AFGHANISTAN ENERGY STUDY

Integrating Gender and Social Dimensions into Energy Interventions in Afghanistan

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Foreword

In the face of rapidly growing demand, Afghanistan struggles to overcome obstacles to addressing the energy needs of its population while ensuring that the energy sector remains financially sound. Lack of access to modern energy services correlates with higher levels of poverty. This report highlights that women remain more likely than men to suffer from a lack of access to energy, which further inhibits their economic and human development. Despite significant improvements, gender equality remains a major challenge in Afghan society, with women and girls being far more disadvantaged than men and boys.

Significant energy investments, with the help of the international community, are seeking to address supply issues and can strongly benefit from the integration of gender considerations. The Government's National Energy Supply Program aims to provide sufficient electricity through affordable and sustainable sources with an investment of nearly US$10.1 billion by 2030. At the same time, Afghanistan's National Development Strategy considers gender equality to be an important precondition to the success of Afghanistan's development goals. The National Action Plan for the Women of Afghanistan aims at pursuing women's empowerment and gender equality. Access to energy can play a transformative role in the lives of men *and* women by enhancing their productivity and effectiveness at home and at work. Moreover, the energy sector offers employment and income-generating opportunities, for men *and* women.

Energy access alone, however, is insufficient to ensure economic activity, particularly for women. Access to finance, natural and human resources, and technology are also required for establishing productive activities. Barriers related to low levels of ownership and control over resources, illiteracy, lack of exposure, poor information, and training affect women more than men. Energy projects impact men and women differently because of their differing roles and responsibilities in the household and in the community at large.

Gender-blind project designs often result in unintended, negative impacts for women; they are less likely to achieve project objectives; and may miss opportunities to improve overall development outcomes. Taking into consideration different constraints and needs of men and women when designing and implementing energy projects can significantly enhance their sustainability. Greater gender equality can enhance productivity, make an institution's decision making more inclusive and representative of society, and improve development outcomes for the next generation. Integrating a gender perspective throughout the operational cycle can enhance equity in participation, benefits, and opportunities.

This policy brief presents strategies on how to integrate gender and social aspects into four types of energy interventions: grid and off-grid electrification in rural areas, energy-efficiency initiatives, and electricity pricing policies. It identifies key challenges, presents potential solutions, and explains how gender and social aspects can be applied into the proposed solutions. We are planning to implement these innovative strategies.

Mohammad Gul Khulmi
Acting Minister and Deputy Minister of Energy

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Abbreviations and Acronyms

DABS	Da Afghanistan Breshna Sherkat (Afghanistan's power utility)
EnDev	Energising Development
GW/GWh	gigawatt/gigawatt hour
kW/kWh	kilowatt/kilowatt hour
MW	megawatt
P2P	Power to the Poor

Executive Summary

This policy brief suggests ways for Afghanistan to integrate gender and social aspects into energy projects, to better address the country's energy challenges and enhance its development impact. Significant energy investments are being carried out in Afghanistan to address supply of electricity to Afghan and to improve governance of the sector. Current and future energy interventions can strongly benefit from the integration of gender considerations to improve project outcomes and achieve wider development impacts. The energy sector increasingly recognizes that men and women experience different levels of access to benefits and exposure to risks and that these are important elements to be considered for effective policy-making and project design. Overlooking the potential gender-differentiated impacts of energy interventions at any stage in the project cycle runs the risk of undermining project effectiveness, efficiency, and ultimately sustainability.

Energy interventions are likely to affect women and men differently. Women and men have different roles, responsibilities and voice within households, markets, and their communities. This leads to differences in their access and use of energy, and the impact of energy services on their lives. Access to affordable modern energy services can reduce time and effort spent in reproductive and productive labor, especially for women who are particularly time poor. Modern energy services can greatly reduce the burden of diseases associated with indoor air pollution, burns, and poisonings, particularly for women and children who bear the heaviest burden, due to their high exposure. Street lighting reduces the risk of gender-based violence. Reliable energy access in health facilities can significantly enhance healthcare provision, improve maternal care and facilitate childbirth. Access to information and communication technologies (ICT) empowers women. Access to modern energy services in the household can translate into increased time for the education of rural boys and girls. Access to reliable and affordable modern energy services can stimulate economic activity and create employment, particularly for women. Energy alone is not sufficient for driving economic development, but it is an important contributor to it.

Despite significant improvements, gender equality remains a major challenge in Afghan society, with women and girls being far more disadvantaged than men and boys. Women hold a subordinate and dependent position in the household, and have little negotiating power and restricted mobility. Maternal health indicators have significantly improved, but wide urban-rural discrepancies persist. Women face challenges in accessing health services due to poor health infrastructure and cultural barriers. Gender-based violence is the most serious human rights violation in Afghanistan and an

urgent public health priority. Over half of Afghan women experience physical violence and over 60 percent never seek help. Although there is no doubt that girls' education has improved since 2001, gender indicators in education still show a very disadvantaged position of women and girls in Afghanistan. Women are largely underrepresented in the Afghan labor market, with 27 percent of working-age women economically active, compared with 81 percent of men. Women face wage discrimination and are hit the hardest by the job crisis, as their empowerment is restricted by economic, social and cultural factors. Although the Afghan law grants women the right to access and own property, women still have very limited assets, and limited monetary or land ownership, reinforcing their economic vulnerability. Only two in five women have a house on their name (alone or jointly), while the rate is four in five for men. Regarding land, only one in four women own land (alone or jointly), compared to two out of four men. Women also struggle to be seen as credible political actors.

Gender aspects can be integrated into energy interventions through several strategies. As identified in the World Development Report 2012, there are three key areas of gender inequality: endowment, economic opportunity and agency, leading to four strategic objectives: (1) improve human endowments, such as education, health, and social protection; (2) remove constraints for more and better jobs; (3) remove barriers to ownership and control of productive assets; and (4) enhance women's voice and agency, and engage men and boys.

Rural grid electrification interventions that involve men and women into project implementation can lead to increased electricity access and use. Consumer financing mechanisms targeted to vulnerable population groups, including female-headed households, can facilitate their access to the grid and contribute in rising living standards. Integrating livelihood opportunities for men and women into rural electrification projects can enhance affordability of electricity use and increase power loads. Gender-inclusive training and promotion of productive uses of electricity should be established. Gender-inclusive training and employment opportunities within the electricity sector itself can also be encouraged. In its effort to reduce commercial losses, the Afghan electricity utility, DABS, can improve bill collection and promote behavioral change and law enforcement, through community engagement. Women can play a key role as treasurers, bill collection officers and awareness raising ambassadors. Improving consumers' ability to read their bills can also improve bill payment and may increase electricity demand. In case of resettlement and compensation, cash compensation schemes should consider both/all spouses and take into account other adult female household members. Gender-equal compensation measures may include joint registration of assets and spousal co-ownership of property rights. Energy projects should integrate measures preventing and mitigating gender-based violence, as women may be more adversely affected by the inflow of migrant construction workers.

Rural off-grid electrification projects that tap into women's potential can improve adoption and sustainability of off-grid systems. Innovative business models targeted to women and low-income consumers can increase adoption of off-grid systems amid the rural poor. For example, microcredit, pay-as-you-go, micropayment, and lease-to-own systems, all aim to provide affordable options to offset high initial cost. Eligibility criteria should be designed to ensure that low-income customers and women are part of the beneficiaries. Local involvement is essential for self-sustaining off-grid rural electrification. Operation and maintenance (O&M) training for the local community can improve sustainability of off-grid systems. Local women can play an important role, as they are more likely to stay in the village, and less likely to migrate or take-up other higher-paying jobs. Men on the other hand often look for better opportunities, often in urban areas, once they acquire a technical skill. For stand-alone household-level systems, female household members would prefer female technicians for any maintenance or repairing tasks during the day, when male household members are usually away from home. Also, women-led renewable energy enterprises can drive higher adoption rates for off-grid systems through their social network, and integrating women's preferences into technology and product design can further boost adoption rates.

Energy efficiency measures that specifically target men and women can improve adoption rates and drive behaviour change. Gender- and social-inclusive financing mechanisms to encourage investment in energy efficiency can be developed to ensure that vulnerable populations, such as women and the poor, can benefit equally from energy-efficient technologies. For example, female-friendly microfinance facilities for low-income households can provide grants, subsidies or interest-free credit to women and vulnerable populations, to cover upfront costs of energy efficiency equipment and processes. Men and women respond differently to energy efficiency measures. Women arguably understand best where potential energy efficiency benefits could be gained since they run the households, but they often lack knowledge on how to achieve such savings. Involving women to drive behavior change and social acceptance can ensure greater adoption of energy efficiency measures. Educating women on energy efficiency can improve household demand-side management. Men and women often respond differently to marketing messages and may use different communication channels. Campaigns should communicate with men and women equally but distinctively through consultations and messaging that encourage positive attitudes toward adopting energy efficiency measures, while intentionally seeking women's participation. Gender-differentiated approaches can lead to new insights and innovations that can enhance a program's effectiveness.

Gender- and income-sensitive electricity pricing policies and mitigation measures are more likely to succeed. In its effort to adopt a framework for tariffs revision to ensure cost recovery levels, DABS should acknowledge that pricing reforms have potential social and gender impacts. Mitigation measures for preventing harmful effects on poor and

vulnerable population groups, including women, should be considered when designing and implementing electricity pricing policies. To reduce commercial losses, the utility could include alternative payment methods – such as pre-paid meters – which can be calibrated based on income- and gender-related eligibility criteria to prioritize vulnerable population groups. To increase acceptance of higher tariffs and minimize public resistance, quality of service should rise concurrently with tariffs and customer service improved. Strengthening consumer rights can help increase women's acceptability of reforms. Gender-targeted consultations and awareness campaigns are also important for raising acceptability of reforms.

This policy brief presented a series of actions embedded into energy interventions aiming to address Afghanistan's energy challenges and improve gender equality. Acknowledging the country's specific energy needs, these actions were focused on integrating men's and women's potential into identified solutions. Four types of energy interventions were selected: grid and off-grid electrification in rural areas, energy efficiency initiatives, and electricity pricing policies. When adequately designed and carefully implemented, energy projects can improve gender equality in several areas: human endowments, access to more and better jobs, access to ownership and control of productive assets, as well as voice and agency. Such gender-sensitive interventions can at the same time, improve project outcomes and the overall developmental impact.

1. Introduction

As the energy-gender nexus gains momentum, the energy sector is increasingly acknowledging the importance of integrating gender and social dimensions into interventions. While consensus builds around gender equality's critical role in development across sectors (World Bank 2012), women remain more likely than men to suffer from a lack of access to energy throughout the developing world, which inhibits their economic and human development (UNIDO and UN Women 2013). There is a growing understanding in the energy sector that access to benefits and exposure to risk must be taken into account to achieve effective policy making and project design (ESMAP 2013). If at any stage of an energy project cycle, potential gender-differentiated impacts are overlooked, effectiveness, efficiency, and ultimately sustainability risk being undermined. Gender-blind project designs can result in unintended, negative impacts on women, are less likely to achieve project objectives, and may miss opportunities to improve overall development outcomes (ESMAP 2013). A gender perspective integrated throughout the operational cycle can enhance equity in participation, benefits, and opportunities.

Afghanistan envisages significant investments in the energy sector, which can strongly benefit from the integration of gender considerations. In the face of rapidly growing demand, Afghanistan's energy sector struggles to overcome obstacles to addressing the needs of its population and remaining financially sustainable. With the help of the international community, significant energy investments are seeking to address supply issues and improve governance. Significant room for improvement regarding gender equality across all sectors in the country remains. Importantly, energy projects impact men and women differently because their differing roles and responsibilities in the household and community affect their use of energy. Current and future energy interventions can strongly benefit from the integration of gender considerations to improve project outcomes and broaden development impacts.

This policy brief seeks to show how Afghanistan can integrate gender and social concerns into energy projects to better address the country's energy issues and achieve greater development impact. Chapter 2 examines how energy can benefit men and women, emphasizing the gender-differentiated impacts of energy on human development and economic empowerment. Chapter 3 presents the socioeconomic status of Afghanistan and provides overviews on gender and the energy sector. Chapter 4 identifies several strategies for integrating gender and social considerations into the development and implementation of energy projects and programs in Afghanistan, including on-grid and off-grid electrification in rural areas, energy efficiency initiatives, and electricity pricing policies, with the aim of addressing current specific challenges.

2. How Energy Benefits Men and Women

Access to modern energy services is an essential—although insufficient—prerequisite to increasing a country's economic development, reducing poverty, and improving the well-being of its citizens. Alleviating poverty, promoting economic growth, expanding employment opportunities, and supporting human development are seemingly impossible challenges without access to affordable and reliable energy services. The prospects for cost-effective delivery of goods and services are limited, and there are therefore few opportunities to develop the productive activities needed for the social and economic transformation of rural communities (World Bank 2017a). The development community recognizes the importance of energy in terms of achieving the 2030 Agenda for Sustainable Development. Universal access to modern energy services is a necessary enabler for achieving the 2030 Agenda for Sustainable Development. Sustainable energy, now the seventh goal of the 17 Sustainable Development Goals, is aimed at ensuring universal access to affordable, reliable, sustainable, and modern energy. As a critical enabler to development, energy can play a transformative role in the lives of men and women by enhancing their productivity and effectiveness at home and at work.

Energy interventions are likely to affect women and men differently. They have different roles, responsibilities, and voices within their households, at the market, and in their communities, and this leads to differences in their access to and use of energy, as well as the impact of energy services on their lives (ESMAP 2013). For example, access to electric lighting after dark could improve the quality of life for some by enabling reading as well as entertainment and education via radio and television; for others, it may simply extend the work day (IEA and World Bank 2015). In most developing countries, women suffer more severely than men from energy deficits or energy poverty—that is, insufficient choices in terms of access to adequate, affordable, reliable, clean, safe, and benign energy services to support economic and human development (UNIDO and UN Women 2013). Reaching equitable outcomes for men and women is challenging because women are often less influential over decisions and exercise limited control over their own lives and resources (IEA and World Bank 2015).

2.1. Time Savings and Reduction of Drudgery

Women are particularly time poor, and the associated drudgery of their unpaid household tasks is mainly fulfilled through their own physical labor. Women are more likely than men to suffer from time poverty, which is when an individual does not have enough time for rest and leisure after the time spent on productive and reproductive work.[1] Women are disproportionately responsible for household chores, such as collecting firewood, fetching water, and processing food by manually grinding or pounding grains; and the associated physical labor related to those tasks has implications for the health of women[2] and the well-being of their children and other family members (IEA and World Bank 2015). Studies have shown that the working day for women and girls can be longer than that of men,[3] particularly in rural areas, and can also involve them carry more weight than men (Bardasi and Wodon 2006; Charmes 2006).

Access to affordable modern energy services can reduce time and effort required for reproductive and productive labor. By increasing efficiency and productivity, improved access to energy increases well-being and frees up time for leisure and rest. Because women spend more time in the home than men, they also receive more benefit from available electricity in the household. Time spent fetching water can be sharply reduced with a piped water supply, often made possible by fuel-based water pumps. The use of modern cooking solutions can decrease time spent in collecting fuelwood and reduce indoor air pollution. Access to electric labor-saving appliances, such as food processors and washing machines, can further improve the quality of life among women and could generate income-generating opportunities (IEA and World Bank 2015).

Men and women often use the time they save through improved energy access differently. Men are more likely to use it for recreation and leisure, while women tend to fill the time with housework and childcare in addition to resting, socializing, and watching television—not necessarily income-generating activities (Matly 2003). However, research results vary. In India, women in rural households with electricity spend less time performing household chores and fetching water and more time reading and watching television (ESMAP 2003). In Lao PDR, rural women in grid-connected households spend more time in income-generating activities than their counterparts in nongrid households. Grid access increases the time women spend in income-generating activities by

1. Reproductive work refers to the unpaid work performed in the home, usually by women, and includes tasks related to caring for, nurturing, and sustaining human beings, including bearing and rearing children, cooking and feeding of household members, caring for the sick, cleaning, and washing.
2. Women can suffer skeletal damage from carrying heavy loads, such as fuelwood and water. They are also more exposed to sexual and other forms of violence, while in search of wood, particularly in war-torn areas and at displacement camps (World Bank 2017a).
3. Time spent on reproductive activities varies by gender depending on environmental conditions, social setup, and distance to forest, wasteland, and water resources (IEA and World Bank 2015). For example, although women are the main fuel collectors, men tend to take over responsibility when the fuelwood supply close to the household decreases, when greater amounts of physical capital and machinery are required to harvest fuelwood, or in urban areas (IEA and World Bank 2015).

43 minutes per day; it also increases time spent participating in entertainment and leisure activities (World Bank 2017a). Regardless, the release of a woman's time is a prerequisite for her to invest in education and have greater control over her life choices, as well as freeing her up to seize economic opportunities and participate in economic, political, and social life (World Bank 2012).

2.2. Health and Safety Improvements

Air pollution generated by dirty fuels and inefficient technologies is widely considered to be the most significant health risk relating to energy. Outdoor and indoor air pollution combined cause about 7 million premature deaths annually, making it among the greatest single causes of premature mortality and morbidity worldwide. Women and children bear the heaviest burden of indoor air pollution due to their high exposure (World Bank 2017a). Emerging evidence suggests that the health of men can also be negatively affected by exposure to indoor air pollution when they spend time in the kitchen and, when combined with other health issues, it increases their mortality risk (IEA and World Bank 2015). Siblings may have different exposure levels, because depending on the culture, boys or girls spend more or less time in the kitchen (IEA and World Bank 2015).

