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Gender equality, women's rights and access to energy services

An inspiration paper in the run-up to Rio+20

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Table of contents

1. BACKGROUND AND INTRODUCTION 1
1.1. ENSURING UNIVERSAL ACCESS TO ENERGY FOR ALL 1
1.2 ENERGY POVERTY HAS A GENDERED FACE 1
1.3 SCOPE AND METHODOLOGY 2
1.4 STRUCTURE AND CONTENT OF PAPER 3

2. ANALYTICAL FRAMEWORK: GENDER AND RIGHTS 4
2.1 RIGHTS-BASED APPROACHES TO DEVELOPMENT 4
2.2 GENDER AND DEVELOPMENT 5
2.3 GENDER ANALYSIS OF RIGHTS 6
2.4 A GENDER AND RIGHTS FRAMEWORK FOR ENERGY SYSTEM GOVERNANCE 6

3. THE GENDER DIMENSIONS OF ENERGY ACCESS AND ENERGY EFFICIENCY . 8
3.1 FOUR DECADES OF GENDER AND ENERGY IN DEVELOPMENT 8
3.2 PERSISTENCY OF MULTIPLE RIGHTS FAILURES IN THE ENERGY SYSTEM 10
3.3 THE CONTRIBUTION OF MODERN ENERGY TO GENDER EQUALITY AND WOMEN'S RIGHTS 12

4. GENDER, RIGHTS AND ENERGY SYSTEM GOVERNANCE 15
4.1 ENERGY SYSTEM GOVERNANCE 15
4.2 HOW DOES HOUSEHOLD LEVEL DECISION-MAKING INFLUENCE WOMEN'S ENERGY RIGHTS? 16
4.3 NATIONAL LEVEL ENERGY SYSTEM GOVERNANCE 17
4.3.1 Gender-aware policy options 17
4.3.2. Who is likely to support gender-aware energy policy? 18
4.4. GLOBAL LEVEL ENERGY SYSTEM GOVERNANCE 20
4.5 CHANNELS FOR RIGHTS-CLAIMING IN ENERGY SYSTEM GOVERNANCE 21
4.6. ENTRY-POINTS AND KEY AREAS FOR GENDER-AWARE ENERGY PROGRAMMING 23

5. FUTURE AREAS OF CONSIDERATION 25
5.1. A GENDER AND RIGHTS-BASED APPROACH TO ENERGY ACCESS 25
5.2. BARRIERS AND OPPORTUNITIES TO REALIZE WOMEN'S ENERGY RIGHTS 25
5.3. GENDER AND GLOBAL ENERGY GOVERNANCE 26
5.4 SUGGESTIONS FOR FURTHER ANALYSIS 26

6. REFERENCES 28

7. ACKNOWLEDGEMENTS 33

ANNEX 1 GLOSSARY 34

ANNEX 2: LESSONS LEARNED ON GENDER AND ENERGY IN DEVELOPMENT .. 37

Executive Summary

This study aims to increase international attention on the gender equality dimensions of energy access in the run-up to Rio+20 and contribute to the Sustainable Energy for All (SE4ALL) initiative and its goal of ensuring universal access to modern energy services by 2030. It conceptualizes gender and energy in development from a gender and rights perspective and presents an analysis of energy system governance at household, national and global levels. The study primarily focuses on experience emerging from Sub-Saharan Africa and South Asia, given the severity of energy poverty in those regions.

Energy poverty is gendered

One of the most critical development challenges is to overcome the energy poverty of billions of people in developing countries who face inadequate and unreliable access to modern energy services and rely on biomass for cooking and heating. People deprived of such basic energy services are less likely to earn a living, stay healthy and have time for learning and fulfilment. Energy poverty therefore undermines the realization of the Millennium Development Goals.

Women in most developing countries experience energy poverty differently and more severely than men. Without access to modern energy services, women and girls spend most of their day performing basic subsistence tasks including time-consuming and physically draining tasks of collecting biomass fuels. Access to energy is gendered: it is determined by intra-household decision-making, women's social position and the value attached to women's labour. Unequal gender relations limit women's ability to participate and voice their energy needs in decision-making at all levels of the energy system.

Access to energy services is a right

Individual energy users – men and women - are rights-holders who have a legitimate claim on the State as the primary duty bearer to protect, promote and uphold their rights to access basic energy services. Members of the international community also have duty bearer responsibilities in assisting rights-holders in realizing their energy rights.

Still, women and men face institutional barriers to the realization of rights – also referred to as "rights failures" – but in different ways, mainly because gender inequalities are produced and reproduced by energy system governance institutions. Moreover, rights of women – for example land and property rights - are suppressed because of unequal gender relations and because women are not given the privilege of being seen as rights-holders in their own right .

Rights failures in energy systems concern two interrelated areas: the lack of recognition of women's energy needs, knowledge and contribution and the unequal distribution of control over energy resources and benefits from energy services between women and men. These are a result of the underlying cultural and social norms that shape the roles and relationships between men and women. Such norms permeate energy system structures and institutions, including its legal and regulatory frameworks, policies and programmes.

Barriers to realize women's right to access energy services

Women's right to energy fails because there is lack of recognition of the value of women's work (no economic value is attached to biomass collection by women), lack of recognition of the

value of women's roles (investing in improved cooking technology is neither prioritized at household nor at national levels), and lack of recognition of women's multiple roles (women's work in agriculture and as entrepreneurs is not sufficiently recognized). More fundamentally, women internalize social norms that place a low value on their worth and contribution, negatively affecting their access to modern energy services.

Relatedly, women also face difficulties in benefitting from energy services because of inequitable access to resources. For example, women lack control over land and property (which limits their ability to benefit equally to men from energy facilities - such as solar systems, wind turbines, and bio-fuel plantations - that require land), women lack income (which is a barrier for investing in technology that improves the productivity of women's labour), women lack access to credit (which limits their ability to pay the up-front costs of improved energy technology or connection fees to the electricity grid), and women have limited access to extension service and education (which limits their abilities to become energy entrepreneurs and earn an income).

Energy system governance can address gender inequalities

Energy governance institutions can reinforce or challenge the way in which women and men are valued and recognized in society. The persistency of rights failures in the energy system represents governance malfunctions at all levels. In order to address the gendered nature of energy poverty, energy system governance, policy and programmes need to address structural gender inequalities at the level of institutions.

National level energy policy-makers have a number of gender-aware policy options to do so:

i. *investment in energy infrastructure* such as decentralized renewable energy technologies - that directly meets the energy demands of women and makes their labour contribution more productive,
ii. *legal and regulatory reform* such as the creation of market incentives to promote the distribution of modern fuels that respond to women's energy demands and reform of laws and regulations that prevent women from owning land, controlling productive assets or accessing credit facilities, which can provide a basis for shifts in social expectations about roles of men and women,
iii. *national budget re-allocation* to improve household energy technologies and make them accessible, such as through innovative financing , and
iv. *institutional strengthening* for example to support the design of gender-aware management information systems for the energy sector.

Donors and international development organisations can support the implementation of these policy options that allows for a focus on good governance principles and attention to the most disadvantaged and marginalised groups of people whose energy rights are largely ignored. Other key areas for gender-aware energy programming include providing technical assistance to national energy institutions in setting up accountability systems and governance channels for rights claiming and supporting increased representation of women in formal energy institutions, which in turn can create a positive change of attitudes to women at all levels of the energy system.

Global energy system governance should realize women's energy rights

International efforts to promote women's energy rights are inadequate. Despite a growing knowledge base on the linkages between gender, energy and poverty, much of the SE4ALL-

related debate is gender and rights unaware, thereby replicating multiple gender and rights failures.

Major strategic entry-points for gender and rights aware energy governance at the global level exist in the run-up to Rio+20 including the need for gender and rights aware international goals, targets and indicators on energy access (for SE4ALL but also for other international initiatives) and financing for gender-equitable energy access.

The establishment of an international monitoring system to assess the progress towards eliminating energy poverty and realizing universal access to energy services would be a critical component to improve international accountability to women's energy rights. Each of these entry-points require their own strategies for increasing women's participation, voice and leadership in global energy governance.

Claiming the right to access energy services needs support

Global, national and local civil society is a growing force for change in the energy system. Civil society organizations advocate for gender-aware policy and programmes and develop initiatives tharaise the awareness about energy rights amongst rights-holders and duty-bearers. They also claim energy rights on behalf of rights-holders.

At international and national levels, there are several examples and opportunities for rights claiming for example:

At the global level advocating for the recognition of access to energy services as a human right; negotiating the explicit inclusion of gender equality in international goals, targets and related monitoring systems related to SE4ALL; and promoting that international energy lending be focused on increased energy access to women through clean decentralized energy sources.

At the national level examples include demanding the explicit inclusion of gender equality in national energy policies, goals, and targets; the establishment of energy sector accountability mechanisms; and demanding an increase of women in decision-making positions in the energy sector.

Rights-holders can use different methods to make energy rights claims such as engagement in formal stakeholder processes about global or national energy policy, legal action - for example based on international legal rights instruments such as CEDAW, engaging with the private sector using Corporate Social Responsibility (CSR) as an entry-point; and media reporting or campaigning.

Future areas of consideration

The study concludes by asking three questions for discussion in the run-up to Rio+20:

1. What can a gender and rights-based approach to development contribute to national and international development efforts aimed at alleviating energy poverty, in particular of the most disenfranchised and marginalized groups?
2. How can national and international development efforts, including through creating enabling environments for women's voices and through public-private partnerships arrangements, ensure that women's energy rights are realized?
3. How can the international commitment to gender equality in energy access be improved and what are the strategic entry-points in the run-up to Rio+20?

A number of areas needing more analysis are suggested at the end of the study that would contribute further to the understanding of energy system governance from a gender and rights perspective.

1. Background and introduction

1.1. Ensuring universal access to energy for all

Energy poverty is one of the most critical challenges facing the international community. Worldwide, approximately 3 billion people rely on biomass for cooking and heating, and about 1.5 billion have no access to electricity. Up to a billion more have access only to unreliable electricity networks (AGECC 2010). Energy poverty affects people in all regions of the world. However, the majority of people deprived of modern energy services live in rural areas in Sub-Saharan Africa, India and other developing Asian countries (excluding China). The lack of access to adequate and reliable modern energy has a significant negative impact on economic development, health, education and gender equality. People with no or limited access to energy are generally poorer than those with energy access; they are less productive, face heavier work, are more exposed to health risks and lack the benefit of modern technologies and communication (Picolotti and Taillant 2010). The biggest challenge lies in providing energy for the most disadvantaged population groups, those without capital, knowledge and influence (Practical Action 2009). Without significant political commitment and investment, energy poverty is set to deteriorate even further over the next 20 years (OECD/IEA 2010).[1]

In 2010, the UN Secretary-General's Advisory Group on Energy and Climate Change (AGECC) called for commitment and action on two goals: ensuring universal access to modern energy services and reducing global energy intensity through energy efficiency measures (AGECC, 2010). Subsequently, the Secretary General launched a global initiative, Sustainable Energy for All (SE4ALL) and declared 2012 as the International Year for Sustainable Energy for All. The SE4ALL initiative has three major targets by 2030: i) Ensuring universal access to modern energy services, ii) doubling the rate of improvement in energy efficiency and iii) doubling the share of renewable energy in the global energy mix.[2]

A Conference on Sustainable Development (Rio+20) is scheduled to take place in Brazil in 2012 on the occasion of the 20th anniversary of the 1992 Earth Summit. The objective of the Rio+20 Conference is to secure renewed political commitment for sustainable development, assessing the progress made and addressing new and emerging challenges. Efforts towards achieving the SE4ALL targets are expected to be prominent issues during Rio+20.

Denmark supports the SE4ALL initiative and considers Rio+20 as a strategic opportunity to increase the international focus on gender equality and women's rights. Against this background, the objective of the study is to provide an analysis of the gender dimensions of energy access and efficiency and its potential contribution to gender equality and women's rights.

1.2 Energy poverty has a gendered face

While both poor women and poor men suffer from energy poverty, women are disproportionately affected, as their access to energy resources and benefits is further curtailed by unequal power relations (Kohlin et al 2011). There is evidence from all over the developing

[1] According to projections of the 2010 World Energy Outlook, energy access problems will persist and even deepen in the longer term. 1.2 billion people will still lack access to electricity in 2030, 87% of them living in rural areas. And the number of people relying on biomass for cooking will rise from 2.7 billion in 2010 to 2.8 billion in 2030 (OECD/IEA 2010).
[2] http://www.sustainableenergyforall.org/about (accessed on 5 December 2011).

world that women's needs, views, and participation have persistently been excluded from energy policy and practice. Everywhere, men's energy needs and interests are given higher priority than women's and girls' needs and interests (Cecelski 2000, Cecelski 2004, Clancy et al 2003, Cecelski and CRGGE 2006, Lambrou and Piana, Balmer 2007, Practical Action 2010, Kohlin et al 2011).

