

# INVESTING IN GIRLS: MARKET OPPORTUNITIES BY SECTOR

## Energy

### Scale of energy-related issues facing girls

Energy access is central to sustainable development. While hundreds of millions of people have gained access to modern energy for the first time over the last two decades, approximately 1.1 billion still live without it. Furthermore, many with electricity often experience cuts during peak hours or even have their supply restricted to the hours of darkness only, so its use for productive purposes is limited.<sup>1</sup> Around a third of the world's population, 2.5 billion people, use solid biomass (wood, crop waste or dung) to cook their food.<sup>2</sup> Inefficient cooking practices pollute homes with harmful gases and particles, causing illnesses and leading to around 4 million premature deaths annually.<sup>3</sup> The problem is particularly acute in South Asia.

Women and girls are disproportionately affected by energy poverty. Use of traditional fuels at home poses a greater health risk to women and girls, because they are more exposed to the harmful gases released by stoves and kerosene lanterns. In addition, poor girls in rural areas are often tasked with fuel collection, which is time consuming, often strenuous and can put them at risk of gender-based violence.<sup>4,5</sup> Girls are especially at risk in unlit and remote areas.

Energy poverty perpetuates many negative circumstances facing girls and young women. For example, without electricity, girls may spend more time undertaking chores, such as milling flour. Household responsibilities, including collecting fuel, often disrupt girls' education and are one reason why girls attend school less frequently, progress less quickly and drop out earlier than boys. Fewer hours of light means there are fewer productive hours in which to earn supplemental income or study after dark.<sup>6</sup> And households without electricity have less access to television and media, limiting opportunities – for girls especially – to access information.

### Key statistics

- More than 95% of those without access to modern energy live in sub-Saharan Africa and Asia, and 84% are in rural areas.<sup>7</sup>
- 80% of the population in sub-Saharan Africa cooks with solid biomass.<sup>8</sup>
- One in three people in Myanmar, one in four in Bangladesh and one in ten in Nepal live without electricity. Those with electricity often experience interruptions due to load-shedding.
- The proportion of rural households with access to electricity is 65% in Bangladesh,<sup>9</sup> 42% in Myanmar,<sup>10</sup> 85% in Nepal,<sup>11</sup> 89% in Pakistan,<sup>12</sup> 8% in Ethiopia,<sup>13</sup> 13% in Kenya,<sup>14</sup> 12% in Rwanda,<sup>15</sup> 5% in Tanzania<sup>16</sup> and 18% in Uganda.<sup>17</sup>

## Implications for climate change

According to the International Energy Agency, providing energy for all by 2030 would see a net reduction in greenhouse-gas emissions, saving the equivalent of around 165 million tonnes of carbon-dioxide equivalent from methane and nitrous oxide as a result of reduced biomass burning for cooking.<sup>18</sup>

The scale and scope for market-based solutions to energy access in East Africa are significant. Many girls could benefit, as so much of the region remains unelectrified and without access to improved cooking fuels, especially in rural areas. Studies have shown that renewable energy solutions have benefits for both low- and high-income households. Renewable energy solutions deserve specific focus, not least because they:

1. avoid hefty transmission costs by generating electricity and other forms of energy at the consumer end
2. are more flexible and scalable, and offer faster deployment than conventional energy sources
3. present opportunities to engage adolescent girls in their value chains and thereby produce ancillary benefits.

In addition, the sector is becoming steadily more competitive in relation to conventional energy sources, especially in remote and difficult-to-access rural areas.

## Impact of energy investments on adolescent girls

Few rigorous evaluations have been undertaken within the sector, but there is considerable evidence from other sources that suggests access to modern energy brings specific impacts to women and girls. As a group disproportionately affected by energy poverty, girls stand to benefit considerably from investment. When considering service provider interventions, investors should factor in who makes decisions about energy use within the household, and who benefits from those decisions. Current evidence suggests that an energy investment can contribute to helping girls to:



**EARN:** Electrification has been shown to increase income-generating activities among older girls; *there may also be greater demand for labour directly linked to community electrification.*<sup>19</sup> Girls of legal working age can become key actors in distributing and marketing energy solutions in their communities, earning income and providing opportunities for entrepreneurship.



**LEARN:** Improving access to electricity leads to a reduction in the time required for domestic tasks and has been shown to have a positive effect on girls' school enrolment.<sup>20</sup> Reducing energy costs can free up resources that can be used to pay for girls' education. It can extend productive hours to allow girls to study in the evening.<sup>21,22</sup>



**STAY SAFE:** Research among communities with electricity used for watching television found that attitudes towards gender roles and domestic violence were improved.<sup>23</sup>



**STAY SAFE:** Safe energy solutions reduce the need for fuel collection, which puts girls at risk of gender-based violence. Alternatives to kerosene lighting can reduce the risk of accidental burns.



**BE HEALTHY:** Supplementing or replacing traditional cooking fuels with more energy-efficient or cleaner cookstoves improves air quality and keeps girls healthier. Avoiding the need to carry heavy loads of fuel and other materials reduces the health toll on adolescent girls.<sup>24</sup> However, changing behaviour to switch from traditional cooking methods remains a challenge.

## Examples from SPRING energy businesses

**Village Energy** is a Ugandan solar company focused on productive use of energy, with custom solar installations for rural businesses, institutions and agriculture designed to enable improved incomes, job creation and access to services. Through its network of six branches across Uganda, Village Energy offers in-house design, procurement, PayGo financing, installation, remote monitoring and on-site servicing, thus de-risking solar adoption for rural customers. Since 2015 the company has completed more than 100 custom installations ranging up to 5kW, as well as sold over 2,700 pico solar products. SPRING support enabled Village Energy to develop its model and integrate girls as end users of its solar installation services (e.g. in schools where solar systems are installed).

**PayGo Energy** is an integrated fuel-stove distribution company in Kenya that combines consumer financing, smart meter technology and data driven smart distribution to provide base-of-pyramid customers with access to gas on a pay-as-you-go basis. Its service is made possible by the mass market penetration of mobile money services in East Africa and the broad success of solar consumer finance and micropayment models, such as M-Kopa and Off-Grid-Electric. PayGo's smart meter technology connects to any liquefied petroleum gas (LPG) cylinder, converting it into a tamperproof, pay-as-you-go gas dispenser. With consumer financing, PayGo removes high upfront costs and reduces the recurring cost of cooking with gas, allowing customers to purchase clean fuel in small, affordable amounts (~\$0.35/day). Currently at the piloting stage with five full-time employees, PayGo plans to launch formal services in Mukuru, an informal settlement in Nairobi with an addressable LPG market of 130,000 homes.

*This brief is a combined summary of the SPRING East Africa and South Asia region-specific energy briefs, which will be published in September 2019.*

## Notes

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