



**Energy and Economic Growth**

Applied Research Programme

# Gender and Energy

Briefing Note

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EEG will commission rigorous research exploring the links between energy, economic growth and poverty reduction in low-income countries. This evidence will be specifically geared to meet the needs of decision makers and enable the development of large-scale energy systems that support sustainable, inclusive growth in low income countries in South Asia and SSA.

This briefing note was co-authored by Harold Wilhite (University of Oslo), Felicity Le Quesne and Chris Hearle (Oxford Policy Management). It was peer reviewed by Jiska de Groot (University of Cape Town)

Email: [eeg@opml.co.uk](mailto:eeg@opml.co.uk)

Website: [www.opml.co.uk/projects/energy-economic-growth](http://www.opml.co.uk/projects/energy-economic-growth)

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## **1 Introduction**

Women in many developing countries play a pivotal role in energy production, distribution and utilization. Women also have different energy needs to men. Therefore, targeting this group in energy-related development initiatives is crucial.

A limited, but growing body of qualitative evidence suggests that access to more modern energy alternatives can relieve women of the most demanding and unhealthy aspects of their daily lives and expand their range of development options, with positive spillover effects on families and communities. However, to realize long-term and transformative improvements for women, energy programmes must be carried out in conjunction with wider public policy initiatives that tackle harmful gendered norms and legal inequities.

This briefing note summarises the findings from the Energy and Economic Growth (EEG) programme State of Knowledge (SoK) paper on 'Gender Implications of Energy Use and Energy Access', and relates them to findings from DFID-funded programmes. The central tenet of this note is that targeting women's access to energy has a range of positive benefits, although this is mediated by public policies, legal rules and gendered norms. However, we recognise the paucity of quantitative evidence on the empowering benefits of electrification and strongly urge further research to be conducted on the gender and energy nexus.

The following section outlines our approach. Section 3 summarises the findings of the SoK paper on Energy and Gender. Section 4 discusses DFID's understanding of the relationship between energy and gender, and how it can be enhanced. Section 5 concludes with three significant gaps on energy and gender empowerment that need to be accounted for during policy design and implementation.

## **2 Approach**

In year 1 of the EEG programme, a State of Knowledge (SoK) paper on ‘Gender Implications of Energy Use and Energy Access’ reviewed and consolidated both theory and findings on the gender consequences of energy access in the Global South. We use this evidence as a backdrop to highlighting key gaps in DFID’s thinking, based on an analysis of outputs from their existing programmes.

DFID documents reviewed include:

- (1) Scoping study reports and design documents from the Gender and Energy Research Programme under Energia;
- (2) A report on the socio-economic and empowerment impacts of access to solar home systems and solar micro-grids in Tanzania;
- (3) A brief from the Infrastructure and Cities for Economic Development Facility
- (4) Case studies of Frontier Markets, India, and Dufsar mobile café, which relate to how energy contributes to women’s economic empowerment.
- (5) A DFID working brief on sustainable energy and gender.

### **3 Key findings from the EEG SoK paper on gender and energy**

This section outlines some of the key findings from the EEG SoK paper on 'Gender Implications of Energy Use and Energy Access'. Importantly, there is a paucity of quantitative evidence proving most of these benefits and strongly urge further research to be conducted in this area.

#### **Women's participation in energy governance and planning**

The governance of the power sector is dominated by men. For example, in South Africa, only 5 percent of those employed in the electricity sector are women. Findings from small-scale, micro-grid electricity implementation studies demonstrate that including women in the governance and planning of energy access and implementation can improve benefits for women. Yet women's appointment to key positions is not sufficient in itself to ensure solid and long term benefits; local authorities have to allow for their voices to be heard and taken into consideration. Women's participation is facilitated by providing information on the potential uses of energy and its benefits for women. Information on the costs, benefits and billing procedures after connection is especially important. Also, further research is needed on women's participation in the governance of central electricity systems, where evidence is currently more limited.