When women experience energy poverty and their energy needs are not met, the consequences are severe. As a result of time-consuming and physically draining collection of biomass fuels, women and girls' health conditions are poor, their options to earn additional income are minimal, the opportunities to improve their labour productivity are low, the options for social and political interaction outside the household are restrained, the chances of benefitting from training and extension are limited, and schooling carries high opportunity costs often making it inaccessible (especially for girls). Moreover these conditions create further barriers to women's ability to voice their energy concerns and claim rights, reinforcing women's exclusion and exacerbating the problems. All other members of the household, including men, are negatively affected when women have limited access to modern energy services.

The importance of a full understanding of the energy specific needs and responsibilities of women and men is important, however even more important is the understanding of the broader context of unequal gender relations in which these are played out. Unequal gender relations shape rights of access to energy services and consequently also the different benefits women derive from them. Explicitly addressing gender inequality in access to energy services is a necessity for SE4ALL to succeed in meeting its goal of ensuring universal access to energy services by 2030.

1.3 Scope and methodology

The paper is developed as an inspiration paper. It attempts to conceptualize gender and energy in development from a gender and rights perspective. On that basis, it suggests key issues for further discussion with a broad range of stakeholders in the run-up to Rio+20.

The study concentrates on the challenges encountered in making energy access universal in developing countries. The study takes an energy systems approach, which links the challenges of energy access, energy security and climate change (efficiency for example has emerged strongly because of the climate change challenge). It also means looking beyond energy supply (energy provision, technological innovation and feasibility, etc.) and focusing on the demand-side, i.e. on energy needs and the values and meaning given to energy use.

The paper has a number of limitations. Gender dimensions of energy access vary across social, cultural, economic, and political contexts. The scope of the paper, however, allows for presenting more generalized findings based on a review of literature from the last ten years on gender and energy in the context of development. The most recent literature on access to modern energy has been considered in order to explore to what extent gender equality concerns are addressed in the "mainstream" debate on universal access to energy services. The study also draws on writing on human rights and access to energy, and energy system governance. These are however emerging themes and the literature is still developing. The paper focuses on household, national and global levels of energy system governance. Community, local government and regional levels are equally important but an analysis of all levels is beyond the scope of the paper. Finally, the paper is not a comprehensive global study, but is primarily

focused on experience emerging from Sub-Saharan Africa and South Asia, given the severity of energy poverty in those regions.[3]

1.4 Structure and content of paper

Section 2 presents the analytical basis for the study by introducing the key principles of right-based approaches and gender and development thinking. Section 3 explores the main shifts in thinking about gender and energy in development policy and practice with lessons learned on the realization of women's rights to access energy services. It also highlights the contribution of modern energy services to gender equality. Section 4 proposes an outlook on gender-aware energy programming based on a gender and rights analysis of energy system governance. The section discusses channels for rights-claiming in the energy system and suggests key areas for support to a gender and rights approach in energy programming. Finally in section 5, four critical aspects of gender equality and energy are recommended for further discussion in the run-up to RIO+20.

Annex 1 provides a glossary with definitions of important gender, rights, governance and energy concepts used in the paper.

Box 1: Some energy definitions

a. **Primary energy:** Energy contained in energy carriers such as oil, coal, wood and other biomass.

b. **End-use energy:** The energy sold to private users, e.g. fuel-wood, kerosene, electricity.

c. **Useful energy:** End-use energy and appropriate equipment provides useful energy, e.g. heat, light, mechanical drive.

d. **Energy services:** The benefits that result from using energy, for instance a cooked meal, illumination, a warm room, a hot bath, information and communication, earning a living.

e. **Energy access:** Access to clean, reliable and affordable energy services for cooking and heating, lighting, communications and productive uses.

f. **Energy efficiency:** Higher energy efficiency can reduce the end-use energy consumed to produce the same level of energy services.

g. **Renewable energy:** Energy coming from naturally replenished resources, i.e. wind power, solar power, hydro-power and energy from biogas, biomass or biofuels.

Sources: Pachauri and Spreng 2003, AGECC 2009, and Bast and Krisnaswamy 2011.
For more definitions, please refer to the Glossary in Annex 2.

[3] The linkages between gender and energy in other regional contexts have been documented among others by FAO (Lambrou and Piana 2006), and by the International Network on Gender and Sustainable Energy (ENERGIA 2007).

2. Analytical framework: Gender and rights

The study approaches access to energy services as a right. The rationale is three-fold: Firstly, energy access and efficiency have profound implications for human development. The enjoyment of the right to access energy services is a prerequisite for realizing other interrelated human rights such as food, health, and gender equality. The right to access energy cannot be seen in isolation from the realization of other basic economic and social rights (Tully 2006). Secondly, access to energy services is increasingly positioned as a rights concern by the champions of global energy governance. Thus, the UN explicitly employs the terminology of human rights in the SE4ALL initiative which calls for global commitment to "the universal access to modern energy services". Thirdly, access to energy so far has not been established explicitly as a right, which can be seen as a serious gender failure of international accountability systems (Goetz 2006). These failures happen when the violations of women's rights or the neglects of their needs are not considered as accountability problems by the international community.[4]

This section provides a brief overview of key principles of rights-based approaches and gender and development thinking, and their synergy in a gender and rights analytical framework[5].

2.1 Rights-based approaches to development

Rights-based approaches to development emerged in the 1990s in response to the failure of development assistance to reduce poverty and inequality. There are many interpretations of rights-based approaches but most share common principles, emphasized in this study, beginning with the understanding of development as an expansion of human freedoms. The three most significant concepts in rights-based approaches are (Mukhopadhyay and Meer 2008, Boesen and Martin 2010):

Duty bearers: States are widely seen as the primary duty-bearer. However, within global debates on rights-based approaches to development, there is increasing recognition of the related obligations of non-state actors and members of the international community (Nyamu-Musembi and Cornwall 2004; Eyben and Ferguson 2004).

Rights holders: Individuals and groups who are entitled to rights, entitled to claim rights and entitled to hold duty-bearers accountable.

Rights: To have a right means to have a legitimate claim on some person, group or organization, i.e. a duty bearer. The duty bearer is under the obligation to fulfil the right or to assist the rights-holder in realizing the right and the associated entitlement or benefit. If the rights of the rights-holder are not realized, it is referred to as a rights failure. Duty-bearers are accountable for rights failures (Moser & Norton 2001).

[4] Gender failures of the international accountability systems (related to the international human rights conventions or treaties) happen because women as a political constituency lack the leverage to demand answers from powerful duty-bearers. Social and cultural systems in general do not give women the privilege of being seen as individual rights-holders and often women do not see themselves as such because of unequal power relations (Goetz 2006).

[5] The conceptual and analytical framework on gender and rights applied in this study has been developed, tested and refined over recent years by the Social Development and Gender Equity Area of the Royal Tropical Institute (KIT).

Rights are not only understood as written in the constitutional and statuary law or as the normative framework provided in the Universal Declaration of Human Rights and other international treaties. Most societies have different levels of co-existing rights regimes[6] and social institutions that govern peoples' lives. Rights defined at one level may be denied because of social norms operating at another level. Every level has different governance structures where decisions about rights and entitlements are made including the determination of which needs and priorities are given the status of rights, allocation of resources, and administration of services. Every level also has governance channels[7] through which claims can be raised. Rights-based approaches to development call attention to strengthening the negotiating power of disadvantaged groups and developing their "voice" so that they can use these channels and demand a response from these structures.

The key principles of most rights-based approaches are: the promotion and protection of rights, the accountability of duty-bearers to rights-holders, the participation and empowerment of rights-holders both as a means to ensure accountability and as an end in itself, treating people as entitled citizens who are agents of their own development rather than mere beneficiaries, and the non-discrimination and attention to vulnerable groups. Many of these principles are similar to those associated with good governance (Mukhopadhyay and Meer 2008).

2.2 Gender and development

The social position of people is shaped through social relations of gender, class, age, ethnicity, location (rural/urban) etc. Social relations are relations of power that are created by people; groups of people – or social categories – are defined and valued in relation to each other based on social categories, such as gender (women in relation to men). Unequal gender relations create and reproduce systemic differences in women's and men's position in society.

Social institutions provide the structures and rules that produce and reproduce unequal social relations such as of gender, class, age, ethnicity, location (rural/urban) and therefore maintain these differences and relative values given to different groups of people. They are formal and informal structures through which people learn the explicit and implicit social norms that govern what an individual should do or not, depending on his or her social identify. Examples of social institutions are the state, the market, and the family.

A gender analysis explores the condition and position of women relative to men in a given context. It highlights inequalities in gender relations within the household and how they interrelate with power relations at international, state and community levels. A gender analysis is based on sex-disaggregated information and applies analytical concepts such as "the gender division of labour", "access to and control over resources", and "gender needs and interests".

[6] Rights regimes include international human rights law, constitutional and statuary law, religious law, customary law and living law. Living law describes informal processes and mechanisms of making claims within the household and community (Moser and Norton 2001).

[7] People may pursue different types of claims through different institutional channels such as the political and legal systems, or through policy, administrative, social or private sector channels. Moser and Norton (2001) refer to "channels of contestation". In this study, these are referred to as "governance channels".

In gender and development literature, gender-aware is a term used to describe programming that identifies and addresses the different gender needs of women and men based on gender analysis. Gender unaware programming, in contrast, is blind to different gender needs and can harm women by reinforcing men's privilege to the disadvantage of women.[8]

2.3 Gender analysis of rights

Rights-based approaches focus on achieving basic entitlements for all (such as universal access to modern energy services). Gender and development thinking adds to this a framework for analysing unequal power relations amongst disadvantaged people and between social groups. It challenges that women are only seen as having rights through their relationship with men (as mother, sister, daughter, or wife) and recognizes women as rights-holders in their own right. A gender analysis of rights draws attention to how social relations shape access to rights for women and focuses on rights failures, i.e. identifying barriers to realising rights through governance structures at different levels. A gender and rights analysis highlights the need for identifying rights failures of "recognition" and "redistribution" when examining gendered dimensions of development challenges:

Recognition failures are based on the unequal value given to women relative to men. An example is the inferior value attached to women's informal knowledge of natural resources management. Failures of recognition lead to claims for recognition such as making women's contributions visible and assigning equal value to women's and men's work in order to transform unequal gender relations.

Redistribution failures on the other hand result in unequal access to and control over resources. Redistributive claims can be about the reallocation of resources and power between men and women with the aim of ensuring gender equitable outcomes (Mukhopadhyay et al 2010).

2.4 A gender and rights framework for energy system governance

The paper has thus arrived at a framework for a gender and rights analysis of access to modern energy services in the context of development. The key elements of the framework are:

1) Considering access to modern and efficient ***energy services as a right***, i.e. a legitimate claim.

2) Changing the outlook of disadvantaged and marginalised people and their relations with the State and the international community from a position of needy beneficiaries to a position of ***rights-holders.***

3) Looking at the State and the international community as ***duty-bearers*** with obligations to realize access to energy services for all.

4) Analysing how gender and other social relations influence the realization of people's right to access energy services. That implies understanding how the ***social position of women and men*** affects their day-to-day lives and ability to access energy services and addressing gendered rights failures that result from these realities.

[8] Three types of gender-aware programming are often considered. For more details, please refer to Glossary in Annex 2.

5) Taking into account ***rights of women which are not recognised*** or suppressed because women are perceived as occupying a lower social position than men and may be seen as having rights only through their relationship with men (for example land rights). Realizing these rights are often a precondition for achieving access to modern and efficient energy services for women. A gender and rights analysis of access to energy services therefore employs an ***explicit focus on women's rights***.

6) Focusing attention to key governance structures and actors at different levels of ***energy system governance*** (i.e. household, local and national government and global institutions).

7) Looking at different ***governance channels for making energy claims*** (i.e. both claims of recognition and redistributive claims) and ways to strengthen the "voice" of rights-holders to ensure accountability to gender equality and women's rights in energy systems.

