Why Measuring Energy Access for Women Makes Smart Business

The Case of Lao PDR

A Lessons Learned Note from the EAP Gender and Energy Facility

The Lao People's Democratic Republic, a mountainous landlocked country in Southeast Asia, has scored a remarkable achievement. In just over two decades, from 1995 to 2017, it managed to increase national access to electricity from 16 percent to more than 90 percent of the population. A sustained effort to make electricity affordable for those too poor to pay initial connection charges has been key feature of the achievement. Solid preparatory studies and disaggregated data on specific barriers to electrification for female-headed households were critical for targeting and impact evaluation.

This note presents the Power to the Poor Program piloted by the Rural Electrification Project (Phase 1 and 2) in Lao PDR. The program provided poor households with interest-free loans that enabled them to obtain a connection to the grid and wire their dwellings. Households headed by women were a focus of the program.

Lao PDR has already achieved its target to provide access to electricity to more than 90 percent of households countrywide by 2020. This was realized through a strategy that combined an ambitious program to extend the grid to rural areas, where almost 70 percent of Laotians live, with off-grid solutions in remote regions. Key elements of the strategy included an interest-free credit scheme (the Power to the Poor Program, P2P) for those too poor to connect, ensuring outreach to rural female-headed households, which were found to be among the poorest of households.

Between 2008 and 2015, more than 83,000 households in rural areas (7 percent of the population) were able to access electricity services thanks to the P2P program; of these, 6,320 were female-headed. Villages where the P2P program was initially implemented saw electrification rates jump from 78 percent to 95 percent on average. The impact on female-headed households was higher, reaching 90 percent from 65 percent before the program.

The impact on individual households has been enormous. Electricity has opened the opportunity for P2P beneficiaries to start small businesses at home and to diversify existing income-producing activities, from handicrafts production to carpentry and retailing. Other benefits have included better connectivity and access to information through the ownership and use of mobile phones, which rose from 67 percent before connection to the grid to 86 percent after. Beneficiaries have also reduced the levels of indoor air pollution in their homes by exchanging diesel-fueled wick lamps for electric lighting, and while none of the

beneficiaries switched from charcoal or firewood to electric cookstoves, a significant number purchased an electric rice cooker following access to electricity; this is expected to help reduce indoor air pollution levels, with important benefits for women, who are the primary cooks.

Power to the Poor: Addressing Accessibility Constraints

A socioeconomic survey conducted during preparation of the World Bank's Rural Electrification Project I (2006–12) found that poor rural households in Lao PDR overwhelmingly wanted electricity and were willing to pay between $1–$3 monthly—that is, the same or less than what they were paying for other energy sources such as diesel fuel or batteries. But the up-front costs for connection and wiring ($80–$100) were beyond their means. As a result, 30–40 percent of the poor households in villages that gained access to the grid remained without electricity years after the rest of the village had been connected. A follow-up survey in 2007 contained a more striking finding: female-headed households were poorer on average and less likely to be able to afford the connection fee.