Modern energy services can greatly reduce the disease burden associated with indoor air pollution, burns, and poisonings. Sustainable use of clean cooking solutions can reduce long-term exposure to health-damaging pollutants created by open fires and traditional solid fuel cookstoves. These exposure reductions will decrease rates of cardiovascular/ischemic heart disease, respiratory diseases, such as childhood pneumonia, chronic obstructive pulmonary disease, and lung cancer; and stroke. The risk of being burned, scalded, or poisoned can also be reduced. Increasing access to modern heating services and replacing polluting and dangerous kerosene lamps with electric lighting can yield similar results (IEA and World Bank 2015).

Access to energy offers multiple health benefits and reduces the risk of gender-based violence. It can help control waterborne diseases such as diarrhea by pumping, treating, and purifying water. It can improve the quality of food and nutrition through cooking and refrigeration (IEA and World Bank 2015). Empirical evidence suggests that street lighting reduces the risk of gender-based violence (Doleac and Sanders 2012), while it can facilitate the mobility of women and girls after dark and in the early morning (Cecelski et al. 2005). Nonetheless, social norms and values often need time to adjust to new technologies, and local perceptions may continue to act as a barrier to women's mobility (Kelkar and Nathan 2007).

Reliable energy access in health facilities can significantly enhance health care provision, improve maternal care, and facilitate childbirth. Without energy, many life-saving interventions cannot be undertaken, and essential medical devices and appliances for prevention, diagnosis, and treatment cannot be powered. Yet even the most basic

modern energy services are often unavailable at thousands of facilities across the developing world, including lighting for child delivery and emergency nighttime care, refrigeration for blood and vaccines, sterilization facilities, and electricity for simple medical devices (WHO and World Bank 2015). Reliable energy access in facilities can significantly enhance the provision of health care. It can provide lighting, power medical devices, and enable refrigeration for blood and vaccines. It also seems to have a notable impact on some key health care service indicators, such as prolonging nighttime service provision; attracting and retaining skilled health workers, especially in rural areas; and providing faster emergency response, including for childbirth. Thus, it can increase the number of successful deliveries, especially at night. It can also enable mobile health applications and facilitate public health education and information. In addition, thermal energy is critical to space and water heating, medical equipment sterilization, and safe medical waste incineration (WHO and World Bank 2015).

2.3. Education Improvements

Access to modern energy services in the household can translate into increased time for the education of rural boys and girls. Numerous studies have shown that electrification increases time spent in schooling and on homework.[4] Rural children, especially girls, often contribute to household chores, including collecting cooking fuels. Access to modern energy solutions for cooking that significantly reduces the time spent collecting fuel can translate into increased time for education, which can encourage school attendance and reduce dropout rates, especially among girls (Nankhuni and Findes, 2004; Mapako 2010; UNEP 2008). Studies also report that the principal cause of absenteeism in many developing countries is acute respiratory infections, often caused by indoor air pollution (Gaye 2007). By providing quality lighting for comfortable nighttime studying, access to electricity allows children to extend their studies into the evening hours (Mapako 2010). This can significantly impact learning outcomes and reduce the risk to the children's eyesight (WHO 2011).

Access to modern energy services in schools can improve learning and teaching experiences. By improving basic amenities in schools, such as access to clean water, sanitation, lighting, space heating, and cooling, energy can create more child- and teacher-friendly environments, which can increase school attendance and reduce dropout rates (Bacolod and Tobias 2006). Lighting allows schools to operate in the evening to accommodate more and better-sized classes and facilitates lesson preparation and administrative tasks

4. In Bhutan, access to electricity resulted in an increase in the time spent in school by 0.54 years and in the time spent on homework by 10 minutes per day (Kumar and Rauniyar 2011). In India, there were significant increases in enrollment (6 percent for boys and 7 percent for girls), study time at home (1.4 hours per week for boys and 1.6 hours per week for girls), and years of education completed (0.3 years for boys and 0.5 years for girls) (Khandker et al. 2012). In Vietnam, there were significant increases in completion rates for education for boys and girls (Khandker et al. 2013). Anecdotal evidence also supports a positive correlation between electricity access and academic success, showing higher completion rates and lower absenteeism in newly electrified schools in Sudan, Tanzania, Kenya, and the Philippines (World Bank 2017a).

for teachers. And students without adequate lighting at home might stay at school to complete their homework (World Bank 2017a). Access to information and communication technology can improve learning experiences through audio-visual teaching aids and equipment, such as projectors, computers, and science tools. Students can learn computer skills, and teachers have more timely access to current information. Distance learning and staff training become possible, and administrative tasks are further facilitated.

Access to electricity can also increase retention of qualified teachers in rural areas. Rural electrification, particularly grid extensions to rural schools and teachers' residences, tends to have a positive impact on the retention of teachers, who are much sought after in rural areas. Teachers are more willing to relocate to rural schools when living standards are higher as a result of improved access to electricity (World Bank 2017a).

Access to information and communication technology empowers women. Beyond entertainment, access to television and mobile phones significantly increases the availability of information about the world outside the village, especially in remote rural areas. Such exposure often translates into improved conditions for women (Fernandes 2000; Johnson 2001; Scrase 2002; Massé 2003; Clancy, Skutsch, and Batchelor 2003). Women with access to a television are less likely to accept spousal abuse and are less likely to prefer a son over a daughter. They tend to be more autonomous and have fewer children (Jensen and Oster 2009). Women in households with access to electricity also better understand gender equality (Halim 2004).

2.4. Poverty Reduction and Economic Empowerment

A country's lack of access to modern energy services is correlated to higher levels of poverty. People who lack access to reliable and affordable modern energy services are often trapped in a reinforcing cycle of deprivation and lower incomes—a vicious cycle of energy poverty (World Bank 2017a). Economic productivity, particularly in the agricultural sector; income-generating opportunities; and the ability to raise living standards are strongly affected by a lack of modern energy. Malnourishment and low earnings contribute to the poor remaining poor, perpetuating the lack of access to modern energy (Karekezi et al. 2012). In addition, the poor use significant amounts of their limited income on expensive and unhealthy energy forms that provide low-quality or unsafe services. Low-income households pay higher average unit prices for energy services such as lighting, phone charging, heating, and cooking than do high-income households because the poor often use inefficient fuels, such as kerosene for lighting, or expensive electricity, such as battery-based electricity, and because they tend to own inefficient appliances and live in poorly insulated homes (World Bank 2017a). Thus, without modern energy, overcoming poverty, promoting economic growth, expanding employment, and supporting human development remain challenging, if not impossible.

Box 2.1. Five Theoretical Effects Linking Employment and Energy Consumption

1. **Demographic effect.** Rising populations increase energy demand; and the greater number of workers entering the work force may lead to higher levels of energy demand.
2. **Income effect.** A growing economy drives higher levels of employment, leading to increased incomes, which then results in a growing demand for goods and services and thus to an increase in the demand for energy.
3. **Price effect.** External price shocks that affect energy sources, such as coal and oil, impact economic growth and, subsequently, employment.
4. **Substitution effect.** Constraints to available energy lead to substitution through increased labor and vice-versa.
5. **Technology effect.** The extent to which the replacement of old energy technologies with new enhances employment depends on a country's level of development.

Source: World Bank 2017a.

Access to reliable and affordable modern energy services can stimulate economic activity and create employment, particularly for women. It can increase trade and support value-added activities (World Bank 2017a). Studies show a strong correlation between energy consumption and employment—notably through higher household employment following electrification (box 2.1). Results differ depending on gender, with the majority of the studies showing that household employment increases only for women.[5] Nonetheless, further analysis is needed to understand the varied results (Bacon and Kojima 2016).

The energy sector itself can also offer employment and income-generating opportunities, particularly to women. In addition to being energy consumers, women can be important energy providers, expanding electricity access to poor and hard-to-reach customers, individually and through networks. A growing number of energy enterprises have begun to employ women as sales representatives to reach low-income consumers at the base of the pyramid with off-grid lighting and cooking solutions. The women help ensure that energy products reflect the priorities of female users, increasing the likelihood of adoption and continued use (World Bank 2017a). Encouraging women to become involved in the energy sector, for example as energy entrepreneurs, offers multiple development benefits, including the expansion of economic activities for women, the diversification of productive options, and the creation of new sources of wealth and income to support family investments in education and health.[6]

5. In Nicaragua, women are 23 percent more likely to work after household electrification while there is no change for men. Similar results can be found in rural Kwazulu-Natal in South Africa and India, although one study found the reverse situation for India (World Bank 2017a).
6. Resources controlled by women tend to be invested more heavily in children than resources controlled by men (IEA and World Bank 2015).

Energy infrastructure projects are associated with job creation through a variety of channels, including direct, indirect, induced, and supply effects. Jobs in construction, operation, and maintenance of infrastructure assets are either created directly by the developer or indirectly through the supply chain or distribution network created for the infrastructure asset, such as a power plant. Induced jobs can emerge from additional rounds of effects, such as the spending of workers, which results in additional employment in other sectors serving household consumption, thus creating a multiplier for further demand. In addition, second-order or growth-related jobs can be created throughout the economy as the energy constraints to economic growth are removed (World Bank 2017a).

Energy alone, however, is insufficient to drive economic activity, particularly for women. Energy is often a key input to the production process, driving higher efficiency and greater returns for most activities. However, access to finance, natural and human resources, and technology are also required for establishing productive activities. Barriers related to low levels of ownership and control over resources, illiteracy, lack of exposure, and poor information and training may affect women more than men because women are often excluded from decision making processes. For example, the informal nature of many women's enterprises is linked to a lack of access to credit, equipment, and other support services (Dutta and Clancy 2005).

3. Afghanistan: Context, Gender, and the Energy Sector

3.1. Socioeconomic Context

Strategically located, Afghanistan is a landlocked multiethnic country with a low-density and overwhelmingly rural population and an economy based on agriculture. The country's mostly mountainous territory spans over 652,000 square kilometers, making it the 41st largest country in the world. Afghanistan connects the Middle East with Central Asia and the Indian subcontinent. The country has a population of 29.7 million, and one of the lowest population density, at 46 people per square kilometer (CSO 2018). The country's population is 70.9 percent rural, with a mere 24 percent living in urban areas, and 5 percent classified as Kuchi (nomadic) (CSO 2018). Afghanistan is a multiethnic and mostly-tribal society. The predominant religion is Islam. Agriculture is the backbone of Afghanistan's economy, contributing 21 percent of the gross domestic product and employing 62.2 percent of the workforce (World Development Indicators).

After decades of war and political instability, Afghanistan remains among the most poorly developed countries in the world despite significant achievements in the first decade of this century. Since the fall of the Taliban regime in 2001, the international community has invested approximately US$130 billion in Afghanistan's reconstruction, including development projects targeting health, infrastructure, education, and economic growth (Asia Foundation 2016). Notable results have been achieved, as shown by the Afghanistan's Human Development Index increase from 0.34 in 2000 to 0.479 in 2015. Life expectancy at birth increased from 55.1 years in 2000 to 60.7 years in 2015, and expected schooling at birth from 5.9 to 10.1 years. Yet Afghanistan still ranks 169 of 188 countries on the index, the lowest in South Asia[7] (UNDP 2016). According to the World Development Indicators, the country's income levels are the lowest of the region, with gross national income per capita of US$580 in 2016.[8]

Economic growth has contracted severely since 2013, and poverty rates have further deteriorated due to declining international spending, worsening conflict, and growing overall uncertainty. Despite sustained economic growth between 2007 and 2012, averaging 11.2 percent per year, the trend reversed significantly, reaching 2.1 percent on average between 2013 and 2016. The worsening economy and security situation translated into a marked increase in poverty from 34 percent in 2007–08 to

7. Other countries in South Asia include Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal, Pakistan, and Sri Lanka.
8. In current U.S. dollars (Atlas method).

55 percent in 2016–17. The increase in the poverty rate is experienced across the country and is present in urban, as well as in rural areas. (CSO 2018). Violent conflict is ongoing in parts of the country.

Afghanistan is the home to one of the world's youngest, fastest growing populations. The population has grown by an average 3.5 percent annually since 2000 (World Development Indicators) and is characterized by a very young age structure. A critical element of the country's development process lies in the fact that 48 percent of the population is under age 15—the fourth highest rates in the world (CSO 2018). Growing numbers of births, children, and young adults exceed the absorption capacity of key institutions, especially the health and education systems; the labor market; and the agriculture sector.

Challenges in the Afghan labor market intensified amid a bleak economic outlook and ongoing demographic pressures. In 2016/17, almost one quarter - 24 percent of the Afghan labor force was unemployed, corresponding to 2 million people, while youth unemployment reached 31 percent (CSO 2018). Because of its young population, the dependency ratio is at the very high level of 101 (CSO 2018). A reduction in aid and the withdrawal of foreign employers resulted in a deteriorating economic situation; and this, combined with pressure from an increasingly large cohort of young people entering the labor market, drove the high rate of the not gainfully employed to 39.7 percent (CSO 2018).[9] The job crisis was particularly severe in rural areas and disproportionately affected low-skilled, illiterate workers, largely in the service sector (World Bank 2017b).

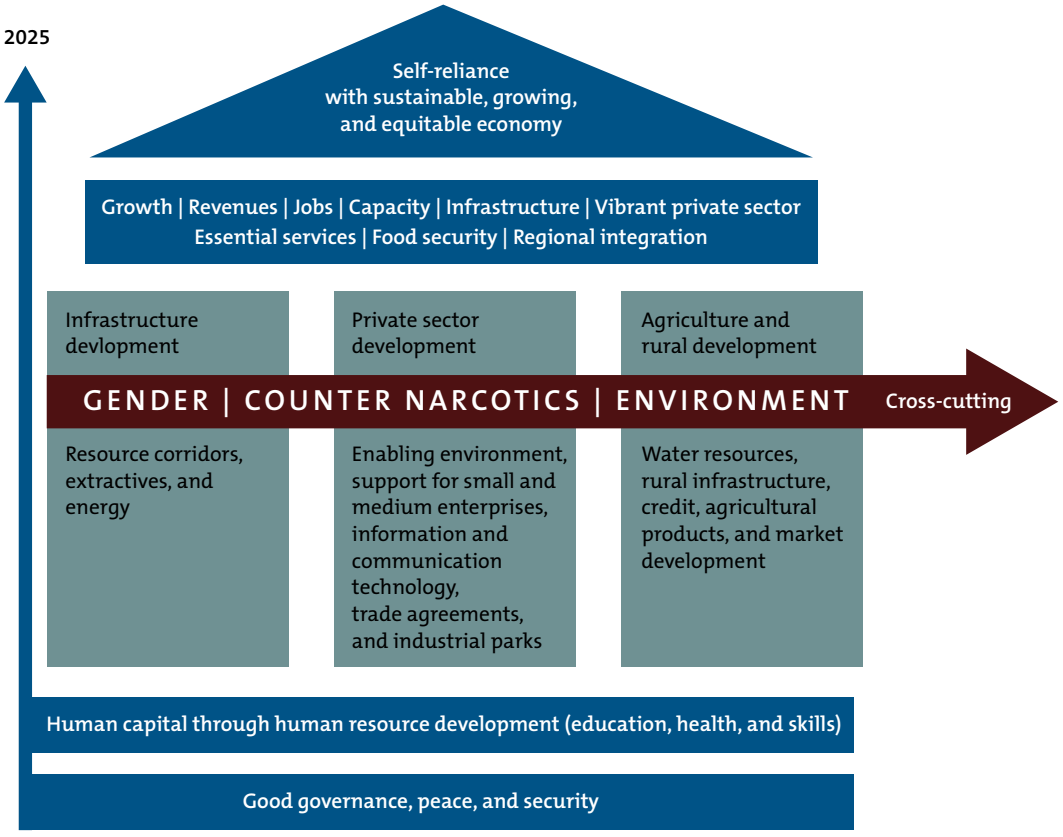
Despite significant achievements over the past decade, Afghanistan has one of the lowest literacy rates in the world. Despite large investments in the education system over the last decade, progress has been slow. In 2016/17, the adult (over age 15) literacy rate in Afghanistan reached 35 percent, up from 24 percent in 2005 (CSO 2018). Pronounced differences exist in the urban versus rural population. In urban areas, the adult literacy rate is almost twice as high as the one in rural areas (54 against 30 percent). The youth literacy rate (population age 15–24) also increased significantly, reaching 54 percent in 2016/17 (from 31 percent in 2005) (CSO 2018).

Afghanistan is struggling to recover its education system and improve attendance rates. Destroyed by decades of conflict and political turmoil, the system suffers from an acute shortage of teachers, particularly in rural areas and in specific fields such as mathematics and science, and a dearth of adequate structures (CSO 2018). The capacity to absorb new students is low—less than half of what is needed to provide every eligible child with a place in school (CSO 2016). In 2016/17, the net attendance ratio reached 56 percent for primary school, 36 percent for secondary education and 10 percent for tertiary (CSO 2018). For each educational level, attendance in rural areas was much lower than in urban areas.

9. The unemployment and underemployment rates constitute the part of the labor force defined as "not gainfully employed."

The Afghan government has established a strategy and defined policies aimed at improving the lives of people and ensuring security and stability. The establishment of a political reconstruction process in 2001 led to the adoption of a new constitution and presidential elections in 2004 and national assembly elections in 2005. The government developed the Afghanistan National Development Strategy in 2008, which focuses on security; governance, rule of law, and human rights; and social and economic development (IRoA 2014). In 2010, the government set 22 national priority program areas across six clusters in line with the strategy, chosen based on their contribution to sustainable economic growth, revenue generation, jobs, and human development. Economic drivers are structured across three pillars: (1) infrastructure development, (2) private sector development, and (3) agriculture and rural development; as well as three cross-cutting factors, including gender, counter narcotics and the environment. It is a model based on good governance, peace and security, and human resource development (figure 3.1) (IRoA 2012a). The more recent Afghanistan National Peace and Development Framework (2017–21) builds on the national development strategy and priority programs to develop a strategy for achieving self-reliance through economic growth and job creation as well as poverty reduction and social inclusion (IRoA 2017a).