8) Identifying entry-points and key areas for supporting the ***realization of rights through gender-aware energy programming.***

3. The gender dimensions of energy access and energy efficiency

National energy systems have two main interrelated governance domains: biomass and modern energy[9]. The biomass domain (providing fuel-wood, charcoal etc. based on biomass resources mostly from natural forests) is frequently characterized by pluralistic governance regimes, including various forms of decentralized governance. The major government actor is the Ministry of Forests, Environment, Natural Resources Management (or similar government agency). The modern energy domain (providing electricity, bottled gas etc.) is based on modern sources of energy such as oil, coal, natural gas, liquid petroleum gas (LPG), but also renewable energy sources such as wind and bio-fuels. This domain is characterized by strong centralized governance, and the major government actor is the Ministry of Energy, Power and Industry (or similar). Energy services are provided by a range of different private and public actors in both energy governance domains, which overlap (both in terms of duty bearers and rights-holders), and the space for energy users to influence the sector and claim rights is different from one domain to another.

While much development effort - including the SE4ALL - focuses on improving the access to modern energy services, there is no doubt that the biomass domain will continue to play an important role, not at least for women in rural areas and for the urban poor. From a gender and rights perspective this implies approaching access to energy services as a right whether it is derived from modern or from biomass energy sources.

3.1 Four decades of gender and energy in development

The approaches to gender and energy in development policy and practice have evolved substantially over the last forty years. This section provides an overview of some of the main shifts in thinking about gender and energy and consequent rights failures and is a useful basis for identifying urgent policy gaps in the energy governance system.[10] The end of the section offers some evidence about the contribution of modern energy services to gender equality, women's rights and the achievement of the Millennium Development Goals (MDGs).

Several studies give an overview of gender and energy in policy research and practice (Cecelski 2004, Cecelski and CRGGE 2006). They point to attention being given to women's roles in the energy system starting in the 1970s in the context of a perceived environmental crisis. Reforestation and household energy projects, in particular improved cooking stoves, were promoted in the biomass domain to conserve the increasingly scarce biomass resources. Women were regarded as passive victims of the crisis and were overall excluded from participation in decision-making, planning and management of interventions. Women's informal knowledge (using multiple kinds of biomass and tending to fires in efficient ways) was neither recognized nor considered relevant in the design of energy equipment and interventions. More fundamentally, most early household energy interventions did not recognize the inequitable access to and control over resources and benefits based on unequal gender relations. From a gender and rights perspective, the interventions failed to realize women's energy rights.

[9] The distinction between a modern and a traditional biomass energy governance domain is an analytical construct, and is not likely to reflect the ways in which people experience access to energy services in its totality.
[10] The overview presented in section 3.1.1 is a summary of a more detailed account of the history of gender and energy thinking in the context of development, which is available as Annex 2 to this paper.

By the end of the 1980s, studies revealed a complex picture of labour allocation in the rural economy, and showed that women worked longer hours than men and were largely unpaid, which made women's (and girls') labour contribution invisible (Clancy et al 2003). At the household level, it restricted women's bargaining power and decision-making. None of the energy governance domains, however, were able to incorporate women's invisible and unpaid labour into its policy and practice (Cecelski 2004). Programme responses continued to focus on improved stoves and fuels, did not sufficiently support women's need for energy for productive activities (Cecelski and CRGGE 2006) and overall did not challenge the main barriers to realizing women's energy rights.

In the modern energy domain, the 1970s oil-crisis was the centre of attention and women's energy needs were entirely invisible. Macro-policies focused on the commercial energy carriers such as electricity and petroleum primarily catering to urban or semi-urban populations to the neglect of rural development in general and rural women in particular (Tully 2006). During the 1980s and 1990s, the modern energy domain underwent reforms that paved the way for the private sector to provide more energy services, and the government's role was to change to that of a regulator (Clancy 1999, Wamukonya 2002). Studies for the first time showed that national policy decisions regarding energy investment priorities and energy pricing affected men and women differently (SIDA 1999). For example, women would often require process heat for food preparation and income-generation activities, and they would therefore be better served through investment in effective distribution networks for LPG rather than in (or in addition to) electricity (ENERGIA/UNDP 2006). Especially in the 1990s, it became apparent that many governments had failed to develop sufficiently strong legal and regulatory frameworks to promote access to modern energy through the market, and therefore failed to ensure energy rights for disadvantaged groups in general and women in particular. Recent literature demonstrates the negative consequences of these unregulated reforms: reduced electrification coverage in rural areas, increased tariff levels and the exclusion of the poor from modern energy services (Wamukonya 2002, Batliwalla and Reddy 2003, Tully 2006).

As development priorities moved to poverty alleviation in the 1990s, World Bank and DfID sponsored research, from a sustainable livelihoods perspective, contributed important insights about the linkages between poverty, energy and gender (Ramani and Heijndermans 2003, Clancy et al 2003). The research identified how different energy types addressed practical, productive and strategic needs of women. It was also demonstrated that improved energy access could increase women's income and standards of living. A main policy message from the research was that energy programmes should focus on livelihood opportunities for disadvantaged groups to enhance self-reliance and improve social conditions. Gender experts, however, pointed out the drawbacks of this approach because gender was treated as a subset of poverty, while dependence on bio-mass energy is not a function of poverty alone, but also a function of unequal gender relations (Cecelski and CRGGE 2006). Without complementary activities addressing the structural barriers (such as gender disparity in ownership of productive assets including land and trees), energy projects would fail to support women's energy rights.

In the 1990s, a trend of forest reforms in many developing countries devolved or decentralized authority over forest management to lower levels of governance including districts and communities. Evidence from South Asia and Africa showed the negative outcomes for women

when their informal user rights were displaced because of conservative protection or privatization of communal lands and the advantageous results for men who largely controlled the benefits (Mai et al 2011, Kohlin et al 2011).

The continued need to extend energy services to people "off the grid" and a growing attention to climate change in the 2000s contributed to an increased focus on renewable energy solutions (Marston 2011). Different development organisations, such as the FAO, showed that small scale renewable energy systems could benefit disadvantaged groups, especially women (Lambrou and Piana 2006). These systems could provide power for water pumps and grain mills in areas not covered by the electricity grid and promote productivity and income generating activities (Panchauri and Spreng 2003, ENERGIA 2007, Aguilar 2009). Recent studies from India, however, conclude that women's lack of access to and control over land and property act as barriers for women to realize energy rights through renewable energy projects. Gender disparity in property rights make women unable to access credit and other financial services necessary to benefit from the projects and result in women disproportionately bearing the burden of many renewable energy projects (IRADe/ENERGIA 2009, Marston 2011).

UN HABITAT has recently expressed its concern that policies and plans for energy access for urban slum-dwellers are not being addressed (UN HABITAT 2009b). Additionally, there is a lack of knowledge on gender, urban poverty and energy access, which is reflected in insufficient attention to the needs of poor urban households in energy policy. Evidence suggests that women-headed households, in particular, are excluded from access to modern energy services because of insecure tenure, often as a consequence of gender inequitable legal rights. It remains a question to what extent poor women in urban areas (including slums) can realize their energy rights (UN-HABITAT 2009a).

In 2011, SE4ALL was launched by the UN Secretary General with one of the main goals of ensuring universal access to modern energy services by 2030. Effort has recently been to understand what "energy access" actually means and how it could be measured to inform energy policy-makers (Bazilian et al 2010). Evidence shows that households use multiple fuels and the choice of fuels is influenced not only by income, but also by availability, end-use equipment, security of supply, cultural preferences, convenience and safety concerns (Pachauri and Spreng 2003, WB 2011). In other words, as discussed earlier, the choice of fuel is a gendered one that is determined by intra-household decision-making, the status of women as well as the value attached to women's labour. Despite a growing knowledge base on linkages between gender, energy and poverty, much of SE4ALL-related discussion is gender-unaware.

3.2 Persistency of multiple rights failures in the energy system

Table 1 illustrates major energy and development priorities and consequent rights failures from the 1970s to date. As these rights failures have not been sufficiently addressed in energy system governance, they continue to persist until today.

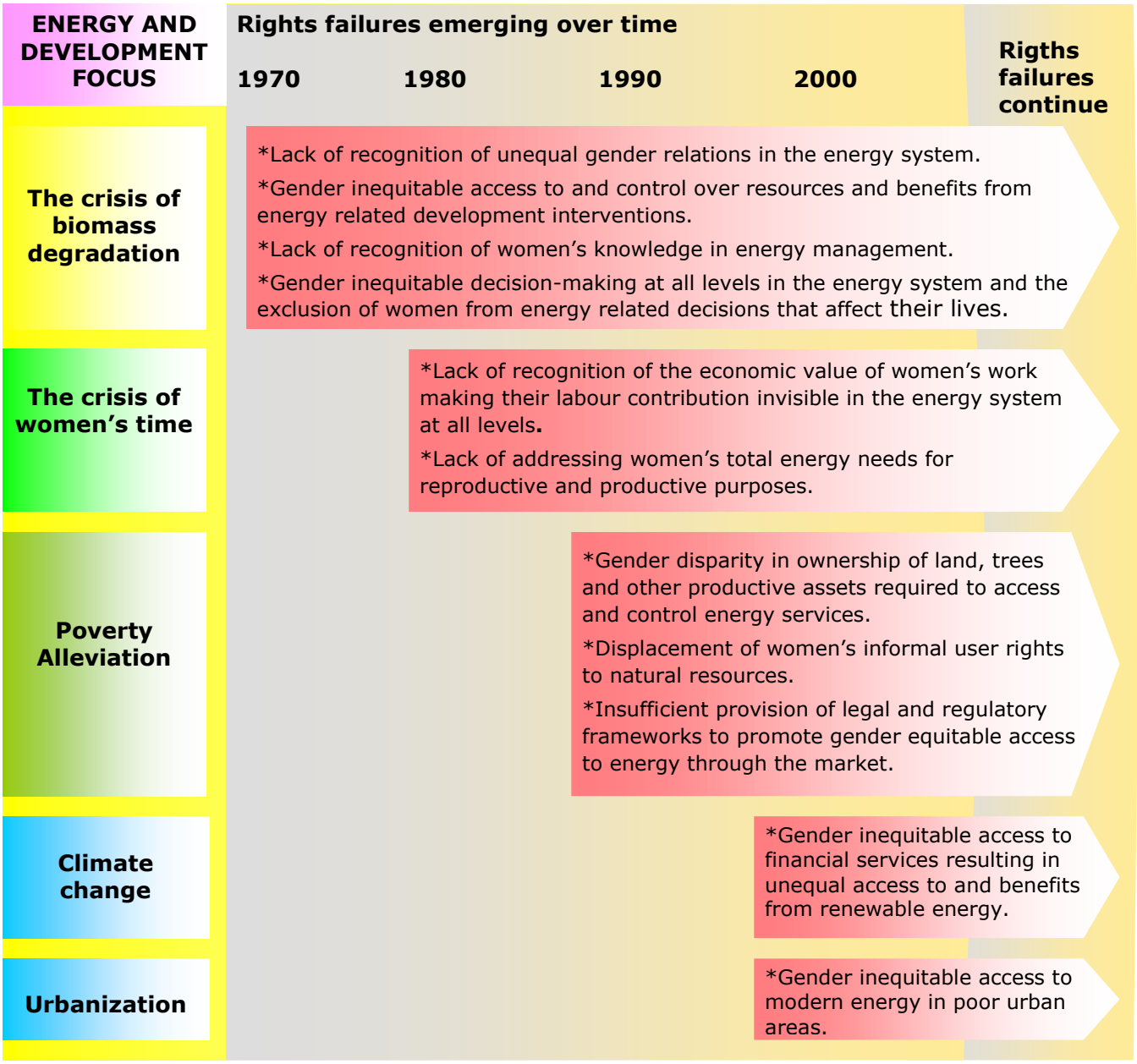
Rights failures persist because of i) the lack of recognition of women's energy needs, knowledge and contribution, and ii) the failed redistribution of control over resources and benefits from energy services. They happen as a result of the underlying cultural and social norms that shape the roles and relationships between men and women. These norms permeate energy system structures and institutions, including its legal and regulatory frameworks, policies and

programmes. In other words, energy system institutions are gendered. From a gender and rights perspective, the persistency of rights failures in the energy system represents governance malfunctions in general and accountability malfunctions in particular at national as well as international levels.

Institutional change cannot be achieved by targeting individuals. In order to address the gendered nature of energy poverty, these governance malfunctions need to be redressed at the level of energy system governance to contest structural gender inequalities at all levels.

If SE4ALL does not take into account lessons learned about the gendered barriers to energy access, it is likely that SE4ALL will replicate earlier gender and rights failures. Section 4 attempts a gender and rights analysis of energy system governance.

