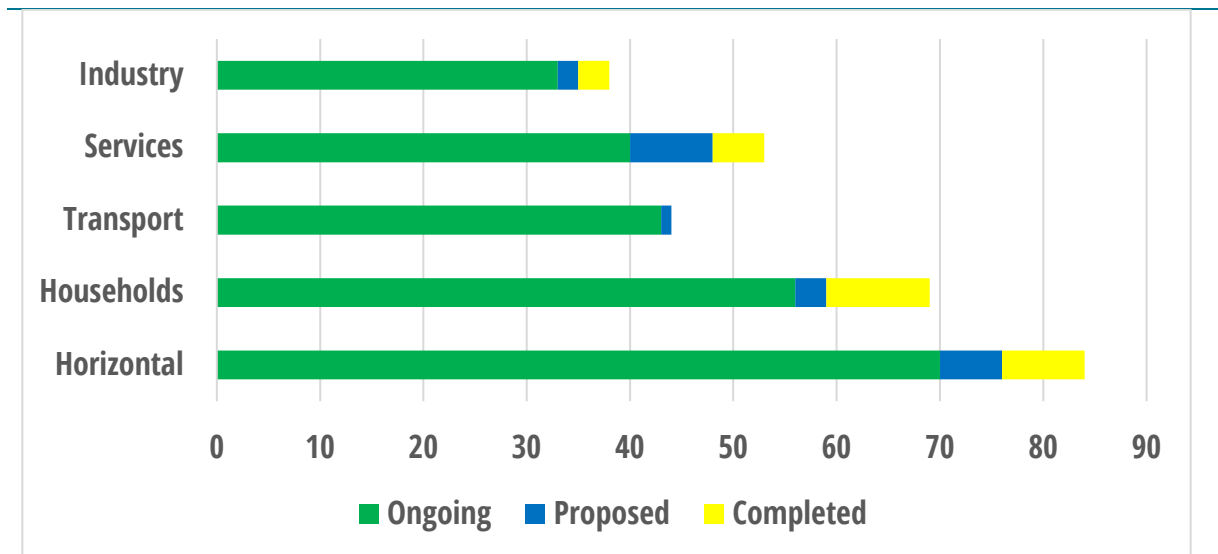
Figure 1: Number of New Energy Efficiency Measures in Latin America per year



Source: BIEE Policy Data Base

Around 30% of measures are horizontal (i.e. not sector specific), which is logical, as it is the necessary backbone of sectoral measures. If we exclude horizontal measures, households is the dominant sector, as it concentrates 33% of all sectoral measures, followed by transport (25%), services (23%) and industry (19%). Measures on end-use renewables⁵ and energy access are limited (~15% and 5%). Buildings (households and services) attract 55% of all measures, a share twice more important than their participation in the final energy demand.

Figure 2: Number of measures by sector in Latin America

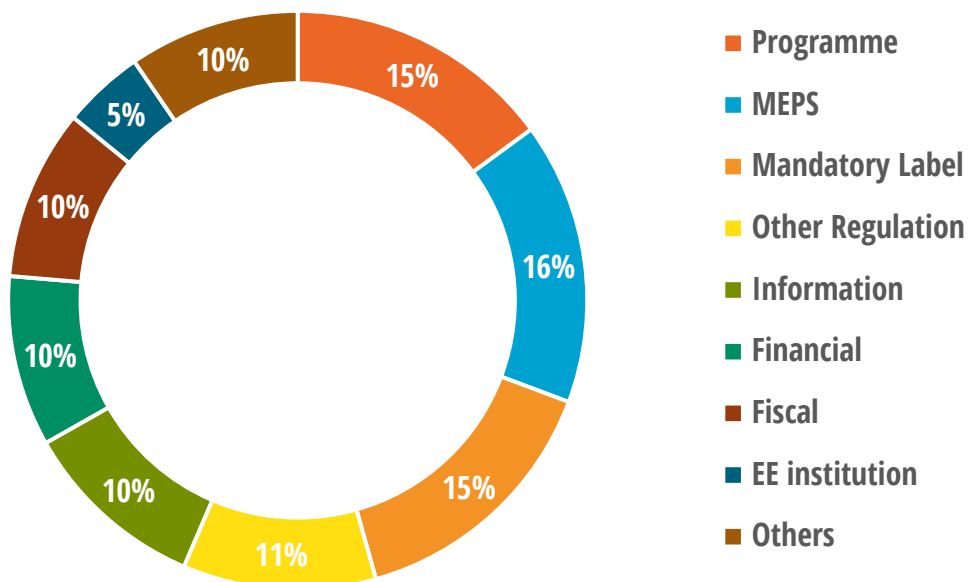


Source: BIEE Policy Data Base

⁵ Measures to promote power generation with renewables are not included in the database.