Figure 3.1. Economic Drivers in Afghanistan



Source: IRoA 2012a.

3.2. Gender

Despite significant improvements, gender equality remains a major challenge in Afghan society, with women and girls being far more disadvantaged than men and boys. After years of conflict and forced exclusion from the public sphere, women have been slowly emerging as social, economic, and political actors. Until the fall of the Taliban regime in 2001, women had very little to no freedom or civil liberties. Their rights have significantly improved following the fall of the Taliban in 2001. Women have made important gains in terms of political participation and access to education and their footprint is growing in almost every sector (Akbar 2017). However, women still suffer from the entrenched culture of patriarchy and the growing insecurity as the government's control over the territory is challenged by the Taliban. The status of Afghan women remains one of the lowest in the world—the country ranked 154 out of 159 on the Gender Inequality Index[10] in 2015 (UNDP 2017b). Violence against girls and women persists. Hardly a week goes by without news of another violent incident targeting women or girls. Women with political profiles suffer threats and intimidation, and armed groups reportedly restrict women's freedom of movement and even publicly punish them with lashings and even executions (Amnesty International 2017). Hard-won gains made toward gender equality over the past couple of decades appear fragile and reversible.

3.2.1. Women in the Household

Women hold a subordinate and dependent position in the Afghan household; have little negotiating power and restricted mobility. The man is presumed to be the provider for his family and owner of any property, while the woman is expected to remain in the domestic sphere (QARA 2011). A woman has very limited decision-making power regarding the spending of money: only one third make independent decisions about how to spend money they themselves have earned (CSO 2016). According to the World Development Indicators, only one third of women participate in decisions regarding their own health care, major household purchases, or travelling to visit family. Three in four women do not leave their home absent the company of another person, and about half leave their home only four times or fewer per month (CSO 2016).

Female household members tend to be underreported, reflecting their low status and seclusion. The overall sex ratio in Afghanistan is 103.9 men to 100 women. Beyond age 75, men outnumber women by 165.7 to 100, which is quite atypical for this age cohort. These ratios might be due to underreporting of female household members as well as high rates of maternal mortality (CSO 2018).

10. The Gender Inequality Index is based on five key indicators: (1) maternal mortality ratio, (2) adolescent birth rate, (3) share of seats in parliament, (4) population above age 35 with at least some education, and (5) rate of participation in labor force.

Polygamous and child marriages remain prevalent. About 8.2 percent of married women live in polygamous marriages in Afghanistan, creating inequality between spouses (CSO 2018).[11] The large age gap between spouses—an average of more than six years—also subordinates the position of women within a marriage (CSO 2018). Among young women ages 20–24, about 28.3 percent were already married before age 18, the age that defines child marriage; and 4.2 percent were already married before age 15, which means that they were married prior to reaching the minimum legal age.[12] Rates among women age 30 and older are even higher (CSO 2016).

Households lacking an adult male head are more exposed to economic and social threats. About 2.1 percent of the population (3.8 percent of households), representing 593,000 people, lack an adult male head of household. This leaves them greatly exposed to economic and social threats (CSO 2016). Income security and social and physical protection are enormous challenges for a household headed by a young person (under age 18) or an older person (over age 65). The country's 524,000 widows also hold a vulnerable position in Afghan society (CSO 2016). Only 1.2 percent (or 45,000) of households, representing 212,000 people in Afghanistan, are headed by women (CSO 2018).

3.2.2. Health-related Issues

Maternal health indicators have significantly improved, but wide urban-rural discrepancies persist. In 2016/17, the proportion of women receiving antenatal care coverage (at least one visit) was 70.2 percent (up from 51 percent in 2011/12), although only 16.3 percent of women received the four recommended antenatal visits (CSO 2018). Attendance rates for Afghan women delivering with skilled assistance have also consistently improved, from 45.2 percent in 2013/14 to 53.4 percent in 2016/17. Nevertheless, wide-ranging differences persist between rural and urban areas, with rural women at a severe disadvantage in terms of accessing maternal health services. While 86.8 percent of Afghan women delivered with skilled assistance in urban areas, the rate was 46 percent in rural areas (CSO 2018). Despite continued improvement, almost 4 in 10 women still die from pregnancy-related causes, and almost 1 in 10 children still dies before age five (World Development Indicators).

Women face challenges to accessing health care services due to poor infrastructure and cultural concerns. Cultural barriers restrict women's freedom of movement and decision-making authority over their own health. They are not free to choose medical treatment without the approval of a man, and they are restricted from seeking care by their lack of mobility. Afghan culture prohibits the treatment of women by male doctors, at the same time limiting the number of trained female health workers (IRoA 2007a). Although

11. In 1983, Afghanistan ratified the International Covenant on Civil and Political Rights, which calls for measures to abolish the practice of polygamy because it discriminates against women and violates their dignity.
12. The minimum age for marriage is formally regulated by the Afghan Civil Law (Article 40) as age 18 for boys and 16 for girls, but the law has not been fully enforced, and marriages at younger ages are still prevalent.

health care services provision has improved and the number of female health workers has increased, driven by multiple training programs implemented over the last decade, more skilled female health care workers are still needed to meet the needs of the country's women and children, particularly in rural communities. About 46 percent of public clinics in rural areas do not have a female doctor, while midwifes are unavailable in about 20 percent of the public clinics in rural areas (CSO 2018). According to the World Development Indicators, public expenditures in health increased from 0.6 percent of gross domestic product in 2002 to 2.9 percent in 2014, and per capita health expenditures reached $167 (constant 2011 international dollars using purchasing power parity rates) in 2014, below South Asia's average of $233.

Gender-based violence is the most serious human rights violation in Afghanistan and an urgent public health priority. In 2015, 53 percent of the ever-married women age 15-49 reported to have experienced physical violence at least once since age 15, and 31 percent to have experienced physical violence within the last 12 months. Spousal violence is also omnipresent. About 56 percent of ever-married women age 15-49 reported ever having experienced emotional, physical, or sexual violence from their spouse, and 52 percent reported having experienced one or more of these forms of violence in the past 12 months (CSO, MoPH and ICF 2017).. Horrific acts of physical violence against women, rooted in pervasive gender inequality, are common in Afghanistan. While real figures are likely much higher because many crimes against women go unreported, over 5,000 cases of violence against women were reported in 2015, including 241 murders (Bashardost and Khetab 2016). Moreover, a 2015 study revealed major weaknesses in the provision of health care services to survivors, including major knowledge gaps and inadequate attitudes among health care providers regarding gender-based violence, its health consequences, and their role in helping survivors. Only 10 percent of facilities were well prepared to address cases involving gender-based violence (WHO 2017). As a result, 61 percent of ever-married women who experienced violence never sought help or never told anyone about the violence (CSO, MoPH and ICF 2017).

3.2.3. Education

Despite its transformative power, literacy rates in Afghanistan remain very low, especially among women. The power of literacy has been well documented across the world. The level of a mother's education appears to be the greatest predictor for every socioeconomic indicator. The more educated she is, the more likely she is to have a skilled-assisted birth, and therefore the more likely she is to survive childbirth. She is more likely to marry later, give birth later, and register her children. Her children are more likely to be vaccinated and well nourished, and are therefore more likely to survive infancy and childhood. Her children are also more likely to attend school and have more books in their home. They are less likely to be involved in child labor or to be abused. They will probably live in a wealthier household with access to water and sanitation facilities (Oates 2013). Literacy is also correlated with violence against women: 60 percent of violent incidents involve illiterate people (Bashardost and Khetab 2016). Despite all of this, the adult female literacy rate only reached 19.9 percent in 2016/17 (from 12 percent

in 2011/12), while the adult male literacy rate increased to 49.4 percent (from 39 percent). Youth literacy rates reveal a similarly large gender gap, with 68.2 percent of male youth able to read and write in 2016/17 compared with 38.7 percent of female youth (CSO 2018). Variation across geographies is very high. Female literacy rate ranges from 67.3 percent in cities to 29.2 percent in rural areas (CSO 2018).

Although girl's education has undoubtedly improved since 2001, gender indicators in education reveal that women and girls still maintain a very disadvantaged position in Afghanistan. Girls now account for 39 percent of the students attending public school—the Taliban regime barred them from receiving an education (Asia Foundation 2016). However, in 2016/17, an estimated 1.3 million school-age girls were still not enrolled—against 864,000 boys of the same age. The gender parity indices for primary, secondary, and tertiary education attendance in 2016/17, were 69, 51, and 32 percent, respectively. Even more concerning, the gender parity index in primary education dropped from 74 in 2011/12 to 70 in 2016/17. Economic considerations and cultural barriers have resulted in poor attendance rates, particularly among girls; and in rural areas, security concerns keep girls away from school (CSO 2016). Boys often do not go to school if they need to contribute to their family's income. Once enrolled, transition rates from one grade to the next are fairly high among boys and girls (CSO 2016).

Child labor rates are high in Afghanistan, with boys impacted more than girls. Around 30 percent of children ages 5–17 (3 million children) are engaged in child labor, which jeopardizes their physical and mental development. Boys are more likely than girls to participate in child labor, and the gender gap increases with age. Rates vary by the type of residence as well. Kuchi children appear to be the most vulnerable, with almost half engaged in child labor compared with 30 percent of rural children and 10 percent of urban children (CSO 2016).

3.2.4. Employment

Women are largely underrepresented in the Afghan labor market. They face wage discrimination and are the hardest hit by a jobs crisis because they are restricted economically, socially, and culturally. Their position in the Afghan labor market is a vulnerable one. Only 26.8 percent of working-age women were economically active in 2016/17, compared with 80.6 percent of men, and their share in wage employment in the nonagricultural sector was only 13.2 percent (CSO 2018). In 2016/17, the unemployment rate among women was more than double that of men (41 versus 18.3 percent). Youth unemployment rates also maintain a large gender gap: 47.4 percent among women compared with 24.3 percent among men. The share of women in vulnerable employment was also higher (89.9 versus 77.5 percent) (CSO 2018). Even when performing the same type of job, women earn an average of 30 percent less than men (CSO 2016). The productive contribution of women in agriculture and livestock management rarely translates into remuneration or independent accumulation of resources (Lough et al. 2012). The entry of women into the paid economy is often hindered by limited access to economic resources, such as the market or information and technology, in addition to social and

cultural factors. Key to a woman's social and economic empowerment is her ability to freely use her individual resources and set her own priorities. In Afghanistan, however, control over income by women is still not widely accepted (CSO 2016).

Nonetheless, a new category of businesswomen that is overcoming gender norms, is slowly emerging. Although women continue to represent untapped economic potential in Afghanistan, increasing numbers are beginning to participate in the formal economy as entrepreneurs, business owners, and employees (Butler and McGuinness 2013). Based on a 2013 survey, active women are typically young, confident, and have the support of their family. Higher education and exposure to regional and international experiences have also been reported to be key success factors. Most of their businesses have 1 to 10 employees but together they employ over 5,500 people and their earnings are above average. However, 8 out of 10 businesswomen are unable to access financing. Almost half do business with the international community operating within the country, and one in four is in the construction sector. These women need help with financial management, marketing, technical support, and access to clients; their top challenges are corruption, a lack of capital, and insecurity (Butler and McGuinness 2013). Among surveyed businesswomen, family and social norms are not viewed as challenges, which indicates that some segments of the population are gradually seeing women's economic participation as a positive trend. In 2016, three in four Afghans agreed that women should be allowed to work outside the home (Asia Foundation 2016).

3.2.5. Access to Property

Although the law grants women the right to access and own property, the situation on the ground is more complicated. Afghanistan has a complex system of land and property rights that includes informal systems, civil law, sharia law, and state laws. Women can obtain property through marriage with a *mehr* (dowry),[13] they can inherit it, or they can purchase it with their personal income. In reality, however, their access is constrained by insecurity, illiteracy, a lack of awareness, and an inefficient judicial system hostile to women, with inadequate law enforcement mechanisms (QARA 2011). Mehr is hard to enforce if a marriage is unregistered.[14] Moreover, Afghan women are often denied identity cards (known as *tazkira*). Tazkira are necessary to own property, but also access basic services, such as medical care and education, open a bank account, get employment and vote (IWPR 2017). Social stigmas also discourage women from claiming property rights, as doing so often leads to social exclusion or threats of divorce (QARA 2011). By law, female children inherit half of the property designated to male children, but in practice, male children can inherit everything based on the premise that women marry outside of their families and are not considered as providers (QARA 2011).

13. A *mehr* (dowry) is a promissory gift in the form of money or property from the husband to his wife. The wife can claim the mehr in case of divorce or death of the husband.
14. Over 80 percent of marriages are not legally registered in Afghanistan (Wadsam 2012).

Limited ownership of assets and land reinforces women's economic vulnerability. Men are twice as likely as women to own property. Four in five men have a house on their name (alone or jointly); the rate among women is only two in five. Two out of four men own land (alone or jointly), while only one in four women do (Salehi and Erfanyar 2017). Only about 2 in 10 Afghan women have any right to land whatsoever, even though they take care of livestock and tend small plots. The absence of secure rights to inherit and own land makes women more susceptible to poverty, domestic violence, hunger, and homelessness (USAID 2013). A lack of property ownership also constrains access to capital and credit: many women are unable to offer any collateral (QARA 2011).

3.2.6. Politics

Although the 2004 constitution gave women the right to vote, many are blocked from voting by their families and communities. In the 2004 presidential election, 37 percent of the 7.3 million voters were women. The following year, total turnout dropped in the parliamentary and provincial elections, but female voters reached 41 percent. The share decreased to 39 percent in both the 2009 presidential and provincial council elections and the 2010 parliamentary election (Lough et al. 2012). However, any estimates should be treated with caution because proxy voting and multiple registrations of real and imaginary voters proved to be a major problem; these rate might therefore be overstated (Lough et al. 2012). Nonetheless, in a 2016 survey, over 57 percent of women reported that they felt fear while voting in a national or provincial election, versus 50 percent of surveyed men (Asia Foundation 2016). Also, women have limited access to information about how elections work and what candidates are running; most struggle to make informed choices (Lough et al. 2012).

Female representation in the country's political system was made possible by the quota system, but women still face resistance, intimidation, and security threats. The 2004 constitution introduced a quota system to ensure female representation in the country's bicameral national assembly. Twenty-seven percent of the seats in the lower house (*Wolesi Jirga*) and 50 percent of the presidential appointees in the upper house (*Meshrano Jirga*) are reserved for women,[15] and there is a 20 percent quota for provincial councils (Sharan and Wimpelmann 2014). Despite resistance and multiple challenges, the quota system plays a key role in maintaining a female presence in the parliament and councils (Lough et al. 2012). Campaigning is extremely difficult in the midst of a lack of security and widespread cultural opposition to women in public life. Afghan women have taken great risks to participate in political life, facing intimidation, threats, and harassment. In the 2010 parliamentary elections, 400 of the 2,500 candidates competing for the lower house's 250 seats were women (Sen 2010). Sixty-nine of them won a seat, totaling 27 percent of the members of parliament (Sharan and Wimpelmann 2014). In 2014, over 300 women ran for provincial council seats, and 97 won, representing 21 percent of the 458 elected members (Central Asia Institute 2016; UNDP 2015a).

15. The president appoints a third of the delegates to the upper house.

3.2.7. Policy

Since the 2001 international intervention, Afghanistan has been obligated to improve the status of women. In addition to security goals, this was a major stated reason for the intervention and has been a key priority for international donors since. Following the Bonn Agreement in December 2001, the new interim administration had to show immediate and tangible results in terms of the liberation of women (Lough et al. 2012). This led to the establishment of the dedicated Ministry of Women's Affairs in 2002 and the ratification of the Convention on the Elimination of All Forms of Discrimination against Women in 2003, which bans any type of discrimination against women and binds the country to adopting a legal mechanism to eliminate discriminatory cultural practices and other prejudicial practices against women.

The 2004 Constitution of Afghanistan gives men and women equal rights and duties before the law. Per the Bonn Agreement's provisions, Afghanistan interim government was required to adopt a democratic constitution where women participate in public life and enjoy the same human rights as men (Lough et al. 2012). The 2004 constitution enshrines women's equality under the law (Article 22); promotes women's education (Article 44); guarantees their right to work (Article 48); and commits to providing assistance to women without caretakers (Article 53) and to ensure the physical and psychological well-being of the family, especially mother and child (Article 54). In addition, Article 7 states that the United Nations charter, all international treaties and conventions signed by Afghanistan, and the Universal Declaration of Human Rights shall be respected.

Afghanistan's National Development Strategy considers gender equality to be an important precondition to the success of Afghanistan's development goals. A decade ago, the government and the international community prepared the five-year Afghanistan National Development Strategy (2008–13) to comprehensively address Afghanistan's development needs. It has three main pillars and goals: (1) security; (2) governance, rule of law, and human rights; and (3) social and economic development (IRoA 2014). It positions gender at the core of the national development agenda by recognizing it as a cross-cutting theme and adopting a three-pronged goal to promote gender equity by: (1) eliminating all forms of discrimination against women; (2) developing women's human capital; and (3) ensuring women's full participation and leadership in all aspects of life in Afghanistan (IRoA 2007a). The strategy also includes eight gender-specific benchmarks in various sectors, and it created three gender-specific mechanisms that would ensure their implementation and promote the mainstreaming of a gender perspective in the implementation of the remaining sectoral benchmarks (IRoA 2007a). It is the collective responsibility of all sectors, institutions, and individuals to incorporate women or gender concerns in all aspects of government work, including policies; budgets; programs; projects; services; and activities such as recruitment, training, promotion, and allocation of benefits and opportunities (IRoA 2007a). The strategy reiterated the country's commitment to implementing the constitutional guarantees of nondiscrimination and equality of rights and duties among men and women; it focused on the priority problems affecting

Afghan women and men; and set out policies, outcomes, and benchmarks for measuring progress (IRoA 2007a). The Afghanistan National Peace and Development Framework (2017–21) acknowledges that the potential of women to contribute to economic development remains severely restricted by structural barriers, cultural norms, and insecurity; and it reiterates that enabling women to increase their participation in the economy and society is crucial for Afghanistan's successful development (IRoA 2017a).