Table 1: Persistent rights failures in the energy system



3.3 The contribution of modern energy to gender equality and women's rights

What changes in the lives of women when their rights to access modern energy services are realized?

Several recent studies have explored the contribution of modern energy services to gender equality, women's rights and the achievement of the MDGs. These studies show that women undoubtedly can benefit from access to adequate and reliable modern energy services. Some of the major findings from recent literature on gender and energy are presented below (based on Panjwani 2005, Cecelski and CRGGE 2006, Tully 2006, Modi et al 2007, Practical Action 2010, Clancy et al 2011, Kohlin et al 2011, UN 2011).

- Modern energy services can positively impact women's health (e.g., by reducing smoke related health hazards from biomass), though more research is needed to understand when such gains are made. They can support the functioning of health clinics in rural areas which is crucial to improving women's health rights, in particular sexual and reproductive rights.

- There is evidence that electric lighting – in schools, streets and homes – can have a positive impact on girls' schooling. However, no definitive conclusions can be drawn on the impact of this form of energy interventions on women's literacy skills and reading time. Street lighting also increases the feeling of personal and community security.

- Experience shows that women and girls can save time and effort from improved cooking technology or through the provision of mechanical power for water collection, agriculture and home-industries. However, how this "saved" time and workload are re-allocated to benefit women, for income generation for example, depends on the intra-household decision-making and gender norms and values, as well as market and income-earning opportunities.

- The same is true for extension of the working day through lighting from electrification (and other improved energy services). It adds flexibility and sometimes income but does not automatically lead to increased leisure time for women.

- It seems that few women develop businesses as a direct result of improved lighting or other modern energy service. Entrepreneurial activities undertaken by women tend to use process heat whereas attention has mainly been on electricity. When income generation activities are enhanced, often from extending the working day, its often informal sector production of vital but low-remunerative goods and services. An exception is energy enterprises operated by women and women's groups. They often choose energy businesses that provide services that women in the community need. Still, women's opportunity for formal employment in the energy sector is limited; men greatly outnumber women at all levels including management and decision-making.

- Modern energy services facilitate access to information and communication technologies e.g., TV and radio, thereby potentially positively impacting women's empowerment and political engagement, depending on the programming and content.

- Training and other opportunities provided by energy programmes can be linked to an increase in women's voice. Still, the causality between better lighting and improvements in girls education and women literacy is difficult to ascertain due to other mitigating factors.

- Energy policies and programming that address intra-household resource allocations and power relations are more likely to promote gender equality and women's rights (such as removing barriers for women to obtain loans or credit).

- The private sector can potentially accrue a range of benefits from gender aware business practices such as expanded markets, a more diverse and sector-relevant workforce and fuller

access to knowledge of the market to develop more appropriate products and services. Also, women comprise a critical market for providers of modern energy services for cooking and lighting e.g., women headed households comprise a larger percentage of those off the grid. Private sector providers will need, however, to understand and address the specific gender needs of women e.g., low or little literacy or lack of collateral for borrowing. Lessons can be learned from experiences with social marketing.

- Gender aware energy access programmes in post-conflict contexts can help rebuild communities and support women, who often comprise the majority of the population, to play a key role. Post-conflict situations offer opportunities to redress gender inequitable social institutions such as laws and policies governing issues such as land tenure and distribution.

All household members potentially benefit from increased assess to energy services but the degree to which they do so depends on gender, age and ability. Apart from the benefits to women noted above, men seem to benefit from increased leisure time whereas children may benefit from increased access to media, improved lighting for reading and safer streets. For women to benefit not only in terms of improved condition, but also enhanced social position to and from realising their rights, the mere provision of energy is insufficient. Women, through their empowerment and active support from household and community members, need to be able to control this access as well as the benefits accrued from increased access.

In the development of interventions designed to improve the access to energy services for women, the importance of complementary interventions can therefore not be underestimated. For instance, this could include support to reform the legal and regulatory frameworks that prevent women from owning land, controlling productive assets, and/or accessing credit and other financial services as well as work with mass media to portray women with jobs and decision-making power (Kohlin et al 2011).

4. Gender, rights and energy system governance

So far this study has shown that gender-unaware policy and programming results in persistent rights failures for women's access to energy. A gender and rights analysis of access to energy services provides a new outlook on gender aware programming. It provides a tool for national governments, international development organisations and other actors in the energy system to address the multiple rights failures that exist in the energy system.

Gender-aware energy programming based on a gender and rights perspective is transformative, i.e. it aims to empower women and transform gender relations to be more equal. It is based on a particular theory of change: strengthening the rights content of energy policy creates stronger and more equitable public, private and civil energy governance structures and institutions. This, in turn, strengthens the degree to which individuals relate to energy system governance structures as citizens with rights and responsibilities and weakens the extent to which people expect to extract benefits based on unequal power relations (such as exploitation of disadvantaged people, and corruption). This, in theory, provides a more sustainable basis for human development.

4.1 Energy system governance

Energy system governance is defined as institutions and processes of decision-making about access to energy services by a large range of stakeholders including those in formal positions as well as ordinary citizens. Energy system governance happens at five levels: the household, community, local and national government and global institutions (Brody 2009).[11]

Besides women and men who access energy services at the household level, there are many other users (such as private and public companies, as well as schools and health facilities) and providers (such as public utilities, large-scale private power-stations, traders and local level energy entrepreneurs). [12] There are also a whole range of social and political actors who influence the use and provision of energy services based on different objectives such as profit, public good, and social justice (Florini and Sovacool 2009).

The individual energy users are the rights-holders. These men and women have a legitimate claim on the State and other duty-bearers. Governments are the primary duty-bearers and have the obligation to promote and protect the right to access energy services for its citizens. The international community, civil society and the market also have obligations to contribute to the realization of energy rights through their recognition, respect and assistance to the primary duty-bearer in making energy rights real. They also have obligations to assist rights-holders in claiming their energy rights.

[11] The paper focuses on household, national and global levels. The analysis can be made at the community and local government levels too but that is beyond the scope of the paper.
[12] An extensive stakeholder analysis is beyond the scope of the paper, but would be useful in elaborating the gender and rights perspective to energy system governance further.

Why should energy governance promote gender equality and women's rights?

- Women have a right to participate in decisions that affect their lives: gender equality in energy governance is an end in itself because all citizens have a right to play an equal part in decision-making and power-structures that affect their lives.

- Energy governance institutions can reinforce or challenge the way in which women and men are valued and recognized in society: active decisions need to be made as to which outcomes are achieved. Legislation and regulation can provide the basis for shifts in social expectations about the roles and responsibilities of men and women and the rights they should enjoy. More women in formal energy institutions can act as role models and result in a positive change of attitudes to women in other social institutions such as households and communities.

- Energy governance institutions can address other rights of women explicitly: women's energy access is often constrained because women are deprived from rights to own land and property.

4.2 How does household level decision-making influence women's energy rights?

The right to access energy services for women is realized at the household level. Thus intra-household decision-making is key to understanding the barriers and possibilities for women to access the energy they need. Households are sites of cooperation, conflict and bargaining. Women's primary responsibilities for reproductive work (including collecting biomass), along with the longer hours of work, affects their well-being relative to men. Moreover, the responsibilities for reproductive work are at the expense of productive work or income-generating activity, this continues to restrict their bargaining power and decision-making in the household.

Access to improved energy services requires investments often in the form of cash, labour or time. Whether a household will invest in the up-front costs of a new stove (for example) or not, is not only dependent on the economic situation of a household. Given the most common division of labour, improved cooking-stoves will first and foremost benefit women. For male decision-makers cooking technology is not necessarily their first priority. But also women might not choose to invest in new cooking technology because it "only" benefits themselves. Bargaining power within the household is determined by the resources individuals can control independently from their membership of the household and also by women's and men's perceptions of their respective worth and contributions. Social norms that place a low value on women are often internalized by women and affect their energy choices (WB 2011).

Energy policies and programming that address intra-household resource allocations and power relations are more likely to promote gender equality and women's rights (such as removing barriers for women to obtain loans or credit). At the very least, such policies and programmes need to be based on an understanding of access and control of resources and benefits within the household and ensure women and men equitably benefit. Energy system policy-makers possess a broad range of policy levers to affect the relative access to resources and bargaining power of women and men in the household which will be taken up in the following sub-section on national level energy system governance.

4.3 National level energy system governance

The actors involved in national energy policy-making have different and often competing interests (i.e. energy security, energy access, climate change (Cherp et al 2011). They also have different ideas about national energy goals and priorities (pro-market or pro-poor) and how these should be addressed (Florini and Sovacool 2009). For example, should society invest in large-scale hydro dams or in small-scale renewable energy solutions? Also, policy processes of the modern and biomass governance domains do not happen in isolation. Lastly, energy-related policy decisions are made by other government ministries too since energy decisions affect almost all social and economic sectors (Lambrou and Piana 2006).

Every policy goal, or strategy has gender and rights implications; experience, however, shows that gender disparities are rarely addressed as an integral part of national energy policy and programme design (Cecelski 2004, Panjwani 2005, Mai et al 2011, Kohlin et al 2011).

Overall, the role of the state as the primary duty-bearer is to "level the playing field" for men and women in the energy system (WB 2002). That includes mitigating and removing discriminatory elements embodied in laws, government functions and market structures and enforcing gender-aware laws and regulations. It is not only at the level of policy formulation that rights failures have to be prevented, but also in the processes through which energy policy are translated into concrete strategies, guidelines and resource allocations and at the level of implementation of actual energy services. At each level - policy formulation, administration and implementation – there exists gender inequitable resource distribution and gender stereotypes, and at each level these must be challenged (Norton and Moser 2001).

From a gender and rights-based perspective, international development organisations have duty-bearer responsibilities in supporting gender aware national energy policy. International agreements and commitments (such as MDGs and SE4ALL) provide a legitimate basis for donors and international organisations to bring up principles of gender and rights in policy dialogue in the energy sector.

4.3.1 Gender-aware policy options

National energy policymakers have a number of options they can use to address barriers to the realization of women's energy rights in the energy system. Donors and international development organisations can support the implementation of these options. Key policy options include: budget allocation, investment in select energy infrastructure, legal and regulatory reform and institutional strengthening: [13]

Budget allocation: First and foremost, where does the government invest? The percentage of the budget allocated to the improvement of household energy technologies or to decentralised renewable energy solutions can be indicators of gender-aware energy policy (Clancy 2009 – and Section 4.3.2. on the use of gender budgets as an accountability mechanism). Decisions in budget allocation relate to other options.

[13] A FAO report on energy and gender in rural development presents in more general terms the government actions needed to remove barriers that impede options for gender-aware energy initiatives, e.g. to remove inappropriate subsidies, reform fiscal rules in the energy field and support capacity building (Lambrou and Piana 2006).

Investing in gender-aware energy infrastructure: There is evidence that women in rural areas and the urban poor can benefit from decentralized energy solutions - provided that persistent rights failures are addressed. Investment in better distribution of alternative fuels that relieve women of their existing burden can also contribute to make women's energy rights real (Panchauri and Spreng 2003, Tully 2006, Kohlin et al 2011). Which technology or source of energy that is most gender-aware depends on the local context.[14]

Legal and regulatory reform: One example is promoting off grid technologies (such as wind turbines and watermills, solar equipment, and processing of biomass to create liquid fuels) through the introduction of targeted subsidies, economic incentives and new credit facilities that women can access. Another example is to create market incentives to promote the distribution of modern fuels (such as LPG) for cooking, heating and lighting and removing existing market barriers affecting private fuel suppliers (ENERGIA/UNDP 2006). In the biomass domain, an existing example is quotas to increase women in decision-making positions in forest management, but evidence shows that many other legal barriers continue to restrict women's access and control over assets (property rights to land, trees) and they still need to be addressed (Mai et al 2011).

Institutional strengthening and capacity development: The literature reports a severe lack of gender disaggregation of information in the energy system. The development of more gender-aware energy sector information management systems and capacity development of national institutions in this area is much needed (Feenstra 2002, Clancy 2009, ENERGIA 2009). As mentioned earlier in the study, women's underrepresentation and marginalization in national energy institutions has extensively been documented, and there is scope for support to gender-aware human resources management policy and practice in the energy sector. There is also a need to develop more targeted training programmes for women in the energy sector, including business management courses for women energy entrepreneurs.

At a more general level, Feenstra suggests five characteristics of gender-aware energy policy-making: Gender mainstreaming, women's participation, the recognition of women's role in energy provision and use, applying an integrated energy planning approach and the use of gender-disaggregated data (Feenstra 2002, Clancy 2009). These are process-oriented characteristics. From a gender and rights perspective (and from a good governance angle), additional areas include accountability of duty-bearers to rights-holders, transparency, and non-discrimination and attention to disadvantaged and marginalised groups.