Considering the size and continuous growth of household appliances market in LACs, equipment efficiency is a very significant aspect of energy efficiency strategies. Governments in LACs have widely used regulations for that purpose, by establishing Minimum Energy Performance Standards (MEPS) (16% of all measures) and energy efficiency labels for electrical appliances (15%) to eliminate the inefficient products from the markets. Around 15% of measures correspond to programmes (i.e. action plans, combining different measures) and 11% to other regulations (mainly energy efficiency laws). Only half of countries have implemented financial or fiscal measures (10% of measures) and Uruguay is the country with the largest number of financial measures (40% of the total). Financial measures are mainly used in services to subsidise efficient public lighting. In two countries, a discount on the electricity bill is awarded to large industrial consumers that invest in energy efficiency (Argentina and Costa Rica).

Figure 3: Number of measures by type in Latin America



Source: BIEE Policy Data Base

Horizontal measures: the backbone of energy efficiency policies

Horizontal measures apply to all measures that cover several sectors at the same time. Around two thirds of them are energy efficiency laws and programmes (one third each). Most LACs have an energy efficiency law (10 out of 16) and a national energy efficiency plan (or programme), but only seven with quantitative targets. Only two countries have a national energy efficiency agency (Mexico and Chile) whereas it is the general rule in most European countries. Finally, five countries have a Ministry department, a coordination body or another institution dedicated to energy efficiency.

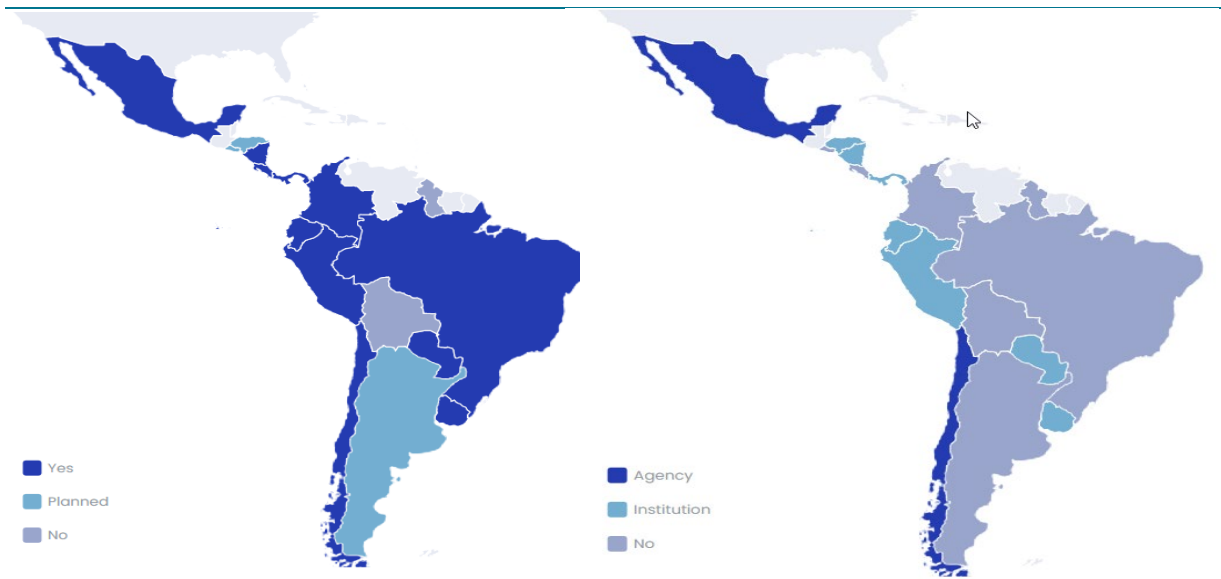
Other horizontal measures are more diversified among countries. Among them, two measures can be considered as good practice and could be replicated: Energy efficiency certificates in Uruguay and energy saving obligation for utilities in Brazil.

Energy efficiency certificates in Uruguay are given by the Ministry of Industry, Energy and Mines to subsidise energy efficiency investments in a competitive way. Every year, the Ministry opens a call for projects which may receive funds based on the amount of energy saved over the lifetime of the project, that need to be certified. The reference price of the certificate is determined each year by the Ministry, based on the funds available in FUDAEE, the national energy efficiency fund⁶, and the energy saving target for that year.

In Brazil, the government launched in 2000 the PEE programme in which electric utilities have the obligation to invest 0.5% of their revenues in energy efficiency support to households ; between 2008 and 2012, most projects targeted low-income households.

