

Exit Evaluation of EnDev Bolivia - grid densification and PUE

Executive summary

Since 2006, Energising Development (EnDev) has supported various technological solutions to increase access to modern energy sources in Bolivia. These include grid densification, photovoltaic (PV) lamps, solar home systems, productive use of energy (PUE) and improved cookstoves. EnDev Bolivia is currently being phased out. The project will end in June 2024. This evaluation focuses on the impact and sustainability of the grid densification and PUE components. This project is implemented by Gesellschaft für Internationale Zusammenarbeit (GIZ).

Background

When EnDev Bolivia started, only 33% of the rural population had access to electricity. In 2014, the government adopted a plan to reduce poverty and ensure universal electricity access by 2025. EnDev contributed to this goal by collaborating with the national electricity company ENDE to expand higher-tier electrification to remote rural areas. The collaboration involved procuring high-quality electrical equipment and providing training for ENDE, its subsidiaries and rural electricity cooperatives. As a result of the national government and its partners' efforts, including EnDev Bolivia, 83% of rural households now have access to electricity.

EnDev Bolivia supported improving entrepreneurs', associations', and cooperatives' production capacities by increasing their access to modern energy and productive technologies. Support included technical guidance, capacity building and financial incentives. The project also aimed to strengthen PV markets in rural areas through the deployment of solar home systems and mini-grids for micro, small, and medium-sized enterprises. EnDev Bolivia developed and implemented 2 technical and financial assistance funds to support increased energy access (FEM and FASERTe). FEM is a demand-side incentive for women-led rural enterprises, and FASERTe was developed to strengthen the supply side of the renewable energy market. The financial incentives were modest, but combining them with technical assistance and improved logistics effectively supported the uptake of renewable energy technologies.

Supply-side observations

EnDev Bolivia has made a significant impact on market development. This is a result of its approach to gender in its interventions, commitment to quality materials and technologies, and strong logistics support.

The strategy within the grid densification component involved directly providing the electricity sector, including utilities and cooperatives, with high-quality electrical materials. This approach

EnDev contracted Edburgh consultants and Danish Energy Management to conduct an independent exit evaluation of EnDev Bolivia. The main evaluation questions were:

- 1) What influence did EnDev's intervention have on sector development?
- 2) To what extent are local institutions ready (and have the capacity) to take over and contribute to developing a sustainable energy market?
- 3) What are the lessons learnt?

Exit studies are carried out during or shortly after a project has been phased out. This mostly desk-based evaluation was carried out between July and November 2023. The evaluation is based on an analysis of 17 relevant reports and studies, and 27 interviews with important stakeholders. The report is based on absolute numbers of sales on country level. On global level, EnDev applies so called monitoring factors for attribution, additionally and sustainability and reports in adjusted numbers of people reached.

EnDev Bolivia

Project period	2006 – 2024
Budget	EUR 20,190,000

Project results (as of Q1 2023)

- Improved electricity connections for 130,723 households and 1,529 social institutions by installing new energy meters and replacing old or faulty equipment.
- Supported the installation of PV systems for 23,198 households and 342 social institutions.
- Contributed to the uptake of 23,554 units of primary production equipment and 16,417 product transformation machines.

strengthened EnDev's reputation for delivering quality solutions and set a positive example for others in the electricity sector.

EnDev also played an important role in the development of PV rural markets and strengthening local value chains. EnDev collaborated with suppliers to facilitate the installation of solar home systems in last-mile households and mini-grids for micro, small, and medium-sized enterprises. By supporting suppliers, the project ensured a minimum quality level of technology was provided with guarantees and after-sales services.

EnDev has a strong focus on gender in all its interventions. EnDev Bolivia trained women electricians at decentralised utilities and cooperatives on indoor electrical installations, energy meter operation and electrical connection installation. The project also involved spreading messages promoting non-violence against women, providing emergency numbers, and strengthening women entrepreneurs and cooperatives in the PUE sector.

Demand-side observations

EnDev Bolivia is now the main reference point for PUE initiatives, and PUE promotion has gained interest among various stakeholders in the Bolivian energy sector. EnDev Bolivia's PUE interventions have supported energy markets' sustainability by increasing economic uses and stimulating electricity demand.

As a result of EnDev's interventions, 153,921 households in Bolivia have gained access to electricity or benefitted from improved grid electricity supply. The project has also significantly contributed to increased rural electrification rates in the country.

EnDev's PUE component led to a shift in the attitudes of supply and demand-side actors. More and more of these actors are recognising the transformative potential of PUE. As a result, they are more willing to invest in modern energy technologies for productive purposes.

Enabling environment observations

EnDev Bolivia has navigated a changing political environment and contributed to a growing PUE sector. However, a strengthened enabling environment would allow other partners to build on EnDev's work.

EnDev's work on grid densification aligns with the Bolivian government's electrification policies from 2010 and 2013. The project collaborated closely with the Bolivian government until 2020 when a regime change took place. After 2020, EnDev continued cooperation mainly with public entities at lower administrative levels, such as municipalities and ENDE subsidiaries. EnDev's long-term presence and investment in partnerships and networks within Bolivia have played a crucial role during more challenging periods with the national government.

The PUE sector faces persistent challenges, such as a lack of sufficient financing, poor financial management, and issues related to technology governance within productive associations and cooperatives. EnDev Bolivia worked with the government to promote PUE. However, PUE is not a priority in Bolivia's energy plan. As such, it is not promoted in a coordinated way nor integrated into an overall strategy or policy framework.

Conclusions

One of the main strengths of EnDev's approach was its focus on building partnerships with public and private actors, different levels of government, cooperatives and communities. Despite a challenging relationship with high-level Bolivian authorities in recent years, EnDev has achieved good results thanks to its strong partner network. Bolivia has made significant steps towards increasing rural electrification rates. Still, further support is required to strengthen the market, especially for PUE. Extra support is also needed to ensure women in productive cooperatives continue expanding their knowledge and skills. Currently, the required support is not safeguarded in governmental sector plans or policies. This is an important obstacle to overcome.