4.3.2. Who is likely to support gender-aware energy policy?

National and local civil society can be an important force for change in the energy system. Numerous civil society organisations (CSOs) work to promote clean and renewable energy, and increased access to energy for disadvantaged and marginalised groups. Women's organisations and movements in particular advocate for the inclusion of gender concerns in macro-level and

[14] In Nepal for example, there is potential for mini-grid hydro-power activities carried out in the framework of a programme that focuses on gender and inclusion (based on information received from the Royal Danish Embassy in Nepal).

sector level policies. The ability of CSOs to influence the national energy agenda depends on many factors such as the state of democracy and state-society relationships (WB 2000).

There are many examples of women's organisations that have succeeded in participating in energy policy formulation processes such as the South African Women and Energy Group (Cecelski 2000). Sometimes, support form international CSOs or networks is instrumental. Between 2006 and 2009, the International Network on Gender and Sustainable Energy (ENERGIA) supported four gender audits of the national energy sectors in Botswana, Kenya, Senegal and India[15]. They brought energy system actors from the energy system together – including CSOs and government representatives - to analyze critical gender gaps in existing national energy policy formulation and implementation. There are many spin-offs of the gender audits, such as integration of gender issues into specific energy plans (the Kenya Rural Electrification Plan) and more effort to collect sex-disaggregated data (in Botswana). The gender audits made gender and energy issues visible to a wider audience (including many duty-bearers) and also supported national and international networking.

CSOs can also develop initiatives that raise awareness about energy rights amongst rights-holders, and build capacity on how to claim rights and how to engage in energy governance processes at different levels. In the biomass domain, people's audits/social audits have been promoted by CSOs as mechanisms of accountability and transparency (for example in community forestry). There are also examples of CSOs that have used Corporate Social Responsibility (CSR) as an entry-point to engage with private sector actors to promote women's energy rights (ENERGIA 2010). International development organizations can support such efforts and link them to government level technical assistance in setting up or expanding existing accountability measures.

More and more **private sector** actors are part of the energy governance landscape. In some developing countries, governments have established institutional and regulatory incentives for private providers to provide energy services to unserved rural areas and disadvantaged groups (Tully 2006). Local private sectors actors (including farmers and traders) in poor and isolated areas are often better placed to assist rights-holders in realizing their energy rights than conventional private investors or government. Governments and development agencies can support small local energy businesses for example through establishing incentive structures (subsidies) and prioritizing local capacity development (Practical Action 2009).

Policies and programmes to support small and medium size energy business development need to be gender aware to ensure that women energy entrepreneurs benefit (Batliwala and Reddy 2003). Women are often known as effective entrepreneurs in developing countries but need support to overcome gendered barriers to energy access. Women-owned businesses often have greater difficulty in obtaining a electricity connection than businesses owned by men. Moreover, modern energy technology businesses are often viewed as "men's work", while women operate more traditional, and less profitable, biomass-based micro-enterprises. Opportunities for women to establish modern energy businesses can provide important means to correct gender disparities. New energy programme approaches that include training and microcredit to women entrepreneurs and partnering with formal and informal women's organizations can help

[15] http://www.energia.org/knowledge-centre/gender-audit-reports/

overcome constraints to women's leadership and participation in the energy sector (Thorsen et al 2011). In addition, the emerging trend of corporate social responsibility might provide an opening for more gender-aware energy sector policies.[16]

4.4. Global level energy system governance

Key figures of the World Energy Outlook 2010 that are cited in almost every recent energy publication are gender-unaware (OECD/IAC 2011). A study published in a peer-reviewed journal (Ruiz-Mercado et al 2011) that assesses the lessons learned over the last 40 years with promoting improved cooking stoves, does not mention any gender concerns. In October 2011, the Government of Norway and the International Energy Agency (IEA) organized the high-level conference *Energy for All: financing access for the poor*.[17] Despite a NORAD commissioned study on gender-responsive energy financing, which was launched during the conference (Thorsen et al 2011), gender or references to gender dimensions are not mentioned in the conference summary[18]. And while global energy outlooks and statements refer to women's energy poverty, women's drudgery in the biomass collection cycle and the importance of gender mainstreaming in the energy sector, at the global level women's voices and political space are insufficient to address inadequate international attention and effort to promote the realization of women's rights to access energy services.

While active, global women's organizations and efforts need strengthening. Energy specific women's networks and organisations (such as ENERGIA) have for many years documented, disseminated and advocated for gender equality in the energy sector, but the ENERGIA network can become overstretched if it is to respond to all major energy initiatives at national and international policy level (Clancy 1999). The international women's movement overall has not been taking gender and energy up in a central way. The tendency has been to promote concerns that have been framed as "women's issues" by the international community and donors such as violence against women and access to legal justice, and women's economic agency and issues of economic justice have lost out (personal communication with Srilatha Batliwala).

In the climate change arena, CSO alliances have successfully been established. An example is the Global Gender and Climate Alliance and their work with delegates and civil society actors at international environment conferences (ENERGIA 2010). Another example is the Women and Gender Constituency of the UNFCCC that includes civil society organizations working on women and gender issues, which has been acknowledged as a special observer group (ENERGIA 2010). These alliances have taken up women's energy needs as part of the discussion on climate change mitigation.

New financing mechanisms (also related to climate funds and financing) to support access to energy services are high on the agenda. Not surprisingly, "Financing Energy for All" focuses on

[16] The Global Reporting Initiative's Sustainability Reporting has since March 2011 included indicators on gender and human rights that private sector organizations (and other organizations) can use to assess their social performance (GRI 2011). This might provide an entry-point in the energy system for some engagement between the private sector and rights-holders and their defenders.

[17] "Energy for All: financing access for the poor" examined ways of mobilising sufficient financial resources to achieve access to energy for all by 2030 and called for new innovative partnerships and enabling conditions for private sector investments.

[18] http://www.osloenergyforall2011.no/aboutud2012.cfm.

enabling private and commercial investments in energy access. Women's organizations in the Climate Change arena are making redistributive claims and argue that climate funds need to take different gender needs into account (Arend and Lowman 2011). A study commissioned by NORAD makes the same claim with regard to "Financing Energy for all" (Thorsen et al 2011.).

UN organizations, especially the multilateral organizations that have been set-up to promote gender equality such as UN Women, have advocated for gender, environment and energy concerns since the 1992 Earth Summit. They have so far, however, not been very visible in the international debate on access to energy. The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) refers to women's electricity rights. It obligates State Parties to the convention to "*take all appropriate measures to eliminate discrimination against women in rural areas . . . and, in particular, shall ensure to such women the right….to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communications."* (quoted in Tully 2006 p. 536). The CEDAW Committee and partners, however, have seldom taken advantage of this legal entry-point to gender and energy claims at the global level (Tully 2006).

4.5 Channels for rights-claiming in energy system governance

There are many linkages between the different levels of energy governance. Global policy is interpreted through the policies of duty-bearers' at national and local level and implemented through institutional measures that affect citizens directly. For example, the energy sector reforms of the 1980-90s were driven by a global push for liberalization led by the World Bank and other international financial institutions. Another example is when international attention to energy efficiency increased, the focus of government energy policies in South Africa changed from realizing the right to access energy services for low-income households to addressing climate change issues (Balmer 2007).

At the same time, individual rights-holders, communities and civil society organizations demand to be heard and try to influence policies and practices of energy governance institutions at all levels. Examples include the success of a group of indigenous women in India who used the CSR policy of an international wind power cooperation as a basis to claim energy rights by demanding electricity and drinking water for households close to wind-farms. Another example is the Global Gender and Climate Alliance that seeks to influence international climate change negotiations (both examples from ENERGIA 2010). These examples of rights-claiming and advocacy demonstrate that women's energy needs will not be met until they have a voice in determining their options and priorities.

A gender and rights perspective suggests an increased focus on legal systems as effective governance channels through which claims can be raised that strengthen poor people's access to energy services. This, however, requires increased local and national capacity to make use of legal systems for energy rights claiming (Moser and Norton 2002). Table 2 shows a possible "translation" of rights failures, identified in Section 3, into rights claims.[19]

[19] Table 2 summarizes Annex 3, which provides two matrices of channels for claiming rights to access energy in the energy governance system; one for the national and one for the global level. Three different channels for rights claiming are considered in the matrices, i.e. policy, legal and private sector channels, which give examples of different types of claims based on rights failures. They also provide examples of some of the methods that can be used by rights-holders to make energy rights claims. These include: engagement in formal stakeholder processes about national energy policy processes, legal

Table 2: From rights failures to rights claims

Persistent rights failures **- identified in section 3**	***Rights claims*** **- elaborated in annex 4**
Lack of recognition of unequal gender relations in the energy system.	Process of demanding the recognition of access to energy services as a human right.
Lack of recognition of the economic value of women's work making their labour contribution invisible in the energy system at all levels. Lack of addressing women's total energy needs (i.e. lack of recognition of the energy needs associated with women's productive roles).	Negotiation over the explicit inclusion of gender equality in international goals, targets and related monitoring systems for universal access to energy services.
Gender inequitable decision-making at all levels in the energy sector and exclusion of women from decisions affecting their own lives.	Process of demanding measures to increase women's decision-making positions in the energy sector.
Gender inequitable access to and control over resources and benefits from energy related development interventions.	Negotiation over the explicit inclusion of gender equality in national energy policies, goals, and targets and the establishment of energy sector accountability mechanisms.
Insufficient provision of the legal and regulatory frameworks to promote gender equitable access to energy through the market.	Negotiation over the establishment of institutional and regulatory incentives for the private sector to extend reach to rural, poor women.
Gender disparity on ownership of land, trees and other productive assets required to access energy services.	Process of demanding new legislation for women land rights.
Gender inequitable access to credit and other financial services resulting in unequal access to and benefits from renewable energy technologies, programmes and services.	Negotiation over the provision of credit facilities for decentralized renewable energy solutions accessible to women as well as men. Negotiation over international energy financing: e.g. and un-blocking climate financing to include targeted actions that will benefit women.

action e.g. claim land rights, lobbying private sector actors demanding Corporate Social Responsibility, and advocacy (media reporting, campaigning, information provision etc.).

4.6. Entry-points and key areas for gender-aware energy programming

International development organisations can provide support to national government partners in strengthening gender and rights aspects of regulatory institutions and decision-making processes in the energy sector. There are several key entry-points such as sector-programme negotiations or the negotiation of public-private partnerships. Development organisation can support the design and implementation of regulatory processes that enhance access to energy to unreached areas and groups whose needs are insufficiently met. They can also provide technical assistance in setting up accountability systems (such as gender budgets), oversight processes (such as gender audits) and channels for rights claiming. Increasing women's meaningful participation and representation in the energy sector could be promoted by international organisations too.

Moreover, there is a role for development organizations in supporting civil society, for example through capacity development or making it possible for CSO representatives to participate in energy policy dialogue at national and international levels (in particular women's rights constituency). CSOs can also be involved in efforts to set up or expand national accountability mechanisms and/or governance channels for energy rights claiming. Embedding energy rights as integral parts of larger accountability mechanisms is likely to be more effective, as opposed to focussing solely on energy rights, and prevents compartmentalization of rights (and rights claiming) that are intrinsically linked. An example is taking advantage of legislation that secures people's right to information such as giving citizens access to information on the decisions made by public energy structures and allowing questions to be raised about decision-making and priority setting, which also acts as a measure to counter corruption.

The Global Conference on Sustainable Development (Rio+20) is scheduled to take place in Brazil in 2012. International development organisations can use the opportunity to increase the international focus on gender equality and access to energy services substantially. There are many strategic entry-points. Bazilian 2010 and Practical Action 2010 both recommend an international monitoring system to assess the progress towards eliminating energy poverty. Development organisations could propose (and fund) that gender concerns are explicitly included at the design stage of such a system. At an even more fundamental level, development actors could propose that access to energy is recognised as a human right in the framework of economic, social and cultural rights.

Based on the findings of section 4, Table 3 offers some key areas for the introduction and support of a gender and rights approach in energy programming. The key areas are structured according to strategic entry points at different levels of intervention from bilateral/national to multilateral/global levels.