The National Action Plan for the Women of Afghanistan (2008–18) aims at pursuing women's empowerment and gender equality. Recognizing the seriousness of the challenge, and the wide gender gaps across all indicators, the government developed a 10-year plan of action aimed at implementing its commitments to women and ensuring continuity and consistency in its efforts to protect women's rights through female empowerment and gender equality[16] (IRoA 2007a). The vision is to build a peaceful and progressive Afghanistan where both women and men enjoy security, equal rights, and opportunities in all aspects of life. The plan identifies a comprehensive list of policies and actions that must be implemented in six focus areas: (1) security; (2) legal protections and human rights; (3) leadership and political participation; (4) the economy, work, and poverty; (5) health; and (6) education (IRoA 2007a). The government again positions gender as a cross-cutting issue across multiple sectors of the national development agenda.

In 2009, the Afghan government ratified the Law on Elimination of Violence Against Women. It is among the key legal instruments protecting women from violence in Afghanistan. It criminalizes 22 types of violence against women, including rape, domestic violence, child marriage, and forced marriage; ensures compensation to victims of violence; and provides for a faster response to such crimes. However, due to the weak rule of law, a lack of awareness among the judiciary and Afghan public, and a general lack of political will, implementation of the law has been limited (BAAG 2014).

Multiple institutional mechanisms have been established to ensure the delivery of the Afghanistan gender policy framework. The first post-Taliban achievement was the establishment of a separate ministry for women. The Ministry of Women's Affairs with its provincial offices was established in 2002 to act as the lead ministry for advancing the status of women and for dealing with the enormous problems faced by women. The government also created the Office of the State Minister for Women's Affairs and set up a gender advisory group as part of the Afghan Development Forum. A gender directorate was set up within the civil service commission to promote women's employment, and most ministries now have an established gender unit (Oxfam 2011, Butler and McGuinness 2013). A national gender strategy (2012–16) was developed for the Ministry

16. The National Action Plan for the Women of Afghanistan defines gender equality as "a condition where women and men fully enjoy their rights, equally contribute to and enjoy the benefits of development, and where neither is prevented from pursuing what is fair, good, and necessary for living a full and satisfying life." Women's empowerment is defined as "a condition where women and men fully enjoy their rights, equally contribute to and enjoy the benefits of development, and where neither is prevented from pursuing what is fair, good, and necessary for living a full and satisfying life" (IRoA 2007a).

Box 3.1. The National Solidarity Program: Empowering Afghan Women

A 2014 evaluation of the National Solidarity Program in Daikundi suggests that it enabled women to participate in community life and decisions regarding community development activities. The program created an environment in which women could get out of their homes—a result of expanded awareness of human and women's rights, especially among men (Oxfam 2016; UN Habitat 2014). A 2012 evaluation of women's participation in the program in the province of Kabul reported that the requirement to set up separate shuras (local councils) for women and for men forced male community members to accept the involvement of women in the project and also provided a venue for women to interact with one another, to exchange knowledge, and to express themselves freely. It also helped increase their awareness about their rights. Women began to value their own ideas, considering them to be as sound as those of men. The program shifted the balance of leadership in the community, and the members of women's shura gained power and social status. Their newfound confidence allowed them to speak up and perform new tasks, such as purchasing goods at the bazaar. But some challenges persisted. The women's shura was not in control of funds, and the lack of literacy among many members inhibited them from examining the transactions and plans of their head member. Some women could not participate in program activities due to restrictions imposed by their male household members. Some women reported a direct increase to their income as a result of the program, although in many cases they continued to exert only limited control over their own money. In addition, the survival of women's shura depends on the continued existence of the National Solidarity Program (Echavez 2012).

of Public Health; and similar strategies are currently being developed for the agriculture, security, and jobs sectors (IRoA 2012b, IRoA n.d.). The Afghanistan Independent Human Rights Commission, including its regional and provincial offices, was established in 2002. It monitors human rights abuses in Afghanistan, advises the government on improving the implementation of human rights standards, and promotes legislation in accordance with international humanitarian law.

The National Solidarity Program and the Citizen's Charter promote the explicit involvement of women in the community development councils. Aimed at improving Afghanistan's governance system, which has been weakened by two decades of conflict, the Ministry of Rural Rehabilitation and Development, with support from multiple international donors including the World Bank, established the National Solidarity Program in 2003 (box 3.1). It sought to empower Afghans to reduce poverty by establishing a network of about 30,000 self-governing community institutions, or community development councils[17] (UN Habitat n.d.). It promoted a new approach that prioritized

17. The objective was to: (1) reestablish relations between government and rural communities; (2) provide grants for the reconstruction of physical and social infrastructure; and (3) empower communities and establish community-level governance structures.

good representation and the explicit involvement of women. Community matters were traditionally discussed by shuras (local councils), usually comprising male elders and landowners.[18] Under the program, any community member could become a council member through fair elections. Half of the positions were allocated to women, ensuring their involvement (UN Habitat n.d.). The program, which seeks to raise awareness of women's rights, included gender mainstreaming training designed to encourage the transformative participation of women in local decision making. Building on the program, the Citizen's Charter Afghanistan Project was launched in 2016, emphasizing the need to further build the capacity of community development councils and to ensure that vulnerable groups, such as women, returnees, internally displaced people, widows, and persons with disabilities, are included in the development process (IRoA 2017a).

Despite the progress on many important fronts, much work remains to achieve gender equality in Afghanistan. Over the past decade, the country has made notable progress in establishing a coherent framework to eliminate gender inequality and social exclusion, with efforts such as the National Solidarity Program, but policy implementation challenges persist around human rights, gender equality, and equity in health care. Progress in fulfilling gender equality commitments and implementing gender equality measures has been uneven due to limited political will, inadequate financial support, and a lack of technical expertise (Butler and McGuinness 2013). On-the-ground initiatives have been limited and less effective, and the country's approach to gender programming has so far been inconsistent (BAAG 2014).

Despite the persistence of restrictive social norms, Afghans have started voicing support for women's rights and empowerment. Stringent informal norms in traditional Afghan society pose a major challenge to women's participation in political, economic, and social arenas. The primary role of rural Afghan women is still mainly restricted to household obligations. Although the status of women remains chronically poor, an increasing number of Afghans are voicing favorable opinions about women's rights and enhancing their socioeconomic opportunities and participation in the workforce (Asia Foundation 2016). The Survey of Afghan People 2015 reported that, although only a few women are involved in paid work, many express a personal desire to work for money (Asia Foundation 2015). In urban areas, 40.2 percent of women would like to work for money; the rate is even higher in rural areas at 44.7 percent (Asia Foundation 2015). The number of Afghans in rural and urban areas reporting that their female family members contribute to household income, increased at a steady rate over time, from 13.6 percent in 2009 to 22.6 percent in 2015 (Asia Foundation 2015). The survey also revealed that 23.4 percent of women were aware of institutions or organizations in their community where they can resolve their domestic and legal problems—up from 19.3 percent in 2011 (Asia Foundation 2015).

18. Meeting participants have traditionally been self-nominated elders and/or powerful and influential men who are used to making decisions on behalf of the community they claim to represent. This system excludes marginalized segments of society from political power and meaningful participation in decision-making spaces. Only the most respectable and influential of women can ever join the elders' shuras (Oxfam 2016).

3.2.8. Integrating Men and Boys Into Gender Work

Men and boys should also be integrated into gender initiatives to transform gender relations. Many assume that gender work is solely focused on improving the status of women, but an understanding of the notions of masculinity is also critical. An Afghan man is expected to provide for his family, and if he fails to do so, he can feel disempowered. The discrimination, violence, and gender norms imposed on men and boys need to be recognized, including pressure to join security forces and fight for family honor; sexual abuse experienced by young men serving in the security forces; incidents of severe malpractice in state and privately-run orphanages; and the solicitation of dancing boys by predatory males (BAAG 2014). Greater attention is required to integrate men and boys into gender initiatives because unbalanced initiatives can be dismissed by men as irrelevant or create additional obstacles and hostility (BAAG 2014). Without compromising women-focused efforts, interventions targeting Afghan men, such as the UN Women HeForShe awareness campaign against violence, are also needed (UN Women n.d.). Education for boys and men is as crucial as it is for girls and women, because educated men are more likely to support women's empowerment efforts and because educated husbands tend to feel less threatened by an educated partner (Trust in Education 2017).

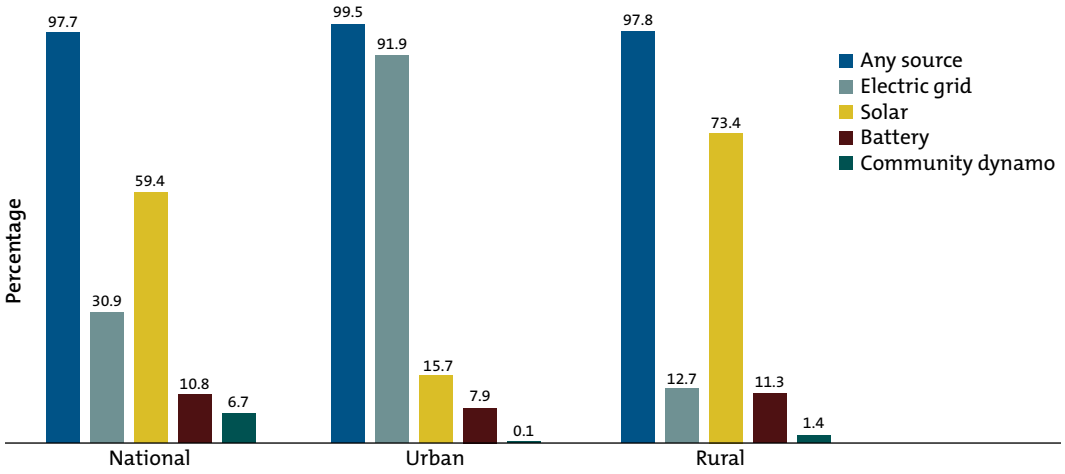
3.3. The Energy Sector

Afghanistan achieved almost universal access to electricity, at 97.7 percent, but only 30.9 percent of the households use the electric grid. The share of Afghan households with access to electricity more than doubled since 2007/08, when only about 4 in 10 households were electrified, reaching 97.7 percent of households by 2016/17 (CSO 2018). Urban households have a coverage rate of up to 99.9 percent and rural households up to 97.8 percent, but the electric grid is only used by 30.9 percent of total households. In urban areas, the grid is the primary source of electricity, with 91.9 percent of households connected (figure 3.2). However, only 12.7 percent of rural households have access to the grid. The primary electricity source in rural areas is solar, used by 73.2 percent of rural households in 2016/17 (CSO 2018).

Afghanistan has one of the lowest level of electricity use in the world. In 2014, consumption was an average of 176 kilowatt hours (kWh) per capita per year, significantly lower than the South Asian average of 707 kWh and the worldwide average of 3,126 kWh (Korkovelos et al. 2017). National annual gross demand is expected to increase from 3,531 gigawatt hours (GWh) in 2011 to 18,409 GWh in 2032, and annual peak demand from 742 megawatts (MW) in 2011 to 3,502 MW in 2032 (ADB 2013). At the same time, about 83 percent of the households are expected to be connected to the grid by 2032.

Electricity generation capacity remains inadequate and heavily reliant on imports. In 2015/16, electricity generation in Afghanistan reached 5,762 GWh. Domestic electricity generation accounted for less than 25 percent of the total and was almost exclusively (90 percent) based on hydropower, with diesel generators, thermal power and solar power

Figure 3.2. Households with Access to Electricity, by Source and Type of Residence



Source: CSO 2018.

providing the rest. Imports accounted for over three-quarters of the electricity supplied (Ghalib 2017).[19] The power generation mix is aimed at minimizing costs by favoring cheap power from neighboring countries and using domestic hydropower rather than diesel-fired thermal power plants (World Bank 2017c). The energy import bill has increased 14-fold, from US$16 million in 2007 to nearly US$224 million in 2015 as increasing consumption was met with additional imports (ADB 2015). The depreciation of the Afghani also significantly impacted the cost of imports, which are priced in U.S. dollars. The development of domestic energy sources, such as hydropower and thermal (gas and coal) power plants has been impeded by high costs, high risk, and a lack of financing, in addition to an absence of water treaties with neighboring countries (five out of six rivers have transboundary issues).

Power shortages and load shedding are persistent issues, even in the capital. The rate of electricity access has increased dramatically since 2002, reaching 99.5 percent in 2016/17 in Afghan cities. However, during peak hours (from 5:00–10:00 p.m.), the electricity system regularly suffers a gap of at least 150 MW between the power that the utility company, Da Afghanistan Breshna Sherkat (DABS), can provide and the needs of its customers. Demand from Kabul's was 530 MW, but it only receives 260 MW, mostly imported from Uzbekistan during the winter through the already overloaded transmission network, and 80–115 MW of intermittent supply from domestic hydropower plants located in the Kabul River Basin. Load shedding has been introduced to "share power

19. Imports come mainly from Uzbekistan (35 percent), Tajikistan (30 percent), Iran (21 percent), and Turkmenistan (13 percent).

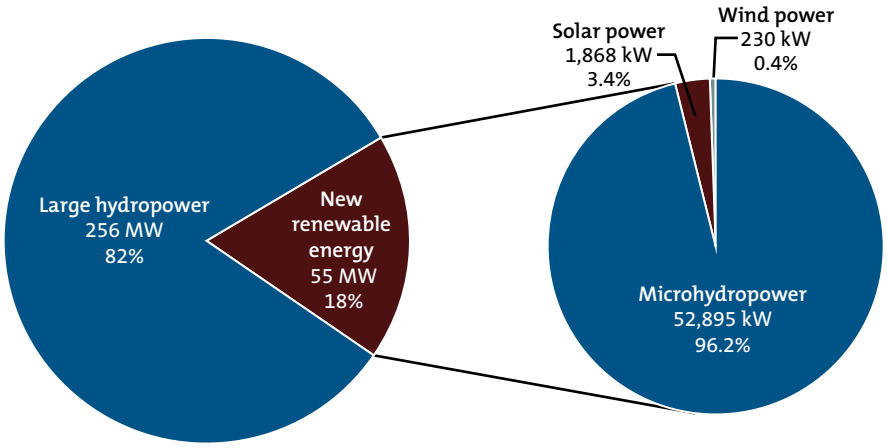
fairly among all customers." Depending on the neighborhood, electricity cuts last from 9 to 15 hours a day, and many households have flickering lights and appliances that do not work due to poor voltage (Amin 2015).

Afghanistan's power system is highly fragmented and asynchronous. Its transmission system consists of 10 isolated grids (or islands) supplied by three geographically separate transmission networks that are based on different power generation and import sources: (1) the North East Power System, which consists of multiple small islands and connects 17 load centers, including Kabul, Mazar-e-Sherif, and Jalalabad, with Tajikistan and Uzbekistan; (2) the South East Power System, which includes Khandahar and links to Kajaki; and (3) the Herat System, which links to Iran and Turkmenistan. The power systems in Afghanistan and neighboring supplier countries operate asynchronously and are highly inflexible. Afghanistan has to operate separate power systems, each synchronized with its neighboring supplier, or with its domestic power sources (asynchronous with one another) (World Bank 2017c). Asynchronous networks inhibit efficient power interconnections and trade because available power on one network cannot be connected to another without the installation of back-to-back convertor systems to align power frequency. This impedes efficient load dispatch and results in a higher probability of blackouts. Moreover, the country cannot serve as a system for transmitting electricity from Central Asian to South Asian countries (ADB 2015).

Despite the country's renewable energy potential, the development of such resources has been limited. Besides large hydropower, with 256 MW of installed capacity in 2015, new renewable energy sources account for 55 MW, with microhydropower plants accounting for over 96 percent of that (figure 3.3). There are over 5,000 new renewable energy projects in the country, 88 percent of which are complete. Among those, 2,678 are microhydropower projects, 2,450 are solar power projects and 22 are wind power projects (IRoA 2017b). However, the potential of renewable energy in the country is much higher: 23 gigawatts (GW) of hydropower, 222 GW of solar power, 67 GW of wind power, around 3.5 GW of geothermal power, and 4 GW of biomass (IRoA 2015).

The government's National Energy Supply Program aims to provide sufficient electricity through affordable and sustainable sources with an investment of nearly US$10.1 billion by 2030. The program envisages sequenced priority investments in power supply chains coupled with reforms to strengthen governance, increase private participation, develop sector capacity, and improve accountability. It prioritizes the development of indigenous generation in parallel with power import infrastructure, completion of the transmission line ring, focus on renewable energy generation, expansion of power distribution networks, and development of gas fields for power and industrial anchors. It is also aimed at the modification of tariff structures and improving the bill-collection process. The energy supply program builds on the country's national development strategy for 2008–13, the integrated power sector master plan for 2012–32, and the gas

Figure 3.3. Installed Capacity of Renewable Energy



Source: ICE 2016a, b.
kW = kilowatt.

development master plan for 2015–35. The Electricity Services Act 2015 provides for a legal and regulatory framework and transparent structure for private sector participation. Funded by government, donors, public-private partnerships, and private sector financing, investments are expected to increase the rate of grid electrification from 30 to 83 percent through an integrated transmission network, increase domestic generation from 20 to 67 percent, and strengthen power exchange options with neighboring systems (ADB 2015).