No country has implemented taxes linked to energy efficiency (energy tax, CO2 tax) that have been introduced in some OECD countries, as they are generally unpopular if not well dimensioned (i.e. without redistribution effect).

Figure 4: Energy efficiency laws and institutions in Latin America



Source: [BIEE Policy MAPPER](#)

⁶ FUDAEE is mainly financed by an annual contribution of 0.13% of energy supply companies' sales.

Focus on the most effective measures by sector

Buildings

Around 70% of countries have energy efficiency labels for households appliances that are generally mandatory. These labels are mostly comparative with two types: a classification by efficiency class with letters (A, B, C, etc.), which is generally the case and is similar to EU labels (e.g. Chile), or labels that display the consumption of the appliance and compare it with the standard (e.g. Mexico). Endorsement labels, that qualify appliances to be efficient, are also used in Mexico and Brazil as complement to comparative labels (e.g. Procel selo in Brazil). Figure 5 shows some examples of labels.

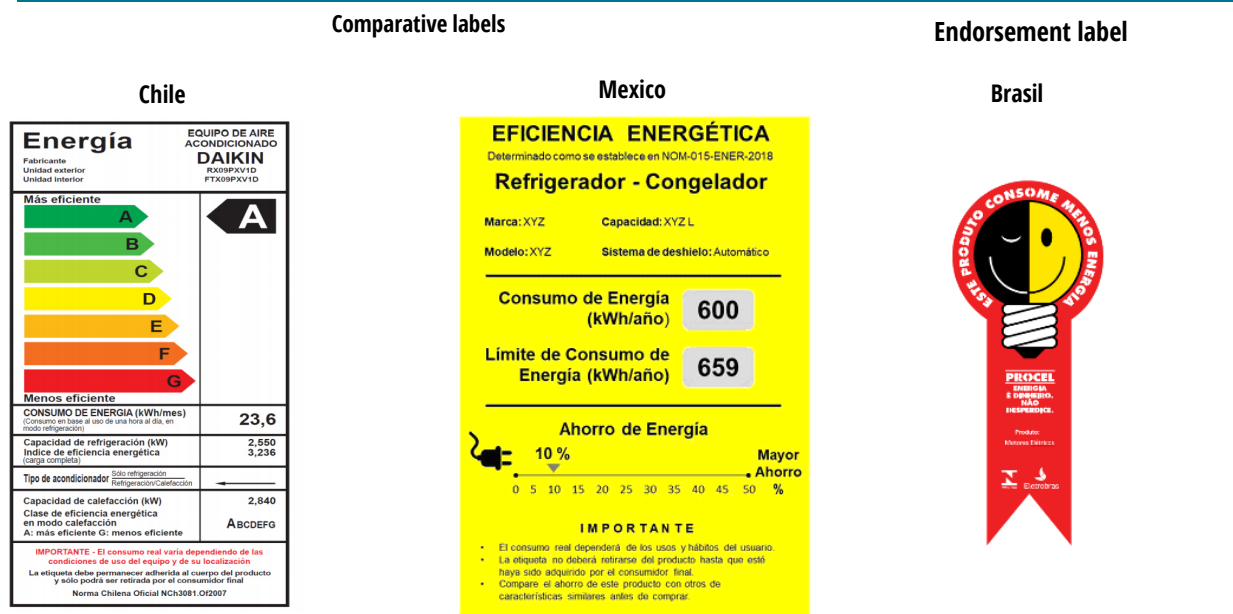
Most countries also have MEPS. Early implementers of MEPS have tightened several times their standards, leading to savings of around 15-20% each time, for refrigerators (3 times in Brazil and Mexico) and AC (4 times in Brazil and 3 in Mexico).

Around 75% of LACs have implemented a phase-out of incandescent lights.

Few countries have subsidies: three countries for efficient lamps, three for solar heaters and two for fuel switching for cooking.

Mandatory energy consumption reporting exists in two countries in services.

Figure 5: Examples of Energy efficiency labels in Latin America



Source: BIEE Policy Data Base

Transport

Around 60% of measures support the electrification of transport modes in eight countries (of which seven new measures added in 2021/22). Four countries have a national electrification plan for transport.

Car labelling exists in five countries (Argentina, Brazil, Chile, Ecuador, Uruguay) and MEPS for cars and light vehicles in two countries (Mexico, Chile).

Industry

The most frequent measures are standards for electric motors (6 countries), followed by energy efficiency labels for electric motors (4 countries).