Table 3: Key areas for gender-aware energy programming

Entry-points	***Key areas***
National Governance Level	
Government sector	• Make gender and rights concerns an integral part of energy sector policy dialogue. • Support capacity building on gender and rights concern. • Support the design and implementation of regulatory processes that enhance access to energy to unreached areas and groups whose needs are to sufficiently met (focus on gender concerns related to accessibility and affordability). • Support the establishment of energy sector information management systems and make sex-disaggregated data a major focus. • Support openness, transparency and the participation of stakeholders in policy processes, particularly women's rights constituency. • Support the setting up of accountability systems (such as gender budgets), oversight processes (such as gender audits), and channels for rights claiming. • Promote women's meaningful participation and representation in the energy sector.
Private sector	• Make gender and rights concerns an integral part of public-private partnership arrangements. • Support the establishment of an enabling policy environment for women energy entrepreneurs (focus on access to credit and financial services).
Civil society	• Support CSOs initiatives that raise awareness about gender and energy rights. • Develop CS capacity to engage in energy policy dialogue at national level to advocate for the realization of women's energy rights. • Involve CSOs in efforts to set up or expand national accountability mechanisms to hold the state as the primary duty bearer accountable to women's energy rights. • Support energy rights claims to promote gender equality and women's rights (annex 3 – national level governance).
Global Governance Level	
UN processes	• Support the recognition that access to energy is a human right. • Promote (and fund) the establishment of an international monitoring system to assess the progress towards eliminating energy poverty that explicitly includes gender and rights concerns.
International CSOs and networks	• Develop capacity of CSOs and international network/alliances that work on gender, rights and energy to engage in energy policy dialogue at international levels. • Support energy rights claims to promote gender equality and women's rights (annex 3 – global level governance).

5. Future areas of consideration

This study has approached access to energy services as a right and has presented a gender and rights analysis of energy system governance. Based on the main findings, three critical areas are recommended for further consideration:

1) A gender and rights-based approach to energy access
2) Barriers and opportunities to realize women's right to access energy services
3) Gender and global energy governance.

These three themes are summarized in this section and provide a basis for more in-depth discussion with a broad group of stakeholders in the run-up to Rio+20.

5.1. A gender and rights-based approach to energy access

What can a gender and rights-based approach contribute to national and international development efforts aimed at alleviating energy poverty, in particular of the most disenfranchised and marginalised groups?

A gender and rights based approach offers an analytical framework to better understand the gender equality dimensions of energy access. Hence, it provides strategic direction for creating an energy system that realizes energy services for all, as envisioned in SE4ALL and related international and national development efforts. A gender and rights analysis of energy system governance is a "tool" to uncover institutional barriers to the realization of rights – also referred to as "rights failures". The analysis requires the focus on the following elements:

- *Rights failures* in social institutions and governance structures at different levels that are preventing women from accessing energy, including:
  - *Failures of recognition*, for example the lack of recognition of the value of women's labour contribution in the energy system.
  - *Failures of redistribution*, for example the gender inequitable access to and control over resources and benefits from energy related development interventions.
- Ways to strengthen the *voice and agency of women* rights-holders in energy governance to ensure accountability to gender equality;
- *Governance channels for making different types of energy rights claims*, and how they can be utilized to realize women's energy rights, and
- *Key areas for gender-aware energy programming* , such as analysis of who uses what and why as well as monitoring and evaluation, that can be used as entry points to support the realization of women's right to access energy services.

More discussion is needed about the international and national experiences of using a gender and rights-based approach to promote access to energy services.

5.2. Barriers and opportunities to realize women's energy rights

How can national and international development efforts, including through creating enabling environments for women's voices and through public-private partnerships arrangements, ensure that women's energy rights are realized?

Gender and rights unaware policy and practice concerns a lack of recognition of women as rights holders, and an inequitable distribution of control over resources and benefits from energy services. Discussion is needed on how to ensure the experiences of those on the ground, particularly women, have an impact on energy policies and programmes through their own voices and actions.

Energy system policy-makers have a number of gender-aware options to address the gendered nature of energy poverty. An enabling policy environment for the private sector to invest and for public-private energy partnerships to succeed has not only strong potential to deliver equitable energy access, it is outright needed to achieve sustainable energy for all. More understanding is needed about the optimal roles of the private sector as well as public-private arrangements in promoting gender-aware energy access.

5.3. Gender and global energy governance

How can international commitment to gender equality and energy access be improved; what are the strategic entry-points in the run-up to Rio+20?

International efforts to promote women's energy rights are inadequate. Rio+20 presents a unique opportunity for the international community to reaffirm and strengthen political commitment to gender equality and women's rights in sustainable development in general and in access to energy in particular. It is also an occasion to draw from many lessons learned about the gendered nature of energy poverty.

Major strategic entry-points for gender and rights aware energy governance exist in the run-up to Rio+20 including the need for gender and rights aware international goals, targets and indicators on energy access (for SE4ALL but also for other international initiatives), financing for gender-equitable energy access, and gender and rights aware monitoring. Each of these entry-points needs further discussion as they require their own strategies for increasing women's participation, voice and leadership in global energy governance.

5.4 Suggestions for further analysis

Finally, a number of areas needing more information and analysis are suggested that would contribute further to the understanding of energy system governance from a gender and rights perspective:

i) Empirical evidence is needed to demonstrate how a gender and rights analysis - when applied in practice - can inform energy system decision-making at all levels in energy system governance. Such evidence could be generated through country studies and/or through action research focusing in on one or several key elements of the gender and rights framework.

ii) To understand better the barriers and opportunities for women to realize their energy rights, best practices could be documented of accountability processes and rights claiming in energy governance systems at different levels. What formal and informal accountability mechanisms exist, what methods are used to make energy claims, what actions work to achieve energy rights outcomes?

iii) Gendered energy poverty within the urban context is not very well understood. More research into issues of gender and rights in urban governance structures is needed. What

mechanisms do urban citizens – in particular women - use to engage with or hold urban decision-makers and planners to account for their efforts to address access to modern energy in poor urban areas? What are the barriers? What are the enabling factors? What are the outcomes?

iv) The study applied the gender and rights analysis at the household, national government and global level of energy system governance. Analysis at community, local government and regional levels could provide a more comprehensive understanding of gender and rights issues in energy system governance.

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Annex 1 Glossary

Accountability: Accountability refers to the way in which government accounts for itself to its citizens, i.e. how it lets citizens know its decisions and how these decisions were made, as well as the actions that it takes as a result of the decisions.

Duty bearers: A social or economic institution, a state or an international organization that is under the obligation or duty to ensure or assist a rights-holder in ensuring a right (Moser and Norton 2001).

Empowerment: Empowerment refers both to a process and a goal. As a process, empowerment is about people, who have been denied power, gaining power, in particular being able to make strategic choices about their lives. In order for women, or other marginalized groups, to gain the power to make choices about their lives, they need to access and control resources, and be able to use those resources to achieve the life they value. Having that ability requires internal resources, such as self confidence and a belief that change is possible. To create sustainable change an empowerment process must therefore change people's self-perception, their control over their lives and their material environments. As a goal, empowerment is the creation of more equal power relations between women and men.

End-use energy: The energy sold to private users, e.g. fuel-wood, kerosene, electricity.

Energy access: Access to clean, reliable and affordable energy services for cooking and heating, lighting, communications and productive uses, i.e. to support basic human needs and productive uses (AGECC p. 13).

Energy efficiency: Higher energy efficiency can reduce the end-use energy consumed to produce the same level of energy services.

Energy poverty: The lack of choice in accessing adequate, affordable, reliable, high quality, safe and environmentally-benign energy services to support economic and human development (Tully 2006).

Energy services: The benefits that result from using energy, for instance a cooked meal, illumination, a warm room, a hot bath, information and communication, earning a living.

Gender: The concept of gender is used to describe all the different socially constituted roles, relations, and relative value and power that a particular society assigns to men or women.

Gender analysis: A gender analysis explores the condition and position of women Arelative to men in a given context and highlights inequalities in gender relations within the household and how they interrelate with power relations at international, state, market and community level. It is based on sex-disaggregated information and applies gender analytical concepts such as "the gender division of labour", "access to and control over resources", and "gender needs and interests".

Gender aware programming: Gender-aware is a term to describe programming that identifies and addresses the different gender needs of women and men. Gender unaware programming, in contrast, is blind to different gender needs and can harm women because they reinforce men's privilege to the disadvantage of women. Three types of gender-aware programming are often considered. For more details, please refer to Annex 2 – Glossary. Gender neutral programming works within the existing gender division of labour, and improve women's and men's condition, but do not aim to improve the position of women in society. Gender specific programming targets women specifically. Gender transformative programming aims to empower women and transform gender relations to be more equal.

Gender equality: Gender equality is the concept that both men and women are free to develop their personal abilities and make choices without the limitations set by stereotypes, rigid gender roles, or prejudices. Gender equality means that the different behaviours, aspirations and needs of women and men are considered, valued and favoured equally. It does not mean that women and men have to become the same, but that their rights, responsibilities and opportunities will not depend on whether they are born male or female.

Gender mainstreaming: (a) the integration of gender equality concerns into analysis and formulation of all policies, programmes and projects and (b) initiatives to enable women as well as men to formulate and express their views and participate in decision-making across all issues.

Gender relations: Social relations of gender are relations of power. They define the way in which roles, responsibilities and claims are assigned and the way in which each person and group is given a relative value. Gender relations create and reproduce systemic differences in women's and men's position in society.

Governance: Governance refers to institutions and processes of decision-making by a range of stakeholders including those in formal positions as well as ordinary citizens (Brody 2009).

Governance channels: People may pursue different types of rights claims through different governance channels such as the political and legal systems, or through policy, administrative, social or private sector channels.

Governance structures: Institutions where decisions about rights and entitlements are made in terms of allocation of resources and administration of services such as the household, government organisations, and development organisations.

Living law: Informal processes and mechanisms of making claims within the household and community (Moser and Norton 2001).

Non-discrimination and attention to vulnerable groups: Development decisions, policies and initiatives have to guard against reinforcing existing power imbalances between, for example, women and men.

Poverty: Economic deprivation is only one of the many forms of vulnerabilities that poor people experience. Poverty is multidimensional. Part of being poor is being unable to enjoy rights. And rights failures at the same time contribute to poverty. For example, women may be

prevented from owning land and property which is a barrier to sustainable livelihoods leading to poverty.

Primary energy: Energy contained in energy carriers such as oil, coal, wood and other biomass.

Regime: The established mainstream techno-institutional policy, industrial and user system delivering a specific function in society. The carbon based energy system is an example of a regime (the Finnish paper) .

Renewable energy: Energy coming from naturally replenished resources, i.e. wind power, solar power, hydro-power and energy from biogas, biomass or biofuels.

Rights: To have a right means to have a legitimate claim on other people or institutions.

Rights-holders: Every human being is a rights-holder. A rights-holder is entitled to rights, entitled to claim rights, entitled to hold duty-bearers accountable, and has the responsibility to respect the rights of others.

Rights regimes: Include international human rights law, constitutional and statuary law, religious law, customary law and living law (Moser and Norton 2001).

Social institutions: Formal and informal structures through which duty bearers and rights holders learn explicit and implicit norms and rules of what an individual should do or not depending on her/his social identify. Examples of social institutions are the state, the market, and the family. Social institutions produce and reproduce unequal gender relations (and other relations of unequal power).

Social norms: Explicit or implicit societal rules that govern people's behaviour (Moser and Norton 2001).

Substantive equality: Implies that the differences in circumstances and characteristics of, for example, women and men be taken into account in order to ensure that the end goal of equality not only in a formal sense (e.g. the right to be elected to public office) but also in a substantive sense (e.g. the right to affirmative action measures that make it possible for women to be elected to public office).

Transparency: Refers to the availability of information to the citizens on all decision and actions that re made by the government. It also refers to the government's efforts to make the information easily understood by all citizens.

Useful energy: End-use energy and appropriate equipment provides useful energy, e.g. heat, light, mechanical drive.

Annex 2: Lessons learned on gender and energy in development

The approaches to gender and energy in development policy and practice have evolved immensely over the last forty years. An overview of the main shifts in thinking about gender and rights in the context of development is a useful basis for drawing lessons learned about barriers to the realization of women's rights to access energy services.

1970s: Dependency on biomass and the other energy crisis

The depiction of the state of the world's energy poverty in the World Energy Outlook 2010 is not new. It has been well-known for decades that poor people living in rural areas derive most of their energy from biomass, particularly fuel-wood, and that much of this is used for cooking and heating by women. Shortly after the oil-crisis of the 1970s, the concept of the "other energy crisis" emerged in the international energy and development debate. It referred to the increasing demand for fuel-wood and the perception that demand outstripped supply and was responsible for deforestation, which further added to the burden of the rural women whose responsibility it was to collect it. In the literature, women's roles were described as users and collectors of fuel-wood and as victims of environmental degradation and the "other energy crisis" (Wamukonya 2002, Clancy 2003 et al, and Cecelski 2004).