#### **Impact of energy access on household economic production**

Evidence from urban and rural households suggests that the acquisition and use of electric appliances saves women time which can then be used productively, such as in salaried work. In addition, the provision of light electricity extends the length of the working day, facilitating household-based work and enterprises. The startup of new small businesses such as kiosks and other small retail entities are also made possible, but policies also needs to consider that women need startup capital, raw materials and access to transport and communication infrastructures. However there is the risk that the provision of light electricity extends the amount of work paid that women undertake, leading to a burdensome "double-day" as women maintain their domestic and childcare duties. Challenging harmful social norms that regulate unpaid work as solely "women's work" are crucial for the well-being of women.

#### **Impact of energy access on time spent on household chores**

Women in many parts of Asia, Africa and Latin America shoulder a disproportionate burden on undertaking household chores such as cleaning and washing, which are often time-consuming and demand heavy physical labor. Commercial energy, especially electricity, provides access to time-saving electric appliances such as light fixtures, irons, cooking appliances and, for more affluent households, refrigerators and washing machines. Lighting extends the day to provide women flexibility in performing chores. Time saved can be used constructively to study, relax and work, but this is conditioned by gendered norms concerning women's societal role and men's willingness to share domestic work. This suggests that policies should have a social norms component to disrupt harmful stereotypes.

#### **Impact of mobile phone ownership on women's independence, security and awareness of rights**

Electrification facilitates the charging of mobile phones, which can have a positive effect on women's ability to communicate independently outside the purview of socially disciplining males and senior family members. It also provides women with more security through frequent contact with their parental family. Where internet is available, mobile phones are windows to vast new sources of information on gender practices and women's rights. Access to television often results in greater awareness among women of gender issues and women's rights too, as well as

improving understanding of entitlements, voting processes and how to negotiate government bureaucracy.

### **Lighting and electrical appliances impact on school attendance and performance**

Time saved by electrical appliances and the extension of the day provided by lighting extends potential study time for children, which can increase school performance. In many Asian and African contexts girls are more likely than boys to undertake household chores, and will therefore disproportionately benefit from access to electrical appliances and lighting. Mothers can use the time saved to assist children with their studies. In a few of the studies reviewed, girl's school attendance was higher in electrified communities than in non-electrified communities.

### **Lighting impacts on physical security**

During darkness, the lighting of roads and public spaces in rural areas can bring increased security for women as it enables them to attend night schools, participate in productive activities and community activities and allows greater flexibility in performing productive activities and chores outside the home. In lighted communities women are more likely to allow daughters to walk to school in the dark early morning hours and home lighting permits women to leave their children at home in the evenings without having to worry about fires from kerosene lamps.

### **Benefits of energy access on health and food security**

Energy access is equated with a reduction in the use of coal and biomass in cooking, saving time that would otherwise be used for gathering and carrying firewood. Also cooking times are reduced, indoor air quality improves and it reduces pressure on finite natural resources. The replacement of kerosene lamps with electric or solar powered lamps has positive effects on air quality and health.

### **Impacts of electricity access on gender empowerment**

Electricity can contribute to capacity building and gender empowerment in a number of ways, including the improvements in health, education and economic opportunities mentioned above. However, the potential for economic improvements for women is dependent on their legal rights. In many parts of Asia and Africa, women do not have the right to home or land ownership, or access to finance. This structures and limits women's choices concerning how electricity is distributed and used and electricity's potential to empower is reduced in places where rights are most strongly gendered. Electrification can make an important contribution to empowering women, but must be accompanied by broader public policy initiatives if deep, long-term improvements in gender inequalities are to be accomplished.

## 4 How can DFID's understanding be enhanced?

The findings in the preceding section were compared to DFID documents and working brief that were shared with the EEG team. This section focuses on gaps in DFID's evidence, which are crucial in appreciating the full range of consequences to implementation of policies aimed at enhancing women's access to electricity. For this policy brief to remain succinct and useful as possible to DFID and other key stakeholders, we have refrained from repeating themes common to EEG and DFID research.