Energy policies and operations are gradually being divided between the Ministry of Energy and Water and DABS (the utility company), respectively. The ministry, which is the government department primarily responsible for the power sector in Afghanistan, is focused on policy, strategy, planning, and regulatory issues. It took the lead in preparing the national energy supply program and master plan and plays a significant role in dealing with neighbor countries and donors (World Bank 2015a, World Bank 2015b). Operations and investment are increasingly devolved to DABS, which was separated from the Ministry of Energy and Water in 2009 to be established as a financially independent and commercially viable entity while remaining under state ownership. It is implementing a robust institutional development and commercialization strategy that includes improved operation and maintenance practices for the entire value chain, revenue protection initiatives, reforms in procurement and corporate governance, and business planning (ADB 2015). The financial performance of DABS has improved significantly since 2009; and by 2014, it no longer needed government subsidies to support its operations. Additionally, energy losses were reduced from 54 to 26 percent (World Bank 2017c). Despite progress

in billing and collections through the automatization of its billing system for all major cities and the gradual improvement of its governance structure, staffing, and customer management (World Bank 2015b), DABS still faces significant challenges, including over-staffing and underqualified staff and poor customer management, billing, and collection methods. Further support to strengthen its institutional, financial, and human capacity is needed to improve the power system of the country (World Bank 2017b).

4. Integrating Gender Aspects into Energy Interventions

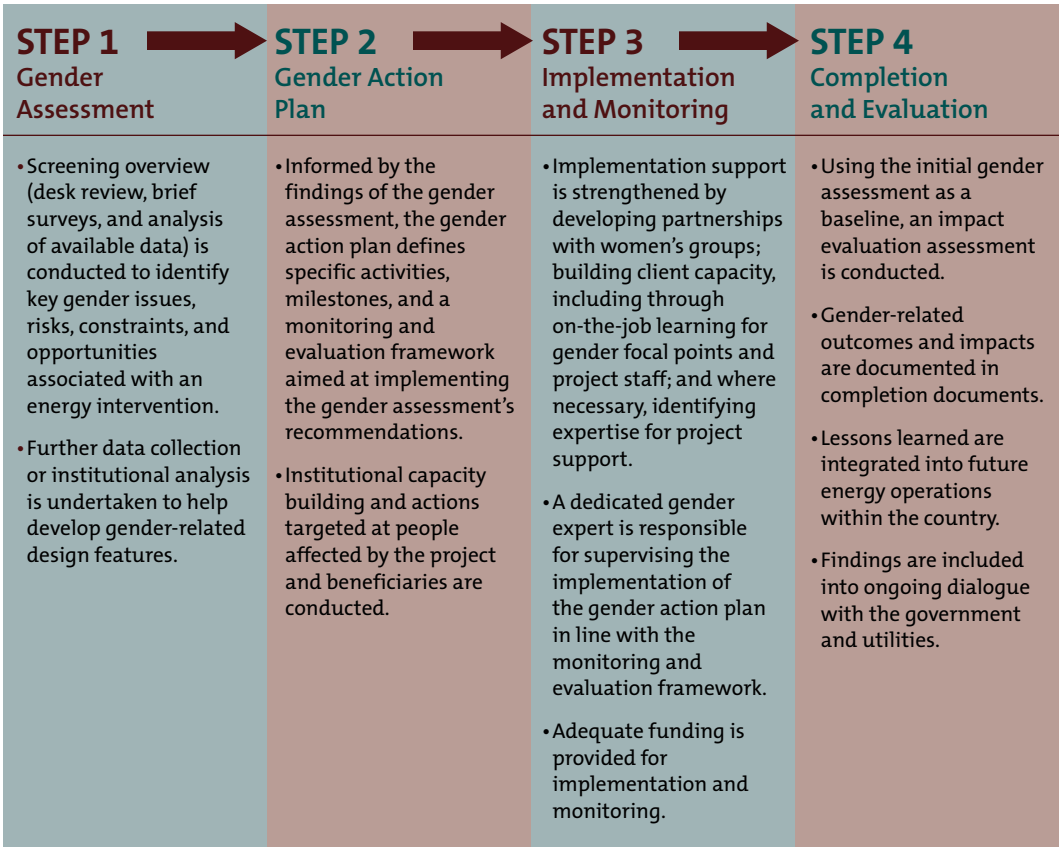
Integrating gender considerations into energy projects can enhance a project's effectiveness. As an intrinsic human right, gender equality is a core development objective by itself, and sustainable development should therefore result in fewer gaps in the well-being of women versus men. Gender equality is also smart economically. Greater gender equality can enhance productivity, make an institution's decision making more inclusive and representative of society, and improve development outcomes for the next generation (World Bank 2012). Taking into consideration the different constraints and needs of men and women when designing and implementing energy projects can significantly enhance their sustainability. Applying a gender lens also ensures that projects do not lead to unintended adverse gender impacts.

There are four key steps in integrating gender into energy projects. To ensure that gender is appropriately integrated into energy projects, specific actions need to be taken throughout the project cycle (figure 4.1).

Gender aspects can be integrated into energy interventions through several strategies. As identified in the 2012 World Development Report, there are three key areas of gender inequality: (1) endowment, (2) economic opportunity, and (3) agency, which lead to four strategic objectives: (1) improve human endowments, including education, health, and social protection; (2) remove constraints for more and better jobs; (3) remove barriers to ownership and control of productive assets; and (4) enhance women's voice and agency and engage men and boys (World Bank 2015c).

The following sections present several strategies on how to integrate gender and social aspects into energy interventions in order to address specific challenges that Afghanistan faces. Four types of energy interventions are considered: grid electrification in rural areas, off-grid electrification in rural areas, energy efficiency initiatives, and electricity pricing policies. For each intervention, key challenges are identified, current or potential solutions are presented, and activities for integrating gender and social aspects into proposed solutions are explained. The suggestions are no exhaustive; the aim is to link gender activities to specific solutions addressing specific issues.

Figure 4.1. Integrating Gender Aspects into Energy Projects



Source: Adapted from ESMAP 2013.

4.1. Grid Electrification in Rural Afghanistan

4.1.1. Financing Mechanisms

Access to grid electricity in rural areas is set to grow from 10 percent in 2013/14 to 65 percent in 2032. In 2016/17, only 12.7 percent of the rural population had access to grid electricity, while in urban areas the rate reached 91.9 percent (CSO 2018). The Afghanistan Power Sector Master Plan sought to increase the grid connection rate in rural areas to 65 percent by 2032, although mini-grid and other off-grid options could represent a larger share as their availability and cost-effectiveness increases (ADB 2013). Nonetheless, in 2016/17, about 73.4 percent of rural households had access to electricity through solar energy solutions, while 11.3 percent used batteries (see figure 3.2 on page 23). These standalone solutions usually provide electricity only for lighting and some low-load appliances, such as mobile chargers, radios, and fans. Thus, the average electricity consumption in off-grid households is significantly lower than that of grid-connected households.

High poverty levels in rural areas limit the affordability of connection and electricity use. Amid a deteriorating economy and increasing conflict, a significant increase in poverty is noted, climbing to 41.6 percent in cities and 58.2 percent in rural areas (CSO 2018). Poverty

affects access to electricity: 91.9 percent of the nonpoor have access to electricity versus 84.5 percent of the poor (CSO 2016). Poor households cannot afford the grid connection fee or struggle to pay their electricity bills and thus are less likely to be able to improve their living standards through productive activities that require electricity (CSO 2016).

A profile of Afghanistan's poor can be determined through household socioeconomic characteristics. Household surveys offer insight into the demographics, education, and employment of the head of household; the children; and their access to basic services, such as safe drinking water, sanitation facilities, and electricity. Households with many young children, that rely on child labor, or whose head is illiterate or employed in the informal labor market—particularly in the agriculture or construction sectors—are more vulnerable to poverty than households without these characteristics (CSO 2016). Female-headed households and other households lacking an adult male as head (3.8 percent of total households) are more prone to economic and social threats (CSO 2016).

Consumer financing mechanisms targeted at vulnerable population groups, including female-headed households, can facilitate grid access and contribute to rising living standards. No consumer financing mechanisms or direct subsidies are currently available in Afghanistan to support the cost of connection fees charged to consumers; and there are no policies in support of low-volume consumers, such as cross-subsidization, social tariff or lifeline tariff (Banerjee et al. 2017). Electricity tariffs are often established to accommodate two conflicting objectives: (1) offer affordable electricity to consumers, and (2) reach cost recovery. In its 2007 power sector strategy, the government acknowledges that, although a clear tariff policy was needed to allow for the full recovery of costs, exceptions could be made, particularly in rural areas (IRoA 2007b). Subsidizing the high initial connection fees and internal wiring costs or spreading the costs out over time can significantly enhance grid access for the rural poor and female-headed households (box 4.1). Such one-off subsidies have low transaction costs and do not undermine efficient consumption, but even with them, many households would still be unable to pay an electricity bill. Therefore, subsidizing electricity consumption may be necessary, such as offering lifeline rates for low consumption levels to incentivize the use of basic electricity services in poor households. Any such consumer subsidies must be well-targeted, efficient, cost effective, practical, transparent, and time-bound (USAID 2004). Subsidies for electricity access and related campaigns should be effectively targeted toward the poor. Poor rural households headed by women should be automatically eligible (ADB 2012).

4.1.2. Boosting Electricity Consumption

Insufficient demand and productive and commercial loads are major obstacles to the sustainability of an electric grid in the rural areas of Afghanistan. Other factors include supply shortages, deficient infrastructure investments, and political instability. The combination of a low-density, high-poverty population and low demand (from residential users and some agricultural activities), leads to a high price of electricity per unit consumed. Rural networks also have both higher technical losses and operating costs. It is

Box 4.1. Gender-sensitive Financing to Increase Rural Access to Electricity in Lao People's Democratic Republic PDR

The rural electrification program in Lao People's Democratic Republic (Lao PDR) faced uneven growth distribution, including large gender disparities between urban and rural populations. In electrified villages, about 20 to 40 percent of households were not connected to the grid because they could not afford the connection charge of US$100–150. For the most part, these households were primarily living below the poverty line or were female-headed.

In 2008, Electricité du Laos launched the Power to the Poor (P2P) component, targeting nonconnected households in electrified villages. The P2P offered a targeted, subsidized, affordable, and sustainable financing mechanism for the poorest rural households who could not afford the full upfront costs of connection and internal wiring to access the main electricity grid for basic service. It set up an interest-free consumer credit (of about US$80), paid back over three years at US$2–3/month. Monthly payments for the credit and electricity consumption combined were designed to be equivalent to the cost of lighting with candles, kerosene lamps, or car batteries—common methods used prior to electrification.

Two gender-sensitive measures were incorporated in the program:

1. **Gender-sensitive eligibility criteria.** Among nonelectrified households, all female-headed and single-parent households were automatically eligible for support, assuming it was safe to electrify the home.[a]
2. **Gender-sensitive outreach materials.** Outreach materials highlighted the benefits that electricity offers for women; and consultative processes were made gender-inclusive, for example, by scheduling meetings at times when women could attend.

As a result of the program, the overall connection rate in participating villages increased from 79 to 96 percent, and from 67 to 95 percent in female-headed households.

Source: Carlsson Rex 2011.
a. Female-headed households represent only 8 percent of total households but 43 percent of poor ones.

therefore rarely financially feasible to provide service with an electric grid in low-income rural areas (World Bank 2010).

Rural electrification projects need to integrate livelihood opportunities to enhance affordability of electricity use and increase power loads. Low-income households struggle to pay connection fees and/or their electricity bills, constraining their capacity

to improve their living standards through productive activities requiring electricity. The capacity of consumers to pay for electricity is a key determinant of a rural electrification project's success. The involvement of the community and local businesses—formal and informal—is fundamental to understanding what productive uses would likely be adopted and to ensuring local ownership and operational sustainability. Local economic development is a necessary precondition to sustaining successful electricity access interventions. Cross-sectoral linkages between electricity access projects and livelihood impacts should be explored (box 4.2).

Box 4.2. Establishing Linkages Between the Provision of Electricity and Economic Activities

Energy planners can use two complementary approaches to establish cross-sectoral linkages between electricity provision and livelihood impacts when estimating potential electricity demand.

1. Systematic. This approach enables energy planners to understand the expected gains that can be derived from introducing electricity into the production processes of goods and services in a specific context. It is useful in determining the latent demand for electricity services in various productive sectors (figure B4.2.1).

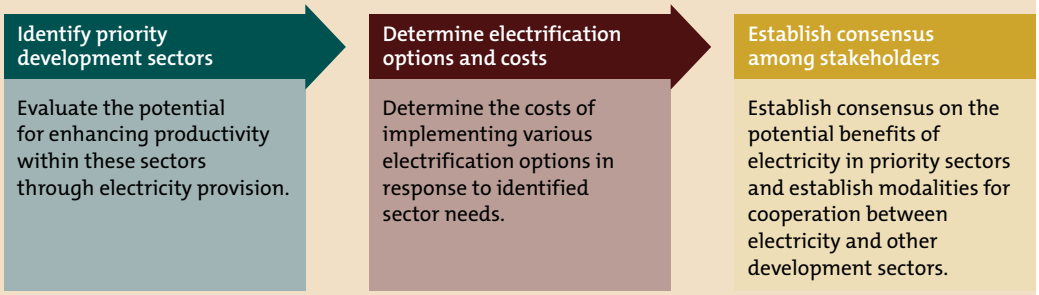
Figure B.4.2.1. Systematic Approach

(continued)

Box 4.2. Continued

2. Pragmatic. Often implemented in the form of multisector energy investment projects, this approach is opportunistic, tapping into existing development activities as a means of scaling electricity demand. Electricity access is provided or upgraded for established activities in other "anchor" sectors, to enhance productivity and produce tangible benefits for local communities (figure B4.2.2).

Figure B.4.2.2. Pragmatic Approach



Source: de Gouvello and Durix 2008; Odarno et al. 2017.

To increase affordability and power loads, rural electrification projects should focus on maximizing employment opportunities for men and women and encouraging livelihoods related to energy access. Educating local populations through gender-targeted information campaigns and training events is the first step toward this goal. Gender-sensitive trainings[20] could include the safe and efficient use of labor-saving, end-use energy technologies; access to appropriate microcredit services, grants, and concessional loans; finance and business management; market access and marketing strategies; and other business development services (ADB 2012). Partnering with local nongovernmental organizations to pilot livelihood programs could also prove beneficial. Appropriate appliances should be made available for purchase in the project area, and microfinancing mechanisms targeting men and women should be provided. Providing electricity for crucial infrastructure, such as water distribution systems, should also be part of any effort.

Livelihood opportunities for men and women can emerge out of the electricity sector. Local populations should be encouraged to explore income-generating opportunities as appliance retailers, repair shop operators, electricians, and utility company employees. Gender-inclusive training in relevant skills can be integrated into projects to facilitate uptake of such activities (box 4.3). Gender- and social-inclusive incentives may also be

20. Training activities should be carried out for men and women separately. Training for women should be specifically targeted and relevant to women's household chores and economic activities. Training for men is crucial because they usually make decisions regarding the purchase of appliances and other household equipment.

Box 4.3. Gender-focused Community Development Activities Supported by a Transmission and Distribution Project in Sri Lanka

In 2011, a project in Sri Lanka to increase distribution coverage was designed to include a variety of opportunities for poor rural communities in addition to gender-focused community development activities. One key project outcome was the electrification of remote rural communities in Eastern and Uva provinces. The project's gender action plan and design and monitoring framework included the following key design features:

- Training in electricity-related skills for 1,500 people from poor and vulnerable households in Eastern Province, including routine operation and maintenance of distribution lines and substations and meter reading, to create a pool of service providers eligible for employment by the Ceylon Electricity Board and the rest of the energy sector (with 30 percent target for women).
- Livelihood skills training for about 225 women in the repair of electrical appliances, such as televisions, mobile phones, household equipment, and three-wheelers.
- Training for 90 people to be energy auditors in order to improve energy efficiency (with 30 percent target for women).
- The raising of awareness among the estimated 12,000 newly electrified households around the safe and efficient use of electricity, livelihood opportunities, and gender-sensitive household-level energy consumption patterns and habits, led by female motivators.
- A gender review of Sri Lanka's energy sector program and policies.

Source: ADB 2012.

offered to micro and female entrepreneurs, such as tax benefits, public funding, energy equipment rebates, microcredits, and financing for small and medium enterprises (ADB 2012). Because women are even more underrepresented in the energy sector than they are in the labor market as a whole, promoting entrepreneurship among women and providing incentives to improve their profitability can reduce gender inequalities.

4.1.3. Involving Women in the Bill Collection Process

DABS, the Afghan electricity utility, suffers from high technical and commercial energy losses. Losses are currently estimated at about 34 percent, which is down from 54 percent in 2008 (ADB 2015; World Bank 2017d). Reducing these losses is important to the utility's financial sustainability, and doing so would make more power available to consumers. DABS has begun rolling out an annual asset maintenance plan, bulk metering plan, and computerized maintenance management system to reduce system losses (ADB 2015).

Commercial losses can result from illegal use of electricity or from inadequate billing processes. Illegal usage, a common practice in many countries around the globe, occurs through several strategies, including hook-up (illegal connection), meter tampering (fraud), billing irregularities (bribery), and unpaid bills (Smith 2004). Commercial losses can also result from badly working meters, incorrect or lack of meter reading, under- or inefficient billing, faulty bill distribution, inadequate revenue collection, software errors, and prolonged disputes (Amin 2015; Kiran Kumar, Sairam, and Santosh 2013).

