

How Can the Private Sector Promote Energy Efficiency?

A Review of Lessons Learned and Evidence from Latin America and the Caribbean

- Energy efficiency plays a critical role in sustainable development; however Latin America and the Caribbean (LAC) is not on track to reach its energy efficiency goals.
- Data from the region suggests a positive relationship between firm productivity and energy efficiency.
- Firm energy efficiency varies by country and sector, and firms with a history of innovation are 20% more likely to be energy efficient than their non-innovative peers.
- Financial institutions can play a key role in promoting energy efficiency among firms by providing access to credit and information about the benefits of green technologies.
- Non-price interventions such as information campaigns and energy audits have proved to be effective in promoting energy efficiency uptake.

SUSTAINABLE DEVELOPMENT GOALS

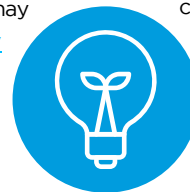
7 AFFORDABLE AND CLEAN ENERGY



ENERGY EFFICIENCY IN LAC

Energy consumption is the main contributor to climate change, accounting for 60% of greenhouse gases.¹ As Latin America and the Caribbean (LAC) recovers from the COVID-19 pandemic, growth will likely be accompanied by increasing energy demand. Therefore, promoting greater energy efficiency (i.e., the rate of output per unit of energy consumed²) through the private sector is critical to drive sustainable growth. Yet LAC is not on track to meet the UN Sustainable Development Goal to double the rate of improvement in energy efficiency by 2030.³

Promoting greater energy efficiency in the region requires understanding how firms make decisions about investing in energy efficient technologies, as well as the market and behavioral complexities that may influence them. An [IDB Invest study](#) analyzes the main drivers and barriers to energy efficiency uptake among firms and describes the energy efficiency landscape in LAC using data from over 6,000 firms across 19 countries.⁴ It also provides a review of the effectiveness of different energy efficiency interventions based on the existing evidence to guide future approaches.



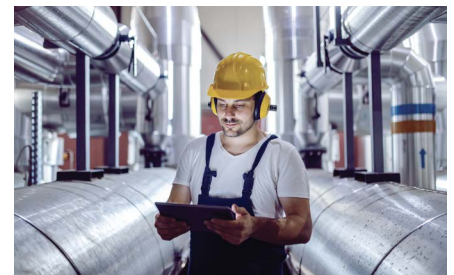
MAIN RESULTS

Energy Efficiency & Productivity

The LAC region is characterized by both high energy consumption and low productivity. If firms become more energy efficient, do productivity gains follow? Broadly speaking, the evidence points to a positive link between energy efficiency and productivity.⁵ The results of our study confirm this positive correlation using firm-level survey data for LAC: a 1% increase in productivity is associated with a 0.4% increase in energy efficiency. Therefore, energy efficiency can be a potential win-win, as using energy more efficiently can contribute to firm competitiveness and sustainability.

Sectors & Firm Characteristics

To determine where interventions targeting energy efficiency may have the most im-



port, the study explores variations in firm energy intensity (the more energy intensive a firm is, the less efficient it is). We find that the three most energy efficient sectors in the region are Construction, Electronics, and Information Technology, and the three least efficient are Textiles & Garments, Plastics & Rubbers, and Hotels & Restaurants. Strategic intervention in high energy use sectors, such as tourism and manufacturing, could help the region meet its energy intensity reduction goals.

In addition, we find that small and medium-sized firms (SMEs)⁶ are approximately 19% less energy efficient than large firms. However, large firms are still responsible for the lion's share (77%) of energy consumption among companies. Interestingly, our results suggest that the energy efficiency gap between credit constrained and non-credit constrained large firms is greater than the same gap among SMEs. Therefore, increasing credit access for large firms with energy efficiency goals could bring the largest gains. Finally, innovative firms are

1. United Nations (2020). [Sustainable Development Goals: Energy](#).
2. This is the inverse of another concept: energy intensity – the energy consumed to produce a unit of output. See [Montalbano, P. and Nenci, S. \(2019\)](#).
3. This corresponds to SDG 7 and Target 7.3. [International Energy Agency \(2019\)](#).
4. Source: World Bank Enterprise Surveys and the IDB/Compete Caribbean Productivity and Innovation Surveys.
5. Ibid; IDB (2021). [Productivity and Energy Intensity in Latin America](#); and Kalantzis, F. and Niczyporuk, H. (2022). [Labour productivity improvements from energy efficiency investments: The experience of European firms](#).
6. SMEs are defined as firms with fewer than 100 employees.