Reactions to the impact of the "other energy crisis" came from the biomass energy governance domain. Tree planting and improved stove projects were promoted as the answers to the crisis. Women were initially treated as passive beneficiaries of improved stoves designed by male technicians. Women's informal knowledge was largely overlooked such as the use of multiple kinds of biomass and tending to fires in efficient ways (Cecelski 2000). In some contexts, for example South Africa, the socio-cultural value of cooking from which women derive self-worth and dignity was ignored (Balmer 2007), as was the value attached by women to the cooking fire as a "social hub" where they were able to socialize while cooking (Clancy et al 2004). Later as stoves failed to be adopted, women were considered as useful sources of information about stove design and contributors to meeting project targets. At the level of energy project planning and management, women's participation was minimal. Calculation of benefits assumed that women had control over the cash–savings or improved income, or indeed command over their own labour use (time freed up). Household level bargaining and trade-offs based on unequal power relations were ignored (Cecelski 2004, Cecelski and CRGGE 2006).

In terms of afforestation, large-scale plantation projects were implemented with the expectation that they would provide easily accessible fuel and reduce deforestation. However, management models rarely took into account the needs of local communities in general or women specifically; the tree species promoted were not necessarily appropriate as fuel-wood; land and tree ownership aspects were neglected and women's exclusion from decision making bodies was the norm (CIFOR 2011, WB 2011).

In the modern energy domain, the oil-crisis was the centre of attention. Improved energy services in rural areas or to disadvantaged groups (including the urban poor who continued to depend on biomass energy) was not a priority. Macro-policies focused on the commercial energy carriers such as electricity, coal, gas and petroleum primarily catering to urban or semi-urban

populations to the neglect of rural development in general and rural women in particular (Tully 2006).

What lessons can be learned from policy and practice of the 1970s?

In the modern energy domain, women were entirely invisible. The biomass energy domain on the other hand treated women as victims of the perceived biomass crisis and as instruments to encounter its consequences. Four major rights failures can be discerned. Firstly, a failure of acknowledging that woman's status within the household determines her access to and control over resources and benefits from development interventions and responses. Secondly, a failure to recognize women's informal knowledge related to the management of natural resources and stove efficiency. Thirdly, a failure to recognize the energy needs associated with women's productive roles. And fourthly, a complete failure of recognizing women as agents of their own development, including their right to be involved in decisions affecting their lives.

1980s: Women's time is the real energy crisis

By the beginning of the 1980s, it had dawned on most actors in the biomass energy domain, that women's energy needs were different from the energy needs of men, but also that women's needs were broader and more complex than improved stoves alone.

Gender experts began to argue that the "real energy crisis" was women's time. Studies revealed a complex and rich picture of labour allocation in the rural economy, and showed that women worked longer hours than men, largely unpaid. Research highlighted that biomass in rural areas was collected at zero monetary cost mainly by women and children, and so it fell outside national energy accounts and stayed invisible. (Clancy et all 2003, Malhotra et. al 2004, Lambrou and Piana 2006, Practical Action 2010). At the household level it locked women and girls in an unfavourable gender division of labour with little bargaining power to demand change. Studies also - for the first time - stressed women's important role in agriculture and home industries (Batliwala and Reddy 2003, Cecelski 2004).

The time women had to spend in water and fuel-wood collection, rural transport, agriculture, child rearing, food processing and traditional home-industries were seen as a constraint in light of women's responsibilities with regard to their families and their right to meaningfully participate in development activities themselves. Gender experts pointed out that these tasks were also invisible in labour and energy balances.

Energy efficiency emerged as a concern too. The low efficiency of biomass fuels was seen as one reason why women had to spend long hours cooking, which was furthermore connected to the health hazards induced by smoke and emissions from the traditional stoves. This in turn was seen to diminish women's capacity to undertake productive activities (Ramani and Heijndermans 2003, Cecelski and CRGGE 2006). Most energy programmes continued to concentrate on women's time-saving needs and kept its focus on improved stoves and fuels to improve women's welfare and as a means to making the programmes more efficient.

There were many efforts in the 1980s to improve forest management through deforestation programmes but they resulted in few gains in terms of redistribution of forest resources in favour of poor women. At the same time, regulation introduced to improve the efficiency of

fuel-wood and charcoal chains failed to recognize that charcoal burning provided a survival strategy for the poor with damaging effects for poor rural and urban women (personal communication with Evelien Kamminga).

During the 1980s (and 1990s) the modern energy domain changed fundamentally with the push of liberalization. Reforms paved the way for privatization of state energy companies to the private sector, as well as opening up for the private sector to provide other energy services. Reforms also included commercialization which meant reduced public expenditure in the form of direct subsidies. Increasing private sector participation was expected to improve consumer choice in energy service provision particularly for the poor (still no mention of women). The governments' role was to change to that of a regulator. The liberalization model failed particularly where private companies demonstrated little interest in expanding electricity supplies to rural areas. Also, national regulatory and legislative measures in general fell short of targeting issues of accessibility and affordability. The consequences in distribution were severe: reduced electrification coverage in rural areas, increased tariff levels, and the exclusion of the poor from modern energy services (Clancy et al 2003, Batliwalla and Reddy 2003, Tully 2006).

What lessons can be learned from policy and practice of the 1980s?

A fundamental failure of recognition became very visible in the 1980s, i.e. that there is no economic value attached to women's work resulting in inadequate policy and programme attention to women's energy concerns. For the same reasons, investing in women's energy needs is not necessarily given high priority at the household and community level.

1990s: Poverty alleviation

As development priorities moved on to a poverty alleviation mandate in the 1990s, linkages between energy efficiency goals and poverty alleviation began to be made.

In the biomass energy domain a more comprehensive view of household energy interventions emerged recognizing the household as a centre of production including cooking practices, food preparation, fuel substitution, and pricing as potential household energy interventions (Cecelski 2004).

Energy research carried out from a sustainable livelihoods perspective contributed important insights about the linkages between poverty, energy and gender (Ramani and Heijndermans 2003, Clancy et al 2003). A strong point of the research was the attempt to identify how different energy types addressed practical, productive and strategic needs of women, and how energy in livelihood strategies could improve the position of women by creating opportunities or relieving energy constraints. It furthermore contributed with highlighting women's productive roles and the need to strengthen women's voice in determining energy options and priorities (Cecelski 2004)

A main policy message from the research was that energy programmes should focus on livelihood opportunities for disadvantaged groups to enhance self-reliance and improve social conditions. Despite these important contributions, gender experts pointed out the drawbacks of the sustainable livelihoods research. For instance, gender was treated as a subset of poverty while

dependence on bio-mass energy is not a function of poverty alone but also to a large extent a function of unequal gender relations (Cecelski and CRGGE 2006).

The 1990s saw a trend of forest reforms that devolved or decentralized authority over forest management to lower levels of governance including districts and communities. This gave rise to many social and community forestry projects. These projects were concerned with the redistribution of management and user rights to local people. In general it proved to be difficult to make sure that men and women benefited equally and to ensure gender equitable participation and decision-making in local forestry governance structures. When these interventions displaced women's informal rights to fuel collection through conservative protection or privatization of communal lands, the results were detrimental for women but advantageous for men who controlled the proceeds. That women needed empowerment to make choices about energy began to be acknowledged in the forestry sector and prompted the design of women specific activities and social mobilization (Cecelski 2004, Mai et al 2011, WB 2011).

In the modern energy domain, some focus on gender issues began to be seen. Studies showed that national policy decisions regarding energy pricing could affect men and women differently (SIDA 1999). Subsidy-schemes for poor people – in particular women - were introduced with some success, for example lower electricity rates were charged for initial usage and as consumption increased, rates would go up too. Loans or staggered payment structures were also introduced to increase access where initial 'start-up'/'hook-up' costs were too high. Many of these however were initially difficult for women to access (partly due to barriers to accessing credit). In some countries, the commercialization trend interfered with these initiatives, as national objectives of improving energy access for marginalized social groups were effectively dropped in favour of improving energy sector efficiency (Tully 2006).

Some criticism began to be raised against energy subsidies. It was pointed out that energy subsidies to increase access to energy services - particularly those in the form of low tariffs for electricity - were flawed in a number of ways. People living in rural areas without access to the grid were not benefitting from the subsidy. In fact these kinds of energy subsidies were appropriated by the less poor. And for women it still did not solve one of their major energy problems because electricity did not alleviate cooking energy shortages (Balmer 2007). A major lesson learned was that to increase access to energy services, energy subsidies should go into the expansion of gender-aware energy infrastructure to poor areas rather than the energy in itself. At the same time, the sequencing of market-oriented energy reforms was pointed out to be critical for increasing energy access for disadvantaged groups. Large-scale electrification targeting the poor should accompany if not succeed privatization. In many cases poorer households and women would be much better served by investments in small scale decentralized equipment, better management of natural resources and distribution of alternative fuels that would relieve women of their burden (Panchauri and Spreng 2003, Tully 2006, ENERGIA 2007, WB 2011).

Towards the end of the decade, across both governance domains, some movement in the thinking about gender and energy started to be seen, such as some work attending to national gender and energy policy, strategic issues in women's participation in the sector, and women's potential as energy entrepreneurs (Batliwala and Reddy 2003, Cecelski and CRGGE 2006).

What lessons can be learned from policy and practice of the 1990s?

Some research and practice began to recognize the structural barriers that prevent women from accessing energy services. The importance of complementary activities to address these barriers and the concept of women's agency also slowly wins some ground. Women's productive roles became more visible and it demonstrated that improved energy access can increase women's income and standards of living.

In the context of privatization and commercialization of modern energy services, it became evident in this decade that many governments (as the main duty bearers) failed to ensure the realization of women's rights to access energy. Governments did not manage to develop sufficiently strong legislative and regulatory frameworks that promote access to modern energy for disadvantaged groups through the market.

2000s: Gender, climate change and renewable energy

The continued need to extend modern energy services to those off the grid and a growing attention to climate change mitigation in the 2000s, has contributed to an increased focus on renewable energy solutions (Marston 2011). The potential for reduced greenhouse gas emissions through the adaptation of cleaner and more efficient energy solutions at household and community levels became a key argument for improving energy access for the poor and disadvantaged. However, according to Aguilar, the understanding of the gender dimensions of climate change mitigation is still at an initial stage (Aguilar 2009), despite the high probability that climate change will magnify gender inequality (UNDP 2007). Nevertheless, there are certain areas in which mitigation actions new opportunities for the realization of women's rights to energy services.

In areas not covered by the grid, renewable energy options such as wind, solar and hydro-technologies can provide alternatives to diesel-engines and generators as low-emission sources of electricity and motorized power for essential equipment used primarily by women such as water pumps and grain mills. Biogas digesters and solar cookers can benefit women (and lower emissions) if they are compatible with women's daily routines and workloads (Aguilar 2009). Women's informal knowledge can contribute to the refinement of renewable energy technologies and when women are involved in such innovation processes, evidence shows that they also can develop new skills and livelihoods as energy entrepreneurs (Cecelski 2000, Batliwalla and Reddy 2003). Non-traditional roles for women in (renewable) energy and the generation of role models can also increase women's voice (Clancy et al 2004).

Continuing on the positive note, there are possibilities for climate-related funds to support new investments in low-carbon, renewable and energy efficient technologies. There is now a mechanism for financing improved cooking stoves because they can generate certified emission reductions (Kohlin et al 2011). This and other innovative financing mechanisms and credit schemes can serve as catalysts for new entrepreneurial activities for women. They can also be entry-points for recognizing and supporting women's local knowledge and "every-day innovation" in energy management (ENERGIA/WEDO 2010, personal communication with Srilatha Batliwala).

But there is also good reason to be cautious. Unequal power relations embedded in intra-household decision-making act as barriers for realizing rights through renewable energy. For example, with limited tenure and property rights, solar systems, wind turbines, bio-fuel plantations etc. that require land are inherently controlled by men who often reap the benefits (IRADe/ENERGIA 2009). Women frequently experience barriers in accessing new renewable technology because they lack access to land and therefore have limited collateral to access credit, and have limited access to extension services and education. Renewable energy initiatives can increase the work-load of women, for instance biogas where the collection of needed water and manures adds to women's burden. And other renewable energy sources are not sufficiently catering to women's needs, e.g. the output of solar home systems is too low for cooking (Clancy et al 2004).