Electricity theft and pilferage can negatively impact the utility and its customers. Illegal connections lead to loss of revenue as well as to higher energy costs, poor-quality electricity supply, and system overloading. People's safety and well-being can be put at risk by the potential outbreak of fires, which can cause serious injuries or fatalities as well as property damage (Orlando et al. 2018). The risk of electrocution is higher among poor households with sketchy wiring infrastructure. Studies on electrocution-related morbidity and mortality highlight the lack of elementary knowledge regarding the risks of electrocution, particularly in rural areas (Blumenthal 2009; Gupta, Mehta, and Trangadia 2012; Kumar, Verma, and Singh. 2014; Mashreky et al. 2010).

A utility can adopt multiple measures to limit commercial losses. Technical approaches can curb direct tapping,[21] defective metering, and meter tampering,[22] and legal, communication, and judicial approaches can dissuade electricity theft, recover old debt, and enforce disconnection of defaulters (Khobragade and Meshram 2014). The bill collection process could be enhanced by installing drop-box facilities, opening more agencies, and establishing e-payment centers to reduce lengthy lines and maximize customer convenience (Kiran Kumar, Sairam and Santosh 2013). Intensive inspections and special collection drives should be adopted, particularly in areas with poor payment histories.

Community engagement is key to promoting behavioral change and law enforcement. Law enforcement measures alone cannot effectively address electricity theft and nonpayment of electricity consumption, especially when such practices are widespread and socially accepted. It is therefore essential to engage the local community and electricity consumers in behavioral change (Orlando et al. 2018). Men and women can play a different role in tackling these issues.

Women can play a key roles as treasurers, bill collection officers, and awareness-raising ambassadors. In some countries, women are thought to be more reliable and transparent in terms of paying bills and being accountable (e.g., Dominican Republic). A woman with such characteristics could be employed as a treasurer for a utility company. Women can serve as critical allies during awareness-raising campaigns as promoters of

21. Modern and effective equipment—such as aerial bunched cables and partially insulated low-tension lines, along with a high-voltage distribution system, can prevent direct hook-ups.
22. Faulty or outdated meters can be replaced with tamper-proof metering, and meters can be shifted to easy-to-access locations in full public view.

Box 4.4. Involving Women in the Fighting Against Electricity Theft in Comoros

The Comoros Electricity Sector Recovery World Bank Project considered gender in the design of an awareness campaign on illegal connections and nontechnical losses. The team supported the development of a gender-sensitive behavioral audit to investigate drivers of the illegal attitudes that lead to electricity theft.

The behavioral audit was followed by the development of a community-driven pilot led by local women to engage consumers, costumers, and utility company personnel in encouraging bill payment and combating electricity theft. Women groups were trained to sensitize the local population on the benefits of having reliable and safe energy. At the same time, a pilot effort within the utility mobilized female employees to end the illegal behavior perpetuated by client-facing employees.

Source: World Bank 2016.

timely bill payment and safe and legal connections (Orlando et al. 2018). Some utility companies employ women as meter readers or for client-facing bill collection activities to fight electricity theft and improve bill payment (box 4.4). Such a practice is also likely to be effective in cases where only women are present in the household during the utility employee visit, while male members of the household are at work and women may not be willing to open the door to a male utility employee (box 4.5).

Building capacity among consumers can improve the performance of a utility. Improving consumers' financial literacy and ensuring that they can read their bills can increase bill payment and possibly electricity demand. Consumers should be familiar with

Box 4.5. Empowering Female Employees of an Electric Utility in India

The Maharashtra State Electricity Distribution Company Limited in India implemented a novel initiative aimed at combating electricity theft while empowering female employees. The utility established women's squads, popularly known as Damini Pathaks, at each local office. A squad comprises a local female engineer assisted by two or three outsourced female employees. Each is equipped with a digital camera and a vehicle and is accompanied by a uniformed security guard. Squads undertake surprise checks of the meter readings in their area, which is also aimed at addressing consumer complaints regarding photo meter reading. The members of the squad visit households between 10:00 a.m. and 4:00 p.m. when housewives are usually at home. Their work has proved satisfying and the results are encouraging.

Source: Khobragade and Meshram 2014.

innovative payment methods and pay-as-you-go and prepayment meters. Here again, women can play a key role in gender-targeted information campaigns. Moreover, if a woman pays the household electricity bill or her name is listed on the bill, it can help her build her own credit history (Orlando et al. 2018).

4.1.4. Resettlement and Compensation

Energy infrastructure leading to land use changes can disproportionately affect women. Energy generation, transmission, and distribution projects result in the transformation of land and often of other natural resources, including water, which could conflict with existing uses such as livestock grazing and food production (Orlando et al. 2018). People can be displaced and natural habitats disrupted, particularly in the case of large generation projects such as hydropower. Even rights of way, usually limited to narrow tracts of land, can fragment existing land uses. Owing to gender and social norms and unequal access to land, men and women may be impacted differently by such changes. Women tend to have less access to land ownership due to inheritance laws, social norms, or legal and practical barriers to registering and titling land. Women in rural areas often depend on common property resources—such as unregistered land—rather than the usually male-owned fields for subsistence agriculture. Because these plots are not legally registered under their names, women may be denied compensation (Orlando et al. 2018).

Women's equal representation and active participation in public consultations is crucial to avoid harming their livelihoods and living standards. Women are rarely involved in public consultations due to pervasive social and gender norms. Several project-level measures can help in this regard, including arranging separate meetings at a convenient times for women in venues where they feel free to engage in conversation. Facilitators and interpreters should be present and the language they use should be accessible to the women. When available, local women's groups can encourage women's participation and facilitate communication. Targets and quotas for women participants can also be applied (Orlando et al. 2018).

Cash compensation schemes should consider both/all spouses and take into account other adult female household members. Households in Afghanistan are typically seen as homogenous, with male members being the usual target as the main recipients for compensation. Titleholders of land—who are typically male—receive compensation for loss of land while the women who work the land and experience severe impacts from the loss of access to fresh water, vegetable gardens, firewood, food, and ceremonial uses, are often left uncompensated for the lost resources. Cash compensation should be disbursed to the head of the household in the presence of the spouse, or be transferred into a joint bank account. Women living with large extended families, such as a widow living with her father or father-in-law, should also be entitled to compensation and rehabilitation assistance as an independent household (Orlando et al. 2018).

The compensation decision process should consider the joint registration of assets and spousal co-ownership of property rights. Granting property titles to both men and women, either separately or jointly, can ensure that underrepresented rights-holder groups, including women, are not excluded from the land title registration process. This approach can also increase women's bargaining power over family decisions (Orlando et al. 2018). Women in Ethiopia, for example, claim that joint land certificates improved their economic and social status (UN Habitat 2008).

4.1.5. Preventing Gender-based Violence and Sex Trafficking

Women can be adversely affected by the arrival of migrant—mostly male—construction workers hired for large-scale infrastructure projects. Such an influx can create demand for sex workers and exacerbate the risk of sexual abuse, sex trafficking, and gender-based violence in project communities. This can lead to an increased incidence of HIV/AIDS and other sexually transmitted diseases as well as unwanted pregnancies, sometimes involving minors (Orlando et al. 2018).

Energy projects can integrate safeguard measures to prevent or mitigate gender-based violence and sex trafficking. Contractors should adopt robust sexual harassment policies and codes of conduct that should be signed and agreed to by all staff involved in construction. This code should clearly outline unacceptable behavior and the consequences for anyone who engages in harassment or violence (Orlando et al. 2018). Mechanisms are needed to allow community members to report cases of abuse by staff (World Bank 2015c). The innovative use of information and communication technologies could facilitate the reporting, feedback, and grievance redress process, thereby improving women's security.

Gender-based violence prevention campaigns should be implemented, and the capacity of utilities and local government should be enhanced. Gender-based violence prevention campaigns should be implemented in project-affected areas to engage communities and civil society and raise awareness around the issue (box 4.6). Participatory processes to design and evaluate violence prevention programs and mechanisms can result in more effective solutions overall. Women should be able to propose strategies for improving their own safety in project areas and influence program design (Orlando et al. 2018). Enhancing the capacity of utilities, contractors, local government, schools, and health centers can also meaningfully contribute toward the prevention of gender-based violence and can help address it when it does occur. Creating an environment that does not tolerate such violence, where cases are reported and addressed and where the victim is given proper support is essential (Orlando et al. 2018).

Box 4.6. Reducing Public Health Risks in the Upper Cisokan Pumped Storage Hydroelectric Power Project in Indonesia

An impact analysis conducted for the Upper Cisokan Pumped Storage Hydroelectrical Power Project in Indonesia suggested that: (1) an influx of construction workers was likely to increase public health risks for the workers and for the local population, and (2) the relocation of households during the resettlement process could have negative impacts on health. A gender and HIV/AIDS strategy was prepared and included in the land acquisition and resettlement action plan to ensure that women and men fully participate in consultations and negotiations, have access to a mechanism for having their grievances redressed, and share the benefits of employment and replacement assets.

To reduce the risk of transferring the HIV virus from the contractor's personnel to the local community, the project made the contractor responsible for conducting an HIV/AIDS awareness program through the local health department. To promote early diagnosis and assist affected individuals, counseling services on transmission and prevention were held once a month, with routine diagnostic examinations provided every two months. Condoms were distributed monthly through the local health department. This initiative targeted all project employees as well as the surrounding community.

The project required that spouses countersign documents for the purchase of replacement assets and for cash compensation; and support was provided to women to ensure their access to training, credit, and business development services.

Source: World Bank 2011.

4.2. Off-Grid Electrification in Rural Afghanistan

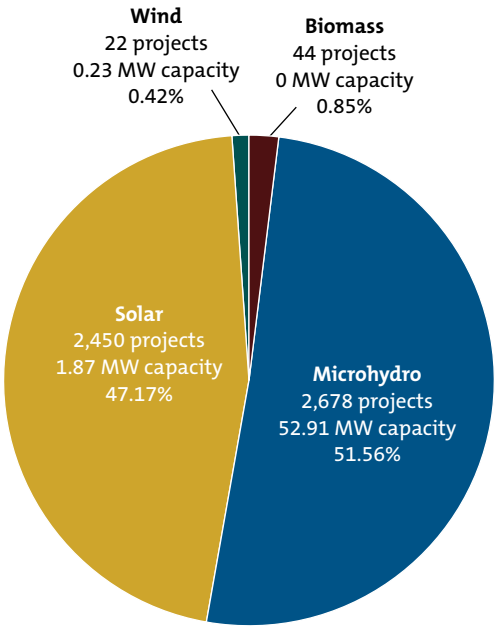
4.2.1. Business Models

A large majority of rural households in Afghanistan access their electricity off the electrical grid. Many decentralized local mini-grids[23] and standalone solutions[24] provide electricity to these households. In 2016/17, about 73.2 percent of rural households received electricity through solar energy solutions, 11.3 percent used batteries (see figure 3.2 on page 23). Despite plans for extending the grid, an estimated 35 percent will still be receiving electricity through off-grid systems in 2032[25] (ADB 2013).

23. Mini-grids are based on microhydro, small diesel generators or solar energy (ADB 2013).
24. These include solar lighting and home systems, thermal-based water heating, solar-powered irrigation pumps, individual solar systems for clinics, schools and mosques.
25. As the grid connection rate in rural areas is expected to reach 65 percent of the population.

The scaling up of renewable energy solutions will continue in provinces unlikely to get connected to the grid in the near future. The spread of solar panels nationally has been growing, from 2 percent in 2007/08 to 22 percent in 2011/12 and 48 percent in 2013/14 (CSO 2016). To date, solar projects usually promote standalone systems (Ershad 2017), but several 5–100 megawatt (MW) solar photovoltaic plants are planned over the next years (AEIC 2016). Scaling up of renewable energy use will continue unabated, particularly in provinces unlikely to be served by the grid in the near future, such as Ghor, Farah, Bamyan, and Daykundi (ICE n.d.).

Figure 4.2 Renewable Energy Projects in Afghanistan



Source: IRoA 2017b.

Financing and implementation of off-grid electricity systems in Afghanistan is heavily supported by international donors. Off-grid electrification projects have been widely deployed across the country, mainly through the Ministry of Rural Rehabilitation and Development's National Solidarity Program and the National Area-based Development Program, both supported by the international donor community. The solidarity program supports energy access to rural areas through the installation of microhydropower plants, solar home systems, and diesel generators (IRoA 2013). The development program is mainly focused on microhydropower (UNDP 2015b). Afghanistan has over 5,000 new renewable energy projects, corresponding to 55 MW, and over 88 percent of them have been completed (figure 4.2) (IRoA 2017b).

Sustainable business models are necessary to support continuous long-term operation of off-grid systems in rural areas. Although international aid can effectively facilitate the dissemination of off-grid electricity systems, it rarely leads to a viable solution absent a long-term strategy to support long-term business operations and development. Demand for off-grid systems in rural Afghanistan is likely to grow, but consumers will continue to face financial constraints, and capacity to pay will remain a struggle, particularly for upfront costs. Sustainable business models that adequately balance the customer's capacity to pay with the need to fully recover investment and operation costs are crucial.

Innovative business models for off-grid electricity provision targeted to women and low-income consumers can increase adoption of off-grid systems amid the rural poor. Such models including microcredits, fee for service, pay-as-you-go, micropayments,

one-stop shops,[26] franchises, and direct leasing or lease-to-own systems, can increase adoption rates (World Bank 2017a; Ershad 2017; ADB 2012). These models are aimed at providing affordable options to offset the initial high cost of off-grid systems. Eligibility criteria should be designed to ensure that low-income customers and women can participate as beneficiaries. Moreover, developing smaller, lower-cost systems could provide an additional avenue of access for the poorest citizens (ABD 2012). Access to flexible microloans and a functioning low-cost (mobile) payment infrastructure, currently being adopted in Afghanistan, are key enablers to a successful rollout of rural electrification (World Bank forthcoming). However, despite the ongoing expansion, access to microfinance for off-grid lighting remains a major challenge in southern Afghanistan[27] (World Bank forthcoming).

Financial incentives ensuring project bankability and commercial viability to attract private investors can be gender-sensitive and socially inclusive. Long-term project sustainability can be ensured through long-term financial support in the form of subsidies, loans, grants, and investments benefiting off-grid electricity service providers. Public finance mechanisms can be used to leverage private sector investment, facilitate access to private financial instruments, and boost deployment while mitigating risks (World Bank 2017a). The government of Afghanistan plans to provide upfront capital support in the form of subsidies to all renewable energy projects, aimed at enhancing their viability by either increasing returns on investment or reducing tariffs for consumers. Subsidies could be preferential tariffs, performance-linked incentives, or viability gap funding (IRoA 2015). The amount and pattern of subsidies will be determined based on the technology, location, and the project design. Projects providing basic energy services to remote communities, those supported by women, and those benefiting women and children may be allocated the greatest share of subsidies (IRoA 2015).

4.2.2. Improving Sustainability

Maintaining and operating rural projects has been a key sustainability challenge. Launched in 2003, the National Solidarity Program has driven most efforts toward improving rural access to electricity. The program promoted local governance and established community development councils. After completion, it intended to hand over all projects to the local people. However, in many cases, the community was not equipped with the necessary budget or operation and maintenance capacity and therefore could not keep the systems running (Brick 2008; CIF n.d.). The Ministry of Rural Rehabilitation and Development has insufficient technical capacity to address the issue in that it does not have the required manpower. Moreover, it is not economically viable to deploy technicians in remote areas (Amin 2017).

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26. These are institutions that sell renewable energy products for a small down payment and provide loans with an interest rate.

27. Currently, specific loan products for solar appliances and mini-grid systems are only piloted by First MicroFinanceBank–Afghanistan and the Foundation for International Community Assistance, a nonprofit microfinance institution in Afghanistan. Each have offices in Kabul, Herat, and across the northern provinces. The First MicroFinanceBank also operates branches in Bamyan.

Building local capacity is essential to self-sustaining off-grid rural electrification so that projects are not forever dependent on international support. Selecting partners with a prior presence in rural areas and an established distribution network can facilitate local ownership. Training to build local skills and awareness must be factored into every delivery model to ensure adequate local technical and managerial capacity (World Bank 2017a). Scheduled operation and maintenance services can increase a system's lifespan and improve reliability (World Bank 2017a).

Local community should be trained in the operation and maintenance of off-grid systems. A lack of local engineers hinders the sustainability and longevity of off-grid systems. Training for local community members should be incorporated into a project's design to ensure the continued operation of the off-grid systems. The more local communities are integrated into the decision-making process and the more ownership they develop, the more sustainable a project will be. The development of the private sector and the creation of local-level clean energy entrepreneurs, such as retailers and repair shops, can also improve system sustainability (CIF n.d.).

Local women can play an important role in the operation and maintenance of off-grid systems in rural areas. Training rural women as village technicians for the construction, assembly, and routine maintenance of renewable energy systems can provide them with jobs and livelihoods (ABD 2012). A woman is more likely to remain in her village than a man is; and she is less likely to migrate or accept another higher-paying job. A man tends to look for better opportunities, probably in an urban area, after acquiring technical skills. Thus, female technicians—known as "solar grannies"—offer a more sustainable option for keeping the systems running over the long-term (box 4.7). Further, female household members prefer that female technicians provide any maintenance or repair on their standalone, household-level systems, such as solar home systems and solar lanterns, during the day, when male household members are usually away from home for work or other activities.