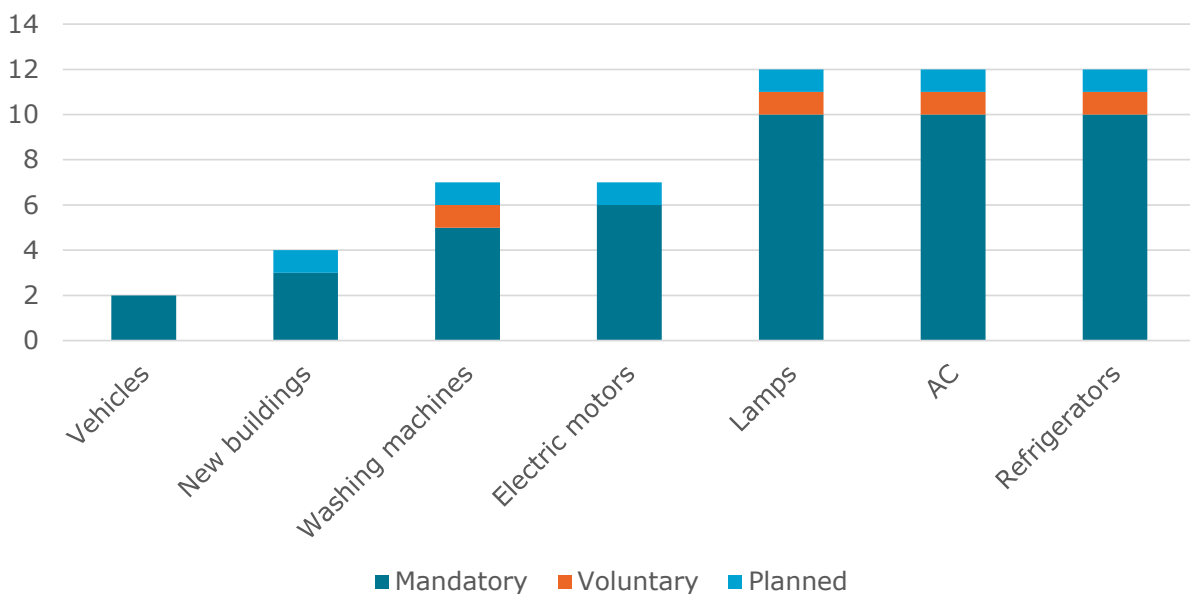
Three countries have mandatory requirement for large consumers (energy consumption reporting in Mexico, energy saving plans in Costa Rica and energy management in Chile since 2022).

Financial and fiscal measures exist in two countries and have ended in three others.

Labelling and MEPS are the most implemented measures

A majority of countries (11) have implemented MEPS on refrigerators, AC and lamps (Figure 6). Electric motors and washing machines have MEPS in 40% of countries. Efficiency standards on new buildings are implemented in four countries. MEPS for light vehicles exist in two countries. MEPS are often based on energy efficiency labels: the lowest efficiency class is used to set the level of the MEPS.

Figure 6: Number of countries with efficiency standards in LACs (2021)



Source: [BIEE Policy Data Base](#)

KEY TAKEAWAYS

- The implementation of energy efficiency measures in LACs has intensified since 2010, with almost ¾ of all measures implemented since then.
- Most countries have an energy efficiency law and an energy efficiency programme, with however quantitative targets in only half of them.
- Countries commitment differed among countries, which is often related to the institutional and legal framework.
- Around one third of all sectoral measures address the residential sector.
- Around three quarters of LACs have energy efficiency labels and MEPS for households' appliances, with up to ten equipment concerned in five countries.
- Other good practices include energy efficiency labels for electric motors (6 countries) and cars and light vehicles (5 countries), as well as the creation of a national energy efficiency agency (2 countries) or a package of measures on electrification of transport (8 countries).
- Only a few countries have a real monitoring of the impact of their policy measures, mainly Brazil, Mexico and Uruguay. This monitoring can be done measure by measure or restricted to the main measures (bottom-up estimation) or through an analysis of trends in energy demand related indicators, i.e. energy efficiency indicators (top-down evaluation).

Further knowledge

Find out about our energy efficiency expertise (data platform, bespoke solutions, training, studies) on [our website](#).

ABOUT THE AUTHORS

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Bruno is a Scientific Advisor at Enerdata. He has a recognised expertise in energy consumption and energy efficiency assessment. He has supervised the development of energy efficiency monitoring system in many countries: EU countries (ODYSSEE project), in Latin America, Algeria, Brazil, India, Mexico, Thailand and Tunisia. He has coordinated several reports of the World Energy Council (WEC) and ADEME on the benchmarking of energy efficiency policies at world level, and helped several institutions to identify energy efficiency policy measures. He was also involved in many studies and missions related to energy planning and demand forecasting, for international institutions, energy companies and government in more than 70 countries in the world in Latin America, Asia and North Africa.

He holds a PhD in Energy Economics and graduated from the “Institut National Polytechnique de Grenoble” and was co-founder of Enerdata.

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