In the bio-fuel area, other kinds of rights concerns are voiced. Unequal rights to land create an uneven playing field for men and women who will not have the same opportunities to produce biofuels and benefit from it. Moreover, land-use changes as a result of biofuel production can have negative impacts on food production and security for women. Market-based bio-fuel production is likely to exclude women from land used for subsistence production (especially in Sub Saharan Africa). There is a need to safe-guard women's rights to land, water and fuel-wood collection, or alternative means of energy supply in areas where biofuel production is introduced. When employment is generated by biofuel programmes, decent and equal employment opportunities and conditions for male and female workers should be ensured. Policies in the modern and biomass energy domains as well as agricultural policies have to take these challenges into account to circumvent gender inequality impacts of bioenergy and large-scale climate change mitigation interventions (WB 2011, Michuri 2011).

In the 2000s, more generally, the energy sector begins to grasp that there are strong cross-cutting links between empowering women in the energy sector and in other sectors, i.e. education of girls, reforms of local democracy, tenure reforms, and even mass media that portrays women with jobs and decision-making power (WB 2011).
What can be learned from the recent and ongoing work on gender, climate change and renewable energy?

The focus on gender equality and energy in the climate change debate – in particular in relation to decentralized renewable energy technology and mitigation strategies - provides opportunities but these must go hand in hand with a gender and rights perspective to ensure that women's rights to energy are realized.

Several failures of recognition show up: Renewable energy interventions that fail to understand the gender division of labour risk adding additional burden on women and/or excluding women from new opportunities. In terms of redistribution failures, women's lack of access to and control over resources and benefits (such as land, commercial crops, income and credit, education etc.) act as barriers for women to realize energy rights through renewable energy technologies and programmes. These not only disadvantage women from equitable benefiting from potential opportunities that climate change interventions offer but also position them to be adversely affected by such initiatives from increased burden while strengthening the advantages of men. Overall, they can serve to reproduce lack of realization of women's rights to energy.

2010s: The urban poor

While lack of access to electricity and use of biomass for cooking are clearly rural phenomena, there are also many urban households who cannot obtain reliable electricity and who spend large fractions of their budgets on cooking fuel. In South Asia's major urban centers, energy poverty is prominent in slums and urban dwellings. In Sub Saharan Africa urban energy access difficulties are widespread and it is estimated that 20 % of the urban populations have no access to electricity and that 60 % still depend on biomass for cooking (OECD/IAC 2010). The urban poor are very heterogeneous. The largest group, with fewest assets, is made up of women and children. Recent data from UNDP indicates that 40 per cent of the poorest households in urban areas are headed by women (UNDP 2009a). Women-headed households are particularly vulnerable to exclusion from access to modern service because of insecure tenure often as a consequence of cultural norms and unequal legal rights (UN HABITAT 2009a).

As evidenced from this study, generic energy access figures hide over a gender-specific reality: the energy access of women in urban areas is played out in the context of gendered roles and responsibilities and unequal power relations. Evidence suggests that household energy in urban areas is largely women's responsibly. Urban women process, prepare and cook food and are responsible for the burden of acquiring the energy needed to perform these tasks. Besides biomass (including charcoal), liquid petroleum gas (LPG) and kerosene are frequently used in poor urban settings. Poor urban women appear to have swapped the drudgery of fuel-wood collection for the stress of juggling tight household budgets to buy fuels – and this in the face of fewer fuel choices than rural women (Clancy et al 2003).

Interestingly, studies illustrate that it is more difficult to disaggregate energy and equipment use between reproductive and productive tasks in urban compared to rural households. Many urban women use household equipment for operating household-based enterprises and food-processing businesses. Because of this linkage between gender, household energy and urban enterprises, many woman in urban areas seem to benefit significantly by increasing the range of services they can offer with access to equipment running on electricity (including motive power) and other clean and efficient modern fuels (Cecelski 2000, Clancy et al 2006).

It seems that women's domestic type of work is more visible and more recognized than is often the case in rural households. Some evidence points to urban women being able to control production processes and keeping the profits generated (Clancy 2004). Evidence is mixed about the benefits poor urban women can derive from renewable energy programmes as consumers and entrepreneurs (IRADe/ENERGIA 2009).

Access to electricity by the urban poor is however often complex, expensive and illegal (TERI 2008). Utility companies are interested in extending their energy services to increase revenues but are discouraged to operate in slum settlements where revenue losses are a big problem because illegal "tapping" is prevalent. Even if companies make electricity available to slums, the reliably of the supply is often daunting. Lack of tenureship and missing identification documents (including proof of residence) are major impediments for the urban poor – in particular women - to obtain access to energy services and many other basic services (Tully 2006). Some studies seem to indicate that a push to electrify "informal/illegal" slum dwellers can accelerate a process of social inclusion and gaining them more equitable access to other social services (Smyser 2009).

Another serious problem related to access to electricity in slums is the lack of affordability. Low income levels, inflexible tariff structures, and unaffordable connection fees are barriers to the realization of energy rights of women living in slums. Setting up pre-payment systems and the provision of loans/credit for connection costs have been promoted with some success in many places in Africa, but the gender dimensions of these experiences are not analysed (UN HABITAT 2009b). Lack of trust between slum inhabitants and service providers, corruption and exploitation within the slum community ("slum-lord" or "slum-ladies" controlling the electricity connection and exploiting the demand) are other issues that add to the complexity of urban energy access for the poorest (TERI 2008).

What lessons can be learned from policy and practice of the 2010s?

Obviously it is a bit too early to draw lessons learned from the present decade. However, the energy rights of the urban poor, in particular urban women, are becoming increasingly. It is also clear that many Governments so far have not been able to realize the right to energy access for this growing disadvantaged group.

Universal access to energy services

International concern about energy access is growing. Effort has recently been to understand what "energy access" actually means. IEA defines energy access on the basis of three incremental levels of access to energy services, i.e. 1) Human Needs, 2) Productive Uses, and 3) Modern Energy Services (AGECC 2010). Universal energy access is defined as "access to clean, reliable and affordable energy services for cooking and heating, lighting, communications and productive uses", which emphasizes levels 1 and 2 (AGECC 2010).

This looks similar to the idea of the "the energy ladder" put forward by the IEA in 2002. The hypothesis was that the ability of poor rural people to make an energy transition from biomass and other less efficient fuels to modern more efficient forms of fuel (such as LPG and electricity) was circumscribed by their economic status. A sequential change of fuels was expected as income rose (Ramani and Heijndermans 2003). This idea has however been criticized for not reflecting reality. Evidence shows that households use multiple fuels and the choice of fuels is influenced not only by income, but also by availability, end-use equipment, security of supply, cultural preferences, convenience and safety concerns (Pachauri and Spreng 2003, WB 2011). In other words, as discussed earlier, the choice of fuel is a gendered one that is determined by intra-household decision-making, the status of women, as well as the value attached to women's labour.

Attempts to define energy access differ by the starting point: the demand side or the supply side. Bazilian et al (2010) argue that indicators that quantify energy consumption (such as the quantity of energy consumed or the share of households with access to electricity) poorly inform policy makers and development planners because they do not reflect the demand side. An alternative is to measure energy deprivation, for example the lack of ability to pay for energy services. Bazilian et al (2010) goes on to suggest the development of an international measurement tool for universal access to energy to inform national policies and international cooperation.

Practical Action (2010) advocates for the same idea but stresses that its basis should be people's experiences of energy. They suggest the international agreement of a number of minimum service standards across a full range of key energy services that constitute "total energy access". Examples include lighting (300 lumes at household level) and space heating (minimum daytime indoor temperature 12 C). Such a set of internationally agreed minimum standards would allow clear and comparable assessments of the realization of energy rights. Practical Action also proposes an Energy Access Index that consists of a set of indicators that assign a numerical value to the qualitative aspects of energy access in three dimensions: household fuels, electricity and mechanical power. They argue that improvements thereby can be tracked in the dimensions that matter to people.

What can be learned from the recent and ongoing debate on universal access to energy services?

From a gender and rights perspective, achieving universal access to energy services requires addressing the different kinds of rights failures identified in this study. These failures are related to the unfair distribution of resources and services based on unequal social relations, as well as the structural lack of recognition of the value of different social categories of people.

Annex 3: Channels and mechanisms for claiming rights in the energy system

National level of energy governance			
Governance structures	**Governance channels**	**Type of claim** **- selected examples based on rights failures identified in section 3**	**The methods rights-holders[20] can use to engage**
Parliament and political parties. The modern sector: Ministry of Energy and Industry (or similar) The biomass biomass sector: Ministry of Forests, Natural Resources (or similar) Other sector ministries: finance, agriculture, transport, equality etc. National development organizations and NGOs, financing institutions. Private sector organizations, financing organizations, banks Public-private partnerships. International development organizations, including donors, multi-lateral organizations and NGOs	Policy channels: Public macro-level and sector-level policy and planning Legal system: Legal bodies Private channels: e.g. corporate social accountability	*RECOGNITION:* Negotiation over the explicit inclusion of gender equality in national energy policies, goals, and targets and the establishment of energy sector accountability mechanisms. *REDISTRIBITION:* Negotiation over the establishment of institutional and regulatory incentives for the private sector to extend reach to rural, poor women. Process of demanding new legislation for women land rights. Negotiation over the provision of credit facilities for decentralized renewable energy solutions accessible to women as well as men. Process of demanding measures to increase women's decision-making positions in the energy sector.	*Engagement* in formal stakeholder processes about national energy policy, planning and budget processes (examples gender audit processes, gender-budget exercises) *Collective monitoring* of energy service provision: Conduct people's audits/social audits of energy sector interventions. *Lobbying* government representatives in national consultation processes for international meetings (such as RIO+20) *Legal action* e.g claim land rights *Secure support and funding* from donors and international organizations. *Engagement* with banks and financial organization to ensure credit. *Lobbying* private sector actors demanding Corporate Social Responsibility (CSR) *Networking and alliance-building* at national level and link up to the international level. *Informal and invisible advocacy* through contacts, e.g. interaction with individuals (public and private decision-makers). *Formal advocacy* (media reporting, campaigning, information provision etc)

[20] Including organizations/groups claiming rights on behalf of constituency (for example women's rights organizations or women's groups)

Global level of energy governance			
Governance structures	**Governance channels**	**Type of claim** **- selected examples based on gender and rights analysis of governance system in section 4**	**The methods rights-holders can use to engage**
Multilateral organizations (UN etc) and financing institutions (WB, ADB etc) International development organizations including donors and NGOs International public-private partnerships (such as the Renewable Energy and Energy Efficiency Partnership – REEEP) Multinational companies	Policy channels: E.g. international conferences (such as RIO+20) and multilateral initiatives (SE4ALL) Legal system: E.g. formal and informal human rights treaty monitoring processes. Private channels: E.g. global corporate social accountability.	*RECOGNITION:* Process of demanding the recognition of access to energy services as a human right. Negotiation over the explicit inclusion of gender equality in international goals, targets and related monitoring systems[21] for universal access to energy services. *REDISTRIBITION:* Negotiation over international energy financing: e.g. WB to focus lending on increasing energy access for women through clean decentralized energy sources[22] and un-blocking climate financing to include targeted actions that will benefit[23] women, including maintaining a funding window for women's groups.[24]	*Lobbying* government delegates and representatives of development organizations at international conferences or other international arenas of decision-making[25]. *Lobbying* multinationals – demand global Corporate Social Responsibility (CSR) (global standards, codes of conduct, social investment or financing etc).[26] *Legal action* based on the international legal rights instruments available (CEDAW – article 14 (2)(h) on the right to enjoy on electricity) [27]. *Direct advocacy* (campaigning, media, information provision, research etc) and *informal and invisible advocacy* through contacts, e.g. interaction with individuals (public and private decision-makers).

[21] Bazilian 2010 and Practical Action 2010 both recommend an international monitoring system to assess the progress towards eliminating energy poverty. While gender dimensions are part of their analysis the reports are not explicitly recommending that gender concerns should be included in the monitoring system.
[22] Bast and Krisnaswami 2011
[23] Thorsen et al 2011.
[24] Arend and Lowman 2011, Thorsen et al 2011
[25] Examples are the Global Gender and Climate Alliance and the Women and Gender Constituency of the UNFCCC (ENERGIA 2010).
[26] For example lobbying for a transparent application and monitoring of the Global Reporting Initiative's Sustainability Reporting which since March 2011 includes indicators on gender and human rights that private sector organizations (and other organizations) can use to assess their social performance (GRI 2011).
[27] Tully 2006