4.2.3. Gender-targeted Employment Opportunities

The off-grid renewable energy market can create local jobs and opportunities for clean energy entrepreneurs. In addition to being the consumers of energy, local men and women can play important roles promoting and selling off-grid electricity systems. They can be trained and employed as renewable energy service providers in areas such as assembly and installation of standalone solar photovoltaic systems and solar panels; operation and maintenance of solar energy systems; retailers for solar panels, controllers, and inverters for home systems, solar water heaters, and solar lanterns; and CFL (compact fluorescent lamp) and LED (light emitting diode) assembly and sales (ADB 2012).

Women-led renewable energy enterprises can drive higher adoption rates for off-grid systems through their social network. Integrating women during the planning, designing, and implementation of a project and training them as entrepreneurs for the proposed products can benefit the project and promote the empowerment of women.

Box 4.7. Training Poor Illiterate Women to Operate and Maintain Solar Photovoltaic Systems

Barefoot College, a nongovernmental organization in India, provides training to women to become leaders in creating alternative energy solutions for their rural villages. The college provides six months of training in installing, repairing, and maintaining solar lighting units to mostly illiterate or semiliterate women, making them "Barefoot solar engineers." As a result, women have built about 10,000 household solar lighting systems globally since 1986 and report an increase in social status in their villages. Today, these trained women teach other illiterate women across India as well as in countries such as Bhutan, Tonga, Rwanda, Gambia, and Colombia. The college prefers training mature women in technology rather than young men because the women are less likely to migrate or accept other higher-paying jobs. These female engineers have provided solar-powered lighting to 136 virtually inaccessible Himalayan villages; Barefoot College has educated over 15,000 children at night schools already; and 13 villages and 15,000 people now benefit from community piped-water systems that are designed, planned, and implemented by locals. Globally, Barefoot College has successfully trained poor, semiliterate rural women from 77 countries across the globe; installed solar home systems in over 14,500 households; and replaced 500 million liters of kerosene with clean energy for lighting, heating, and cooking. Barefoot College presently operates in 24 locations in 13 Indian states.

Source: www.barefootcollege.org.

The example of Solar Sister in Africa shows how a woman can draw on her network of family, friends, and community for customers, and be effective in enhancing distribution networks (box 4.8).

Gender-targeted incentives can be developed to promote local employment. In 2015, the government of Afghanistan had planned to launch a pilot program on supporting women-led renewable energy enterprises to facilitate their involvement in the sector (IRoA 2015). Such initiatives might include targeted incentives to support the entry of women in the renewable energy market, including microfinancing, financing for small and medium enterprises, grants, concessional loans, tax benefits, and technology rebates for renewable energy, all of which need to be easily accessible to both male and female entrepreneurs. Moreover, measures and incentives should be developed to improve risk perception and awareness about lending to women entrepreneurs among domestic banks and financial institutions (ADB 2012).

Box 4.8. Empowering Women with Entrepreneurial Skills in Off-Grid Energy Services

Solar Sister is a network of women entrepreneurs bringing clean energy to rural Africa. They actively recruit, train, and maintain a growing sales force comprising women from rural African communities most in need of safe and affordable solar energy. Lack of access to financing is a major impediment to female entrepreneurship and prevents women from participating in the modern market economy. Solar Sister overcomes this obstacle by offering rural women a chance to make a sustained living through a microconsignment-based "business in a bag" that minimizes start-up financial risks. It taps into the power of women's social networks to bring energy access to the most hard-to-reach communities.

Source: www.solarsister.org.

Integrating women's preferences into technology and product design can further boost adoption rates. When women are consulted and involved in the decision-making and purchase processes, they can help ensure that proposed technical solutions for lighting, heating, or cooking reflect their preferences, thereby increasing the likelihood that the technology will be adopted and the program will be sustainable (box 4.9).

4.2.4. Gender-targeted Awareness and Information Campaigns

Remote communities lack information and awareness around the benefits of renewable energy off-grid electricity. The benefits of electricity access are well established, but remote, nonelectrified communities are often unaware of the negative impacts that polluting household fuels can have on their health and lack information about the wide range of off-grid renewable energy systems. Awareness around the livelihood opportunities provided by the introduction of off-grid renewable energy solutions is also low. The information gap is greater among women, who are more likely than men to be illiterate and isolated.

Information and awareness campaigns need to be adequately targeted to men and women. About 84 percent of women in Afghanistan have no earnings of their own, and even among those with earnings, their independent decision-making power is very low in terms of how it is spent (Salehi and Erfanyar 2017). Information campaigns must be gender-targeted to appeal to men and women with customized messages. Campaigns should ensure that the information shared is in line with the local literacy levels among men and women; use appropriate means of communication, such as posters, pamphlets, and television and radio spots; and be routed through traditional information channels, such as opinion leaders. The campaign should be appealing and focus on gender-specific concerns such as health-related impacts on women and children and savings on the cost of energy (box 4.10).

Box 4.9. Using Women's Knowledge to Design an Efficient Pico-hydro System in Sri Lanka

In 2006, Practical Action launched the project Enhancing Renewable Energy Options, aimed at improving access to viable energy options in off-grid areas of Sri Lanka for the rural poor and marginalized people. The project targeted over 110 families in the Central and Sabaragamuwa Province, all of them dependent on agriculture. About 30 pico-hydro units (<1 kilowatt) were installed, with the active participation of all household members. Families worked together to construct the pico-hydro unit. Women went beyond their traditional role of providing refreshments by offering labor to assist with the carrying and laying of pipes and other construction material. This effort increased their sense of ownership of the unit.

An initial energy assessment conducted during the first stage of the project included consultations with women. The assessment determined family requirements in terms of quantum, type of energy, and patterns of use, and estimated energy savings—previous cost of energy versus cost of using pico-hydro. In addition to the typical household energy requirements for cooking and lighting, women also expressed a need for energy to provide income-generating activities. Many also requested at least one light bulb be placed outside their house to provide lighting to increase their safety and security. Women also made many of the decisions regarding the number and location of illumination points within the home.

The project also explored avenues for using energy to reduce the burdens on women. For example, excess energy produced during daytime hours, previously unused, was redirected and used to boil water. At one site, hydroelectricity is being used to power a motor to divert downstream water into the household.

Because women often operate the pico-hydro unit, their suggestions regarding the location of the power house and generator shed were considered to enable their easy access. Because they collect water and wash clothes in the stream, women are also more knowledgeable about stream's behavior, allowing them to provide useful information that was relevant to assessing the site's hydroelectric potential.

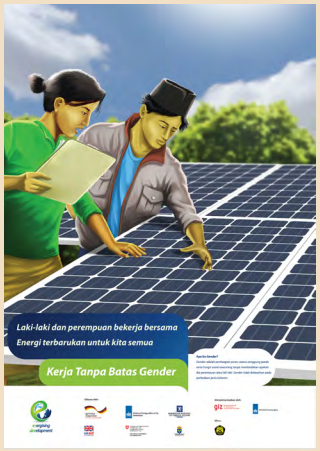
Source: Practical Action 2011.

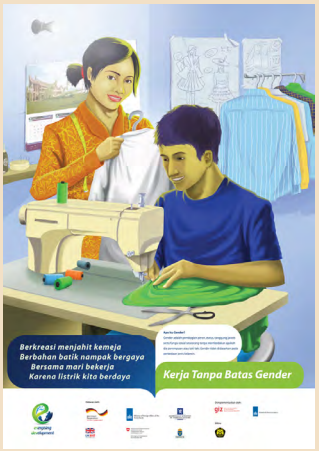
Box 4.10. Promoting Gender Equality in Photovoltaic Mini-Grid Management

Energising Development (EnDev) Indonesia has implemented a series of efforts to increase the number of women participating in photovoltaic mini-grid management. Following a 2015 study revealing that only 6 percent of the rural electricity management team members were female, EnDev Indonesia launched an initiative to subtly encourage through facilitation and consultation the role of women on management teams.

EnDev recently introduced the basic concept of gender equality in an appealing and engaging way, aimed at promoting the participation of women in every aspect of rural development. Because they are known to be an effective communication tool among villagers, posters using illustration and pantun—a widely known traditional form of expression usually comprising rhyming lines—were chosen as a medium to communicate gender equality. Such an eye-catching poster can draw people's attention into specific issues and convey an idea in a quick and efficacious way. Posters have the ability to stay in the minds of viewers and can be a great tool for raising public awareness.

These posters seek to increase understanding of the importance of balancing the participation of women and men in photovoltaic mini-grid management and to promote the recognition of women's role in rural electrification programs. The numbers of women active in photovoltaic mini-grid management and those who will use electricity in a more productive manner are expected to increase.





4.3. Energy Efficiency Initiatives

4.3.1. Financing Mechanisms

High initial cost of energy efficiency measures is a major barrier to wide adoption. Energy efficiency measures offer multiple benefits, including lower monthly energy bills, greater comfort in the home, improved indoor air quality, and time savings resulting from a reduction in household drudgery. However, high initial costs serve as a major obstacle to widespread adoption, preventing most low-income households from investing in technologies such as energy efficient lighting, space cooling and heating, insulation, and electric appliances. A 2016 review of the energy efficiency policy in Afghanistan identified the high cost of energy efficient products as a key barrier to the adoption of energy efficiency practices, and financial savings was found to be a key driver for change (IRoA 2017c).

Financing is offered to households and businesses to encourage investment in energy efficiency. The government of Afghanistan encourages households and businesses to reduce energy costs and promotes access to energy efficiency measures, through regulation and market principles (IRoA 2017c). Economic incentives have been introduced as part of energy efficiency policies across the globe aimed at encouraging investments in energy efficient equipment, buildings, and processes by reducing upfront costs directly with financial incentives such as subsidies and low-interest loans or indirectly with fiscal incentives such as a reduction in tax (IRoA 2017c).

Gender- and social-inclusive financing mechanisms could be developed to ensure that vulnerable populations, such as women and the poor, can benefit equally from energy efficient technologies. Men and women do not have the same access to financing. The lack of access to capital among women represents a key barrier to the adoption of energy efficient technologies. Women and low-income people struggle to acquire new appliances for their homes or businesses. Energy efficiency programs can establish female-friendly microfinance facilities for low-income households and can provide grants, subsidies, or interest-free credit to women and vulnerable populations to cover the upfront costs.

4.3.2. Gender-targeted Awareness Campaigns

Men and women respond differently to energy efficiency measures. Women are the primary users of energy in a household, and they are disproportionally responsible for household chores. This puts them in an ideal position to monitor and manage household electricity use (ESMAP 2013). Women tend to be more receptive to the benefits of energy efficiency, particularly cost savings,[28] although many lack knowledge about how to achieve the savings (Rebosio and Georgieva 2015). Men tend to be more interested in

28. About 22 percent of Afghan women have paid a utility bill, such as electricity, water, and trash collection, in the past year compared with 29 percent of men (2014 data).

the technical aspects of energy efficiency measures. Although Afghan men are the main decision-makers, about 42 percent of Afghan women also participate in making major household purchase decisions (World Development Indicators).

Gender-sensitive opinion surveys and focus group discussions can provide a better understanding of a community's priorities and concerns and identify the gender dynamics associated with the adoption of energy efficiency measures; a campaign can then be designed accordingly. Both men and women must be included in consultations around energy efficiency interventions, and women's voices should also be included in policy dialogues. Gender-sensitive focus group discussions can provide insights regarding the benefits of energy efficiency for women, such as increasing safety with the installation of streetlights. Seeking formal feedback from beneficiaries builds community awareness and social inclusion and helps in the planning stage of a communication program in terms of its behavioral change aspects (ESMAP forthcoming).

Awareness campaigns allow end-users to make informed choices about their energy-use behaviors and motivate them to take actions toward efficient energy consumption. Effective communication campaigns encourage men and women to set individual goals for reducing energy consumption, encourage families to optimize their energy use, and publicly recognize the community's early adopters as ambassadors for energy efficiency measures (ESMAP forthcoming). Energy-saving competitions provide an opportunity to publicly recognize households and communities that achieve the highest energy reductions as energy-saving champions or leaders of change. Creating opportunities for comparison and competition can foster change in social attitudes and encourage the adoption of energy efficiency measures. Households are more likely to conform to energy efficiency initiatives by comparing their energy behaviors and cost savings with their closest neighbors (ESMAP forthcoming).

Multiple mediums can be used to deliver targeted messages, and credible messengers and spokespersons should be utilized. By capturing the attention of consumers with compelling messages that address the concerns of stakeholders and raise awareness across multiple channels, including television, radio, newspaper, email, Internet, and social media, energy efficiency projects will be more likely to encourage better household decisions about saving energy. Among the messages that commonly appeal to a wide range of citizens are related to monetary savings, improved family health and indoor air quality, and increased comfort in the home.

Messaging should be targeted to men, women, children, and the community as a whole. Communication programs are more effective if they are evidence-based and socially inclusive. Men and women often respond differently to marketing messages, and they may use different communication channels (box 4.11). Awareness campaigns should therefore be gender-informed and based on opinion surveys, taking into consideration

Box 4.11. Involving Children in Energy Efficiency Awareness Campaigns

In 2014, the government of India launched a television commercial on energy efficiency with children being the main actors. The message was "Bijli bachao, desh banao," which means "save power, build the nation." The advertisement showed children switching off lights and appliances that do not need to be on, as they teach their parents and teachers how to save power (Best Media Info 2014, PMO India 2014).

School programs and fairs on energy efficiency can deliver powerful messages to children and teachers. Children are more likely to inform their parents of the importance of energy efficiency and possibly demonstrate for them learned techniques. Mothers are especially likely to adopt attitudinal and behavior changes when they understand the concerns of their children (ESMAP forthcoming).

social and cultural norms as well as the priorities of both men and women (ESMAP forthcoming). Campaigns should communicate with men and women equally but distinctly through consultations and messaging that encourage positive attitudes toward adopting energy efficiency measures while intentionally seeking participation among women. This gender-differentiated approach can lead to new insights and surprising innovations that can enhance a program's effectiveness. Communication channels should also be sensitive to the literacy level of its target audiences. For example, a campaign targeting illiterate women should primarily use posters, pictures, and other simple messaging tools when applying a gender lens, such as showing women using energy efficient equipment (ESMAP forthcoming).

Involving women in driving behavior change and social acceptance can ensure greater adoption of energy efficiency measures. Women can serve as powerful actors for change. They are eager to lead initiatives that will have positive impacts on the lives of their families and communities (ESMAP forthcoming). Women's social networks can be leveraged to increase the impact of energy efficiency programs. Women identified as energy efficiency ambassadors in the community can promote new technologies to others. Developing strong women's networks can encourage the exchange of information about household energy options and reduce women's sense of isolation in the household (ESMAP forthcoming). Opportunities should be provided for women to participate in private, public, and online feedback to improve technologies and services, as well as communication campaign messaging. Pilot phases should include testing with women to understand their responses to the energy efficient products and technologies.

Box 4.12. Gender-inclusive Education About Energy Efficiency in Bangladesh

In 2011, the World Bank-supported Bangladesh Power System Reliability and Efficiency Improvement Project piloted a gender-differentiated, user-education program and training module to promote household energy efficiency. The pilot comprised a gender action plan, a design component, and a monitoring framework.

Key features include:

- Gender-sensitive user education material and modules and awareness-raising activities and methodologies for implementing the user education program on household energy efficiency and conservation. The pilot included 1,000 women at selected sites.
- Capacity development activities to sensitize the executing agency in gender-inclusive community engagement.
- A target participation rate of 25 percent for women in all training activities.

Implementation arrangements included the recruitment of an international gender and energy specialist as team leader to coordinate project implementation, a national nongovernmental organization to mobilize community activities, and international and national consultancy services to develop and implement the training module.

Source: ADB 2012.

4.3.3. Gender-targeted Training to Promote Demand-side Management

Household demand management can be further improved by educating women on energy efficiency and on how household energy bills can be lowered without compromising service quality (ESMAP forthcoming). It is important to deliver clear and consistent information to women—monthly or quarterly— on their household's energy use, highlighting the cost savings that could result from adopting energy efficiency measures. A variety of channels, including smartphones and websites, can be used for this purpose. Female auditors can be hired to conduct personalized energy-use audits for women and provide follow-up recommendations on reducing energy consumption (box 4.12).[29] Inviting women to workshops on new energy efficient technologies and identifying key women to endorse such technologies can provide a forum for sharing feedback and learning (ESMAP forthcoming).

29. Women may prefer that female consultants educate them about energy efficient technologies, financing, and entrepreneurial activities. In some countries, a woman is more likely to adopt energy efficiency measures if she learns about them from her own network of peers, family, and friends.

The engagement of women can build a community consensus for adopting energy efficiency measures. Undertaking energy efficient upgrades for multifamily apartment buildings may require the consensus of homeowners associations, but residents often lack credible information about making investment decisions about energy efficient building materials and appliances. Engaging and educating female association members, who likely spend more time at home than men and who may be more receptive to working with their neighbors, can help build consensus among homeowners to improve the energy efficiency and quality of their buildings, as was the case for densely populated urban areas in Europe and Central Asia (ESMAP forthcoming).

4.3.4. Institutional Capacity Building

Low institutional capacity in energy efficiency among relevant stakeholders inhibits implementation of activities. Afghan policy makers and the broader population have barely begun to discuss the topic, and necessary changes in social and institutional landscape to push through reforms have yet to occur (IRoA 2017c). Challenges include a lack of institutional capacity to implement energy efficiency activities; inadequate systems and processes to capture relevant data for monitoring the progress of energy efficiency interventions; and weak management tools, including intensity indicators and the accounting of the country's energy balance (IRoA 2017c). A lack of budgetary support, poorly defined roles and responsibilities for ministries and departments, and low awareness levels among institutions and the general public are also significant gaps (IRoA 2017c).