### Energy access can benefit teachers and students

Findings from DFID-funded research point to how energy access and labor saving technology can reduce time spent on unpaid domestic work and free up girls' time to engage in education. Evidence from the EEG SoK paper points to additional benefits of energy access for those who work in the education sector. Globally, at primary education level, 60 percent of teachers are women.<sup>1</sup> The improved teaching conditions brought by electrification have been found to encourage teachers to stay in their local communities.<sup>2</sup> Through providing access to lighting, computers, tablets, digital educational tools, photocopiers and scanners, as well as fans to improve comfort, electrification has many positive consequences for teaching (and learning) in schools. Electric lighting extends the potential for teaching and tutoring in the early morning hours and evening when temperatures are lower, and the extended time has the added bonus of improving school performance for students. These improvements may encourage teachers to stay in their local rural communities, and not lead to a 'brain drain' of well-qualified teachers to urban centers.

### Refrigeration enables safe storage of medicine and increase food security

The benefits of refrigeration for women do not appear to be mentioned in DFID documents. Refrigeration is an important service provided by electricity that has time saving and health benefits. It is particularly crucial in hospitals and health clinics allowing vaccines and other medications to be stored, many of which are beneficial to women and children. It also improves food quality and security throughout the chain of provision from wholesale to retail and into homes. For those who can afford one, refrigerators provide longer and safer storage of raw foods and allow for the storage of cooked foods that can be reheated and served at later meals, which saves time and reduces wastage. Refrigeration is associated with an increase in the consumption of meat in poor households, particularly in urban areas, increasing the amount of protein in the diet. However there is also evidence from low- and middle-income families in India that the refrigerator is associated with increased consumption of unhealthy convenience foods and soft drinks. The effects of refrigeration on diet, health and gender, both in the home and in the health service sector, are complex and deserve further study.

### The importance of the extended family in mediating economic decisions and commodity flows

DFID-funded research recognizes that gendered norms structure and limit the decisions women can make about how electricity is used in households, as well as how it is distributed regionally and locally. The EEG-SOK review focuses attention on one aspect of these norms: the role of the extended family in economic decisions and commodity flows. Whether living under the same roof or spread across large geographical areas in 'family-scapes', the joint family is an entity and network through which money, assets and commodities move, creating obligations which are essential to understanding social and gender relations. In many parts of Asia and Africa, the

<sup>1</sup> World Bank (2016) "Primary education, percent teachers." Available at: <http://data.worldbank.org/indicator/SE.PRM.TCHR.FE.ZS> [accessed 9 September 2016].

<sup>2</sup> Kohlin, G. et al. (2011) "Energy, Gender and Development: What are the linkages, where is the evidence." World Bank Policy Research Paper 500. Washington, D. C.: World Bank.

marshalling of the funds to pay for electricity, electrical appliances or a grid connection is a joint family exercise. For example, in India, household appliances are often exchanged through a web of extended family obligations such as dowry, wedding gifts and many other ritual practices in which gender figures strongly. Studies should appreciate the interrelationships between energy access, family and gender.



## 5 Conclusion

This policy brief has outlined the gender consequences of energy access in the Global South, which are broad and wide ranging with spillover effects onto other household and community members. With women having far greater responsibility than men for the work involved in producing essential home energy services, targeting this group becomes critical to the success of development programs aimed at increased access to energy. Most of the benefits of electrification are well-known to DFID. However there are three significant gaps that need to be accounted for during policy design and implementation:

- Energy access benefits female teachers which is likely to have positive effects on students' schooling. Policy design should therefore focus on access to electricity in schools. This will encourage highly qualified and experienced teachers to remain within rural areas to the benefit of local students.
- In general, refrigeration enables safe storage of medicine and increases food security. Women have a higher reliance on health care and are largely responsible for sourcing and cooking food. Strengthening the value chain, and ensuring access and affordability of fridges for private and public use should be considered. Further research needs to be carried out to determine the exact effects of refrigeration on diet, health and gender, which are likely to vary geographically.
- It is crucial to recognise the importance of the extended family in mediating women's economic decisions and commodity flows. Efforts at behaviour change with regard to energy access should target broader familial networks rather than solely at the individual level.

While this note has found that access to electricity can contribute to gender empowerment in a number of ways, this potential can only be realised if women have legal rights including to home ownership, land ownership and access to finance. Electrification must be accompanied by broader public policy initiatives and a shift in gendered norms if transformative improvements in gender inequalities are to be achieved.