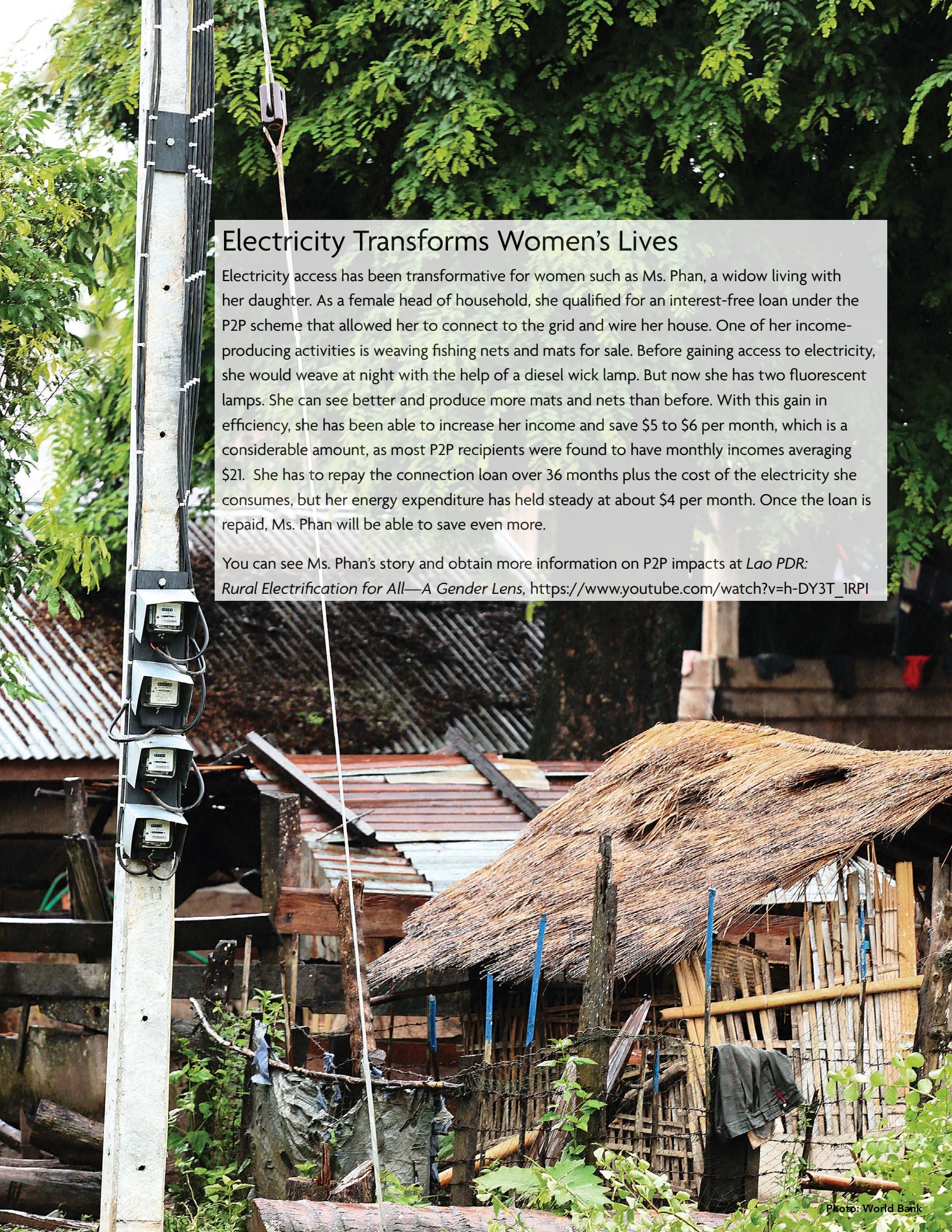
These findings suggested that to increase the rates of rural electrification among the poor in general and among female-headed households in particular, a specific intervention would be needed to lift the initial cost barrier. The energy utility, Electricité du Laos (EdL), and the World Bank devised the P2P program, which offered the poorest households an interest-free loan covering between 60 and 70 percent of connection costs, repayable in monthly installments over three years.

P2P was piloted for a year in a few villages. Based on successful results and an available budget, EdL established a revolving fund that was initially capitalized with grants from the International Development Association and Australian Overseas Development Agency. As the revolving fund solidified and financing became available from additional sources, including the Asian Development Bank (ADB), the program expanded to cover the entire country. Between 2008 and 2015, P2P has enabled access to electricity services for 83,000 poor households; of these, 6,320 (7.6 percent) were female-headed.[1] With a 100 percent repayment rate, the program is also fully self-sufficient and has been mainstreamed into EdL's operations.

Key Success Features of the Power to the Poor Program

- **P2P is embedded within national policy.** P2P has directly supported Lao PDR's goal to achieve 90 percent electrification by 2020, and high-level support for its implementation has been strong from the onset.
- **The P2P design is based on solid preparatory studies.** A socioeconomic survey conducted during the preparation of Rural Electrification Project identified female-headed households as a large segment of those that faced barriers to access. A follow-up study provided detailed information on the needs of poor and female-headed households and served as the basis for the design of the P2P program.
- **P2P places no additional cost burden on poor households.** Monthly energy expenditures by beneficiaries are no more than they were before the connection was made. Thus, the cost of connecting to the grid does not exceed what poor households would pay each month for other energy sources, such as candles, kerosene, or diesel fuel. During the repayment period, monthly spending on energy is maintained at about $3, including the loan repayment. Once the loan is repaid, spending tends to fall to as low as $0.90 a month. The installation costs are offset in about 38 months.

1. Data provided by Electricité du Laos, November 2015.



Electricity Transforms Women's Lives

Electricity access has been transformative for women such as Ms. Phan, a widow living with her daughter. As a female head of household, she qualified for an interest-free loan under the P2P scheme that allowed her to connect to the grid and wire her house. One of her income-producing activities is weaving fishing nets and mats for sale. Before gaining access to electricity, she would weave at night with the help of a diesel wick lamp. But now she has two fluorescent lamps. She can see better and produce more mats and nets than before. With this gain in efficiency, she has been able to increase her income and save $5 to $6 per month, which is a considerable amount, as most P2P recipients were found to have monthly incomes averaging $21. She has to repay the connection loan over 36 months plus the cost of the electricity she consumes, but her energy expenditure has held steady at about $4 per month. Once the loan is repaid, Ms. Phan will be able to save even more.

