

ENERGY SAFETY NETS

MEXICO CASE STUDY

POLICY BRIEF

KEY FINDINGS

- Access to modern energy in Mexico is unequal between different regions and socioeconomic groups. States with greater rates of poverty have lower rates of access to electricity and clean cooking technologies. The poorest decile spends roughly 6 percent of their total income on energy as compared to 4 percent for the richest decile.
- The concept of Energy Safety Nets (ESNs) is not well understood and suffers from immediate association with Mexico's negative experiences with general energy subsidies.
- The design of electricity tariffs in a way that benefits lower-usage households is the most important ESN in Mexico today. Although the tariffs provide support for many poor and vulnerable households, their universal availability means they are perceived as an inefficient mechanism for specifically directing assistance to the poor.
- Mexico has experimented with ESNs that leverage the targeting mechanisms of broader social safety nets. However, these programs have been relatively short-lived, with no impact evaluations carried out.

RECOMMENDATIONS FOR POLICYMAKERS

- Electricity tariff subsidies should be targeted at poor households. This could be achieved by revising the threshold level for DAC tariffs or determining eligibility for subsidized tariffs using the social assistance register.
- The scope of the Fund for Universal Electricity Service (*Fondo de Servicio Universal Eléctrico* (FSUE)) should be widened to support access to clean cooking technologies for the poorest and most vulnerable households.
- Subnational governments and agencies should be involved in the design of ESNs and the targeting of beneficiaries for them, and be encouraged to measure and periodically evaluate levels of energy poverty in their jurisdictions.
- Further research should be undertaken to inform energy policy reforms and the design of ESNs.

INTRODUCTION

Mexico has two decades of experience with social safety nets providing cash payments to eligible poor families but, since the 1970s, successive governments have relied on general energy subsidies to enable access to energy. The purpose of this briefing is to summarize findings from a study of Mexico's experience of ESNs, which are defined as social assistance mechanisms that enable access to energy services by poor and vulnerable households. This policy brief summarizes detailed analysis of the background and functioning of ESNs in Mexico, their institutional design and implementation mechanisms, and evidence of their impacts and effectiveness in relation to increasing access to energy services for poor and vulnerable households.

ENERGY SAFETY NETS IN MEXICO

The concept of ESNs is not well understood in Mexico and acceptance of the term is hampered by negative associations with general energy subsidies, especially for electricity and petroleum-derived fuels. These subsidies are often perceived as wasteful and inefficient, with limited impact on delivering energy to the poorest and most vulnerable. However, general energy subsidies are not the focus of this brief.

Mexico has implemented four consumer subsidy schemes that fit the definition of an ESN. The most important of these currently subsidizes electricity consumption through a complex tariff structure, which includes a lifeline tariff option. The other three ESNs are the energy subcomponent of *Oportunidades*, which was implemented between 2007 and 2011; the sale of LPG at reduced prices in state-owned Diconsa stores between 2017 and 2018; and the FSUE, which was set up to provide electricity to communities without access.

Oportunidades and the sale of LPG via Diconsa stores have been discontinued since the beginning of the López Obrador Administration in 2018. The FSUE is currently on hold pending a review by the current administration.

Lifeline tariff for electricity consumption

Mexico's overarching policy since the 1970s has sought to ensure that every household can afford to consume a basic amount of electricity. To this end, the state-owned electricity sector has provided a lifeline tariff to enable grid-connected households to consume a basic amount of electricity every month at a heavily discounted rate. Although their future is currently uncertain due to changes in administrations, electricity subsidies survived the 2013 Energy Reform, which largely removed subsidies for petroleum-derived fuels (LPG, gasoline, diesel). The subsidies are categorized in the financial statements of the state-owned electric utility *Comisión Federal de Electricidad* (CFE) as tariff insufficiencies and accounted for almost USD 14 billion between 2013 and 2019 (CFE 2019a; SHCP 2019).

The lifeline tariff is not a unidimensional instrument (i.e. a general energy subsidy) but rather a tiered tariff that includes a series of mechanisms to differentiate the subsidy amount for every household. It includes an increasing block tariff (IBT), a volume-differentiated tariff (VDT), and a regionally differentiated tariff (RDT), among other components. There is anecdotal evidence that political bargaining may also influence use of the tariffs. Notwithstanding these layers of complexity, the provision of a heavily discounted 75 kWh per month reaches every household connected to the grid. Therefore, although it provides support for many poor and vulnerable households among the 40 million households that currently benefit (SENER 2016), it is perceived as an inefficient mechanism to support the electricity consumption of the poorest and most vulnerable.

Oportunidades Energéticas

One policy measure linking energy access with a general social assistance program was *Oportunidades Energéticas*. Between 2007 and 2011, the broadest and most important social safety net in Mexico, *Oportunidades* included an energy component. This was a cash transfer designed to help households pay part of the cost of fuels (LPG or electricity) and compensate households living in poverty for the negative impacts

of increasing energy prices. The main motivation for including an energy component was to promote access to modern energy services and reduce the use of solid and polluting fuel—such as firewood, diesel and coal—and the associated health risks to households living in conditions of poverty. The program used detailed targeting measures set by *Oportunidades* and reached 90 percent of households benefiting from the broader scheme (5.2 million households by 2011). However, the requirement that beneficiaries present an electricity bill meant that some of the poorest and most vulnerable households (i.e., those without legitimate electricity connections or with no connection) were excluded. No impact evaluation for the scheme was carried out and the policy was discontinued when *Oportunidades* was rebranded as *Prospera* following presidential administration change in 2012.