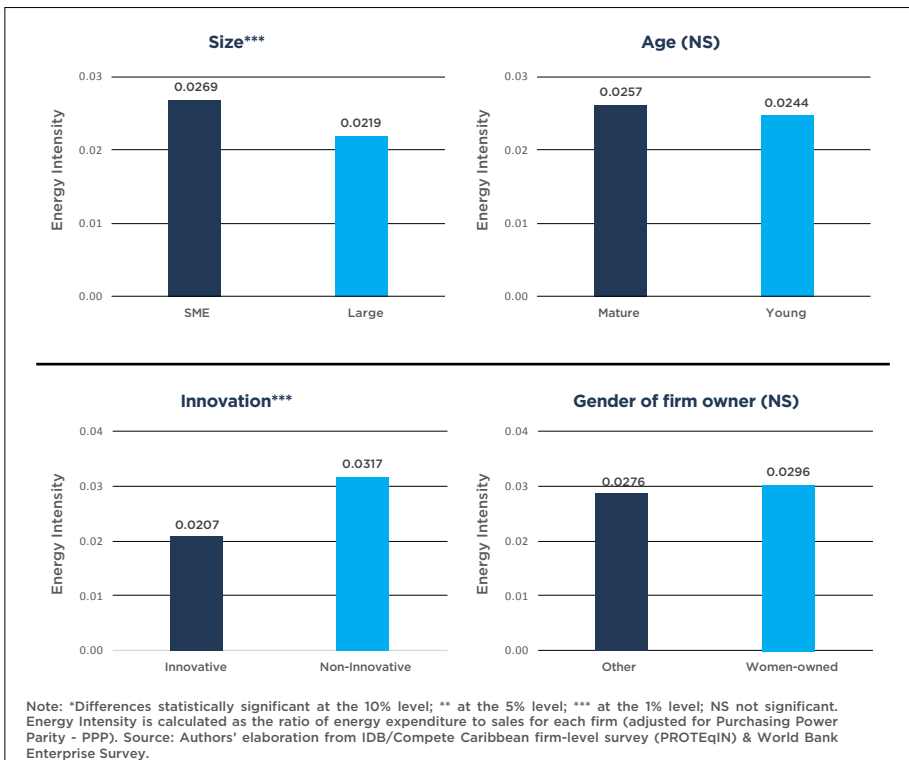
20% more likely to be energy efficient than non-innovative ones, and the gender of firm owners does not seem to play a significant role in energy efficiency levels.

INTERVENTIONS TO PROMOTE ENERGY EFFICIENCY

Historically, pricing interventions (taxes/subsidies) have been among the most widely-used and studied strategies to promote energy efficiency. At the same time, non-price interventions, such as informa-

improvements, messaging can include information on potential cost savings, social comparisons of a user's energy consumption relative to peers, and the environmental and health benefits of lower use of combustible fuels. Moreover, data suggests that combining messaging on both the financial and social benefits of increasing energy efficiency has an even greater effect on uptake. This has implications for organizations that are in a position to promote energy efficiency among firms such as utility compa-

Figure 1: Energy Intensity by Firm Characteristics



tion campaigns that draw on behavioral science and energy audits, have been gaining ground. The benefit of non-price interventions is that they do not rely heavily (if at all) on the actions of utility companies or public agencies responsible for administering energy policy.

Information Campaigns

Evidence has shown the importance of information campaigns in promoting energy efficiency. And designing effective communication campaigns rooted in behavioral insights may be key on this front. For example, to prompt energy efficiency



nies and financial institutions. For example, as banks in the region seek to promote the uptake of green lending lines among SMEs, coupling messaging about the benefits of energy efficiency for firms alongside information about the financial product could nudge more companies to get green credit and adopt these technologies.

Energy Audits

In some cases, messaging and pricing alone cannot convince a firm to pursue more energy efficient investments, but rather decision-makers need tailored information. This is where energy audits come into play. An energy audit is a comprehensive evaluation of a firm's historical, current, and future energy needs that recommends where the company should invest to improve energy use. A meta-analysis of 156 energy efficiency interventions over 27 years found that, on average, firms that followed through



with recommendations after energy audits had the largest improvements compared to other types of interventions in energy use reduction, technology adoption, or a combination of both.⁷ The average effect of an energy audit was a 13.5% savings in energy costs. Evidence suggests that firms are three times more likely to follow through with recommendations if information is easy to access and interact with.⁸ Subsidi- zation of audits can also improve uptake.⁹

CONCLUSION

Energy efficiency is a cornerstone of sustainable development for the private sector. Not only does the pursuit of an energy efficiency agenda reduce the emissions produced by firms, but the evidence suggests it can have positive impacts on firm sustainability and productivity. As the LAC region embarks on a path of sustainable growth post-pandemic, energy efficiency is one way for the private sector to rethink how it operates and contribute to environmental sustainability, while also creating firm-level benefits.

Development finance institutions can help accelerate this transition by continuing to support access to green credit and other strategies to promote adoption of green technologies. ■

Additional Information

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The views expressed here are those of the authors and do not necessarily reflect the views of the IDB Group, its respective Boards of Directors, or the countries they represent.

7. Delmas, M.A., et al. (2013). [Information strategies and energy conservation behavior: A meta-analysis of experimental studies from 1975 to 2012](#).
8. Rosenkranz et al. (2017). [Using behavioral insights to make firms more energy efficient: A field experiment on the effects of improved communication](#).
9. Brutscher & Ravillard (2019). [Promoting energy audits: Results from an experiment](#).