You can see Ms. Phan's story and obtain more information on P2P impacts at *Lao PDR: Rural Electrification for All—A Gender Lens*, https://www.youtube.com/watch?v=h-DY3T_1RPI

Photo: World Bank

- **P2P uses a gender-sensitive eligibility criterion.** Households are eligible for the P2P program if their dwelling is safe to electrify and they meet at least one of the following poverty criteria: the household faces a rice shortage at least six months of the year; it has access to less than one hectare of land for rice cultivation; it owns no livestock; it cannot finance its medical costs. Based on implementation experience, P2P also includes a criterion for households with members with disabilities. To prevent "free riding," only households in villages connected to the grid for two or more years are eligible.
- **P2P uses gender-sensitive methods and materials.** Trained outreach teams are assigned to identify the poorest households through participatory consultations using gender-sensitive information materials and involving community institutions (women's groups, village officials). Specific methods for reaching out to female beneficiaries include: (i) organizing presentations and house visits at times when women are most likely to be available; (ii) using posters and other visual aids to explain the program; and (iii) counseling individual households on their monthly cash flow to determine if repayment is possible.
- **P2P maintains a revolving fund to ensure sustainability.** Loans are repaid into a revolving fund that is then used to support other disadvantaged households and extend the program to other villages. The use of a revolving fund has allowed EdL to assume the full operation of the program and to mainstream it within its operations.
- **P2P has built-in flexibility.** Because poor households are sometimes unable to repay the monthly installment for grid connection on time, the scheme permits three months of arrearages. No household has defaulted beyond the grace period.

Monitoring

Access, Affordability, and Repayment

EdL monitors electrification trends in villages linked to the grid. When connection rates stop rising, a provincial outreach team is sent to determine the reason. If the team finds that all who would be able to connect on their own have done so—usually two to three years after initial village access to the grid—then EdL assesses whether the P2P program should be extended to the village.

EdL has established the outreach teams as the key mechanism for engaging rural communities. Members of the teams are locally recruited, which helps ensure that they speak the local language and understand regional specificities, as Laos is a multiethnic country with important differences across provinces. The teams are deployed to assess the applicability of P2P, facilitate meetings with village authorities and individual households, and confirm that the structural and socioeconomic criteria of the P2P program are met. At a later stage, the teams confirm that wiring is of standard quality; they remain active through completion of electrification. Teams are trained in using the program's implementation manual (World Bank 2011), and specifically in counseling female-headed households.

After a loan contract is signed, EdL adds the household to its billing system. When the program began, village chiefs collected monthly repayments, and households were billed an additional small fee for collection. But as the program scaled up, loan repayment was integrated into the general electricity bill as a separate entry. This has improved the efficiency of collection and reduced costs. Table 1 presents the process followed in implementing the program..

Table 1.
Implementation of the Power to the Poor Program

Phases	Activities
Mobilization phase (1 month)	• Electricity provider develops awareness materials • Electricity provider's community-outreach team is deployed to mobilize support and awareness of the program through village meetings
Selection phase (1 month)	• Core team works with village leaders to apply evaluation criteria and compile list of eligible households, with an emphasis on female-headed households • Selected households are advised on secondary criteria, for example, ability to repay a loan • Village meeting seeks consensus on selection list
Electrification phase (1 month)	• Household survey is conducted to establish livelihood baseline • Homes are inspected to confirm safety to electrify • Electricity provider approves credit line and makes billing and accounting system entry • Households sign individual credit agreement and receive voucher • Households contract for wiring • Wiring contractor performs work, collects household copayment, submits voucher, and receives payment • Electricity provider inspects installation, reimburses contractor, sets meter
Billing phase (36 months)	• Electricity provider tracks repayment by households

Source: World Bank (2011); interview with EdL, October 1–2, 2015.

Gender-Informed Impact Evaluation

To assess the welfare impacts and benefits of the P2P program, a quasi-experimental impact evaluation in 2013 compared randomly selected households that were connected to the grid under P2P with a random sample of similar, poor, unconnected households (program applicants waiting to be connected to the grid under the program). The comparison group helped capture what would have been the outcomes if the program had not been implemented (i.e., the counterfactual). The evaluation assessed the relationship of electricity to income-generating activities, how electricity influences household members' use of time, the relationship of electricity to education, fuel savings, and the direct contribution of access to electricity on health, the environment, and safety (Tuntivate 2013).

The evaluation found a positive correlation between electrification and an increase in productive activities at home, particularly those managed by women, such as handicraft production and retailing. Electrification status appeared to be positively associated with the income of households engaged in business activities at home. It confirmed that electrified households were spending less on energy than nonelectrified households and that electrified households also benefited in other ways, for example, by gaining improved access to communication (electrified households were more likely to own mobile phones than nonelectrified households of similar socioeconomic status). The evaluation also indicated reductions in exposure to indoor air pollution among P2P households that had phased out diesel-wick lamps and among those that had been able to acquire an electric rice cooker, reducing to some degree their use of solid fuels for cooking. These improvements made possible through access to electricity addressed women's needs directly. Finally, all P2P households indicated an increased perception of safety following their connection to the grid.

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Acknowledgments

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