Sale of subsidized LPG in state-owned Diconsa stores

In July 2017, the former Welfare Ministry (*Sedesol*) with the support of the Energy Ministry (SENER) introduced a pilot initiative to sell LPG at reduced prices through the Diconsa network of state-owned distribution centers. These operate in rural and poor communities and supply a basic range of goods at controlled prices to improve communities' nutrition and health. The stores cover a beneficiary population of 20.7 million people and are concentrated in five states that between them are home to 62 percent of the Mexican population living in poverty. According to *Sedesol* the program was aimed at reducing firewood and coal use in homes by promoting the use of efficient stoves and cleaner fuels. To achieve its objective, *Sedesol* provided more than 13,000 sets of LPG stoves and 10 kg LPG cylinders to marginalized families in 15 municipalities across 12 states at a cost of MXN 12 million (*Sedesol* 2017a, 2017b). The pilot was terminated in 2018 and there are no publicly available data on its effectiveness.

Fondo de Servicio Universal Eléctrico (FSUE)

Under the 2013 Energy Reform, the electricity sector was opened to competition creating a wholesale electricity market within the framework of a new Electric

Industry Law (*Ley de la Industria Eléctrica* (LIE)). The LIE stated that the federal government would support connection to the electricity grid for marginalized rural and urban communities and mandated the creation of the FSUE to deliver this objective.

The FSUE was created in 2016 to promote energy access for marginalized communities using a mixture of grid extension and distributed renewable systems (mini-grids and stand-alone systems). A sum of MXN 3 million was allocated to manage the fund and it received additional finances from managing transactions in the wholesale electricity market. The FSUE was tasked with drawing up a list of target communities using a range of indicators. By mid-2018, the FSUE had provided 42,085 connections, benefiting 172,349 people. A further 48,630 connections were authorized and 47,878 connections planned. The FSUE supported grid electrification projects and the installation of off-grid systems, including by creating credit schemes to enable communities to pay for electricity at a discounted rate, although affordability remained a challenge for some end users. However, there has been no conclusive or rigorous analysis of the impacts of the FSUE, for example, in terms of reaching poor and marginalized households.

CONCLUSIONS AND NEXT STEPS

A common factor among the identified ESNs is that they were not designed to fully support poor and vulnerable households' spending on energy goods and services. Instead, the aim was to provide a proportion of the amount households spend on energy goods and services to those most in need. LPG distribution through Diconsa supported an average of 9 percent of the total cost of LPG; *Oportunidades Energéticas* supported around 25 percent of the target households' total spending on energy goods and services; and the differentiated electricity tariff supports approximately half of basic electricity costs. No data were found to illustrate what prices households paid for connections under FSUE.

Additional data and analysis would be needed to evaluate the effectiveness of the four ESNs studied and to recommend concrete policy changes. However, the analysis for this case study did highlight that ESNs in Mexico

are particularly vulnerable to changes in the political landscape most notably through termination as administrations change hands. Mexico has a new political climate that is impacting the country's ESN programs. The López Obrador Administration that came into office in December 2018 has introduced changes and promised reforms that will impact the current social safety nets and ESN mechanisms.

While subsidized electricity tariffs and support for access to electricity through the FSUE have not been linked to social assistance programs, *Oportunidades Energéticas* was a component of a bigger social safety net and the reduced-price LPG pilot scheme used Diconsa stores that were set up to supply subsidized goods to poor and marginalized communities. The 2013 Energy Reform provides a mandate for a targeted social assistance program to support timely and adequate access to energy at affordable prices for vulnerable groups of users, but further analysis will be needed of the specific policies and measures required to implement such a program.

Several recommendations emerge from the analysis:

- **Electricity tariff subsidies should be targeted at poor households.** This could be achieved by revising the threshold level for DAC tariffs or determining eligibility for subsidized tariffs using the social assistance register. SENER and *Bienestar* have collaborated to design a method for determining minimum consumption levels for electricity and cooking fuels.
- **The scope of the FSUE should be widened to support access to clean cooking technologies** for the poorest and most vulnerable households. Access to clean cooking in rural and urban areas remains a challenge for low-income households, which could be addressed through a broadened FSUE structure.
- **Subnational governments and agencies should be involved in the design of ESNs,** and the targeting of beneficiaries for them, and be encouraged to measure and periodically evaluate levels of energy poverty in their jurisdictions.
- **Further research should be undertaken to inform energy policy reforms and the design of ESNs.** This could include research on the impacts of ESNs and social assistance on energy poverty, their impacts on gender, and how energy access and ESNs can be integrated into other energy-related mechanisms and policies.

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