Developing institutional capacity among all stakeholders across the value chain would support the scaling-up of energy efficiency programs. Appropriate exposure and training on energy efficiency measures should be provided at various levels, including government staff, potential suppliers, implementing agencies, service providers, project facilitators, and consumers (World Bank 2009). Such training should explain basic technical aspects, the benefits and barriers of energy efficiency measures, and how the use of energy efficient technologies can help meet electrification planning goals. Suppliers and project facilitators would benefit from training on marketing and outreach strategies for energy efficiency interventions, project procedures, and the management of sustainable delivery models. The implementing ministry could play a leading role in developing the required type of training programs for the various stakeholders (World Bank 2009).

Achieving social and institutional change around energy efficiency can be facilitated by increasing gender diversity in the sector. Research shows that gender diversity in energy institutions, and utilities in particular, can lead to improved performance (USAID 2016). Including women on teams can result in a richer set of ideas and a more comprehensive set of options for solving challenges. Women offer different management styles, focused on staff capacity, efficient communication, and participatory decision making (USAID 2016). Educational and training investments in women are more likely to return benefits because women are more likely to remain at an institution or company than

men, who tend to move on after a few years to other, more lucrative jobs outside the country (USAID 2016).

4.4. Electricity Pricing Policies

4.4.1. Targeted Electricity Pricing

The Afghan electricity utility DABS, faces significant challenges that threaten its financial sustainability. Although electricity demand and revenues continue to grow, operating costs and depreciation expenditures grew at a faster pace in fiscal 2016, which led to a first-ever deficit (World Bank 2017d). Operating costs are heavily impacted by exchange rates through energy imports and financial charges involving payments in foreign currencies. Further, the utility is in the midst of an important investment program aimed at achieving a stable electricity supply to address growing demand. New fixed assets will also lead to a strong increase in depreciation expenditures. This will change the structure of the company's operations and electricity unit costs, and tariffs will have to be adjusted accordingly to ensure financial sustainability.

DABS needs to adopt an adapted framework for tariff revision to ensure cost-recovery levels. Critical investments need to be carried out and implemented without jeopardizing the company's short-, medium-, and long-term sustainability and at the same time avoiding overstressing electricity tariffs (World Bank 2017d). An adapted tariff revision framework is needed that takes into account the exchange rate risk borne by DABS in terms of energy imports and debt repayment, as well as the issue of affordability among users.

Electricity pricing reforms have potential social and gender impacts. Gender and social aspects need to be explicitly considered when planning pricing policies and reforms to avoid increasing inequality and to reduce any existing gender gaps. A poverty and social impact analysis is often carried out to evaluate the short- and long-term distributional impacts of electricity pricing policies; it should include a gender analysis. As households adjust to higher energy prices, important gender considerations emerge (ESMAP n.d.). Higher electricity prices lead to either lower electricity consumption or higher electricity expenditures. Tariff increases can force some customers to switch to cheaper, often dirtier fuel sources, with costly effects on human health. As the managers of budgets, men often decide on amounts spent for electricity consumption. In the face of tariff increases, men's preferences will be more likely reflected in household spending priority changes. It is women, however, who are more likely to use household electricity to carry out domestic chores during the course of the day, which means they are better positioned to save energy. For example, women in Europe and Central Asia report that they refrain from using appliances such as washing machines due to higher electricity bills. Women who stay at home also claim that they often refrain from heating their

house during the day while other members are out in order to minimize their energy bill (Rebosio and Georgieva 2015).

Mitigation measures for preventing harmful effects on poor and vulnerable population groups, including women, should be considered when designing and implementing electricity pricing policies. Pricing reforms should be aimed at achieving cost-reflective prices while protecting the poor and vulnerable (ESMAP n.d.). Electricity pricing reforms thus need to be accompanied by appropriate measures to mitigate the impacts of higher prices on household welfare and to protect those most in need. Adverse impacts may be minimized by implementing redistributive measures to protect poor and vulnerable groups and by supporting energy efficiency (table 4.1). Particular attention should be paid to female-headed households—often disproportionately impacted by energy price increases—by developing gender-sensitive eligibility criteria. Targeting should consider any constraints that women may face in benefiting from mitigation measures when considering direct financial transfers of subsidies, such as their low rates of bank account

Table 4.1. Options for Mitigating Adverse Effects of Electricity Pricing Reform on Poor and Vulnerable Groups

Mitigation measures within the energy sector	1. Cash transfers targeted to low-income groups and female-headed households.
	2. Conditional cash transfers usually tied to children's school enrollment or to regular medical check-ups. The Brazilian social welfare program Bolsa Familia is the most well-known program. Nigeria has also expanded its conditional cash transfer program to pregnant women in rural areas.
	3. Monthly fuel quotas guaranteeing low pricing of a minimum level of fuel consumption. For example, in 2012, India introduced an annual quota of subsidized liquified petroleum gas cylinders.
	4. Vouchers or coupons distributed to low-income households, including gas vouchers in Brazil and electricity coupons in the Dominican Republic, where the Bono Luz program subsidized the first 100 kilowatt hours of consumption in poor households.
	5. Lifeline electricity tariffs to subsidize the first block of consumption—enough to cover basic needs—while higher levels of consumption are charged at the commercial rate.
	6. Support for investments in energy efficiency, such as improved insulation and energy efficient domestic appliances.
Mitigation measures outside the energy sector	1. Food distribution programs (or food subsidies) to feed the most vulnerable, thus helping to compensate for the indirect effect of energy price increases, such as in Namibia.
	2. Creation of youth and women's employment programs to help spur growth and employment. Nigeria has mitigated the impacts of reform by establishing vocational training centers and supporting public works.
	3. Provision of free public services, such as health and education, or reduction in user fees and subsidization of mass urban transport, such as in Ghana.

Source: ESMAP n.d.

ownership. Overall, targeting the poor may be a challenge, particularly for countries that do not have an existing social safety net system and lack a poverty database.

4.4.2. Targeted Alternative Payment Methods

DABS aims to achieve significant reduction in commercial losses. High commercial losses are exacerbating financial sustainability issues for DABS. In mid-2017, its collection rate was an estimated 70 percent (World Bank 2017d). The utility's billing and collection efficiency level is quite low, with customer payments occurring on a six-month horizon at best. DABS seeks to improve the collection rate and reduce collection losses to acceptable levels by 2030.

DABS needs to define a strategy and implement investments to drastically reduce commercial losses. To bring commercial losses to reasonable levels, DABS must improve its revenue collection and define an adapted strategy with realistic but ambitious targets. Metering and billing for electricity consumption is integral to the utility's commercial management (Antmann 2009). The most affected provinces with high revenue potential should be targeted first along with a realistic agreement supported by the Ministry of Finance to recover receivables over one year overdue from public sector customers. In 2017, DABS announced the rollout of prepaid meters to first be installed in government institutions and households with their electricity payments in arrears (Mohammadi 2017). DABS also announced that bimonthly bills would be replaced by monthly ones.

Alternative payment methods can be calibrated based on income- and gender-related eligibility criteria to prioritize vulnerable population groups. Poor households usually welcome prepaid meters because they can better control their spending on electricity and add small amounts of credit as available—similarly to mobile phones. These households are less likely to carry unsustainable debt. Monthly billing facilitates bill payment for low-income households. Pay-as-you-go models, prepaid meters, smart meters, and progressive tariffs can be linked to poor households and households selected using a gender-sensitive analysis (ESMAP 2013). Gender-targeted training and instruction manuals can ensure that both male and female consumers are fully able to use prepaid meters. In addition, charging options should be gender-sensitive—sometime recharging stations cannot be easily reached by women.

4.4.3. Measures to Increase Acceptance of Electricity Pricing Reform

Although there is a strong case for electricity pricing reform, many challenges remain. Electricity pricing reforms are often needed to ensure the commercial sustainability of the utility and financing of required investments to deliver high-quality electricity services to all customers. Nonetheless, tariff increases are widely unpopular and can create widespread resistance, which could lead to political instability. In the past, the government of Afghanistan has raised electricity tariffs significantly multiple times (table 4.2), creating discontent among the population (Karimi 2015). Changing tariff rates is a gradual process that relies on economic analysis, political will, and public education.

Table 4.2. DABS Actual Average Tariffs billed: Structure and Evolution

a. In Afghanis/kWh

	DABS—Nationwide			
Sale of Energy	Total	Residential	Commercial and Industrial	Public
FY2015	5.18	3.78	8.87	10.71
FY2016	5.59	4.10	9.09	11.67
FY2017	6.76	4.98	10.45	14.38
Average annual growth (%)	15	16	9	17
Annual growth FY 2017 (%)	21	21	15	23

b. In US$/kWh

	DABS—Nationwide			
Sale of Energy	Total	Residential	Commercial and Industrial	Public
FY2015	0.088	0.064	0.150	0.181
FY2016	0.086	0.063	0.140	0.180
FY2017	0.100	0.074	0.155	0.213
Average annual growth (%)	7	8	2	9
Annual growth FY 2017 (%)	17	17	11	19

Source: World Bank 2017d.
Note: The annual US$/Afghanis exchange rate used is the average actual rate used for the payment of the invoices related to energy imports.

DABS aims to further increase tariffs and assumes that operating revenues will also grow accordingly (World Bank 2017d).

Improving service quality for customers while at the same time increasing tariffs can help reduce public resistance to pricing reforms. When tariffs are adjusted to reflect full cost recovery, improved commercial performance should allow for the securing of the financial resources required to support planned investments in physical and human resources to increase electricity supply and improve service quality. Public discontent regarding tariff increases will likely be contained if customers experience better services at the same time. Engaging in broader reforms to improve service ahead of raising tariffs therefore supports credibility and enhances a consumer's willingness to pay (Vagliasindi 2013). Conversely, raising tariffs without improving service quality can create incentives for customers to reduce consumption or increase theft or nonpayment.

Improving customer service and responsiveness to consumer complaints can also help raise acceptance of higher tariffs. Global studies have shown that service providers who are responsive to grievances and concerns can make those customers more amenable to paying higher prices for services (Rebosio and Georgieva 2015). In India, the electricity utility has focused on improving its customer service and better addressing existing

customer complaints. Connection delays were drastically reduced and billing complaints were minimized by introducing a spot billing system that allowed meter reading in the presence of customers. Collection centers at convenient locations were opened, including mobile collection centers in rural areas. Finally, computerized customer care centers were set up to serve as one-stop windows for handling complaints, receiving payments, and following up on electricity supply problems (Antmann 2009).

Strengthening consumer rights can increase the acceptability of reforms among women. Research from Europe and Central Asia reveals that women are less aware of their rights as energy consumers and less successful at addressing their concerns with energy providers. They are also less informed about tariff reforms in general (Rebosio and Georgieva 2015). As a result, women are more reluctant to interact with energy providers and are more passive about understanding the specifics of tariff reforms. They are aware of their obligation to pay rising bills but do not feel they have the opportunity to exercise their rights as consumers. They are perceived—and perceive themselves—as unable to resolve grievances with energy providers due to their lack of authority and technical knowledge. Strengthening administrative systems to establish clear and well-enforced grievance and redress mechanisms can reduce the influence of traditional gender norms during interactions with institutions, thereby increasing women's awareness and confidence about their rights as consumers (Rebosio and Georgieva 2015).

Gender-targeted consultations and awareness campaigns are important to raising the level of acceptance of reforms. Intensive consultations and well-designed communication campaigns targeted at both men and women can effectively raise awareness and increase the acceptability of reforms while improving government's understanding of the concerns and impacts—real and perceived of affected men and women. As a result, the design of the reforms can be adjusted accordingly. Involving women's groups and community organizations in the design of the communications strategy and dissemination is essential. Men and women should be adequately informed on the eligibility criteria and procedures to access the mitigation measures that are being implemented (ESMAP n.d.). For example, complex information on the technical or legal aspects of tariffs reform could fail to reach women and vulnerable customers. To widely improve the public's understanding of the reforms, communications should be in simple language and delivered through local channels, such as local news outlets, public offices, building managers, and local utility service centers to effectively raise awareness among both men and women and to consequently reach a broader segment of society (Rebosio and Georgieva 2015).

5. Conclusion

This policy brief presented a series of actions embedded into energy interventions aiming to address Afghanistan's energy challenges, and improve gender equality. Acknowledging the country's specific energy needs, these actions were focused on integrating men's and women's potential into identified solutions. Four types of energy interventions were selected: grid and off-grid electrification in rural areas, energy efficiency initiatives, and electricity pricing policies. When adequately designed and carefully implemented, energy projects can improve gender equality in several areas: human endowments, access to more and better jobs, access to ownership and control of productive assets, as well as voice and agency. Such gender-sensitive interventions can at the same time, improve project outcomes and the overall developmental impact.

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Appendix A. Stakeholder Consultation Workshop

A Stakeholder Consultation Workshop was hosted at the World Bank Kabul Office, in Afghanistan on January 20, 2016, to discuss an early draft of this policy brief, titled "Operationalizing the Energy-Gender Linkage in Afghanistan." The workshop intended to bring together all stakeholders—the government (ministries of rural rehabilitation and development, energy and water, and women affairs), donors, the private sector, and civil society—to discuss the key issues identified in the policy brief, and discuss the importance of integrating gender aspects in energy sector interventions in Afghanistan (table A.1). The event saw extensive participation from all stakeholders. The relevance and timeliness of the piece was unanimously acknowledged by stakeholders. Below is a summary of the main discussion points of the consultation.

Afghan women stay primarily indoors. There was consensus among stakeholders that women in Afghanistan primarily stay indoors and spend their time on household chores (70 to 80 percent of which is spent on cooking and heating). This is particularly true for rural Afghanistan, which is also the most deprived when it comes to energy access. These tasks add to women's daily drudgery (e.g. carrying heavy fuel wood over long distances), and have a significant impact on their health (mainly due to indoor pollution). Moreover, they represent a high opportunity cost of engaging in other productive activities.

Engage women as users and producers of energy. The need to understand woman's engagement with energy interventions, not only as users, but also as producers of energy. Providing access to electricity and other energy services is the first step in changing women's lifestyles in Afghanistan. Once they have access to energy services, the next step of empowerment can come in—primarily in terms of the productive utilization of free time, through enhanced literacy, training, and entrepreneurship, or even in terms of leisure. Improving women's access to energy services is also seen to have indirect benefits on children's well-being.

Raise women's awareness for electricity use. Once access to electricity is provided, stakeholders emphasized the need to raise awareness regarding the effective use of electricity. It was reiterated during the discussion that women are the primary users of electricity and they mostly use electricity during peak hours. Hence, once access to electricity is provided, it is important to invest in awareness campaigns mainly via media (e.g. television) on the benefits of efficient electricity use.

Integrate women in the energy value chain. Stakeholders agreed that to ensure that gender considerations are integrated in energy interventions from a long-term sustainable point of view, women need to be integrated in the entire value chain of service provision. This would range from providing them training on maintenance, providing them with entrepreneurial skills, and so on. However, these need to be done keeping in mind cultural sensitivities specific to Afghanistan. For example, experience from the field has shown that women in rural areas refuse to consider training imparted by male trainers. Others noted that it is not traditional for women to sell goods in a market setup. Hence, with these sensitivities in mind, mechanisms for integrating women in the value chain need to be designed.

Some participants pointed out that women's lack of access to energy and their continued drudgery is often a function of their lack of asset ownership. This was noted as not a country-specific observation, but something that was prevalent across the developing world. Integrating gender-specific needs would thus require the bundling of services such as access to credit, awareness creation, and continued dialogue with male and female members of a household and incentives to ensure that women's ownership of energy-specific assets are preserved. Therefore, when scaling up gender nuances while provisioning infrastructure (here, energy), it is important to understand women's needs separate from those of the household. Similarly, it is also important to distinguish the scope of gender integration in large projects vis-à-vis smaller targeted energy interventions, as between urban and rural areas, households and enterprises, and so on.

Consider local solutions. Finally, it was emphasized by the government, private sector, and civil society stakeholders that when integrating gender dimensions in energy interventions, it is advisable to work around local solutions (such as improving existing forms of cooking stoves) rather than introducing a completely new technology. Sensitivity in this regard would ensure adoption and sustained use over time.

Table A.1. List of Participants to the Stakeholders Consultation Workshop (Kabul, January 2016)

Organization	Participant
Nongovernmental organizations	
ActionAid	Maliha Malikpour
Afghan Social and Agriculture Affairs Rehabilitation Organization (ASAARO)	Sher Mohammad Karyab
Aga Khan Foundation	Judith D'Souza
Group for the Environment, Renewable Energy and Solidarity (GERES)	M. Riaz Ramin
Help for Afghan Women Organization (HAWO)	Shaima Farzana Ebrahimi
Muslim Hands International	Inayat Kakar Sajia Noorzai
Save the Children	Lisa Kakar
Social Change for Afghan Women Organization (SCAWO)	Tamana Farahmand
The Afghanistan Research and Evaluation Unit (AREU)	Tabdir Kabul Khan
Welfare Association for Development of Afghanistan (WADAN)	Abdul Qadir Khogyani
Embassies	
Italian Agency for Cooperation and Development (AICS)	Alessandro Marilli
Embassy of Finland	Katja Tiilikainen
Government of Afghanistan	
Da Afghanistan Breshna Sherkat (DABS)	Najma Alimi
	Nahida Naseri
	Abdul Ghafar Shokoori
	Hazrat Shah Hameedi
	Rahmatullah Safi
Ministry of Energy and Water Water Resource Department (WRD)	Fayezurahman Azizi
Ministry of Rural Rehabilitation and Development/Afghanistan Sustainable Energy for Rural Development (ASERD)	Zukal Yousifi
	Sultan Ali Jawid
	Shafiqullah Sahil
	Ahmad Bahman
	M. Belal
	Maryam Azizi
Ministry of Rural Rehabilitation and Development/ National Solidarity Program	Ahmed Saboor Arya


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