Duke Global Working Paper
Paper 58 • April 2024

An Intersectional Gaze on Energy and Ecotechnologies

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Abstract: There is an increase in scientific productions that seek to incorporate the concept of gender in the field of energy studies. This article aims to analyze the different nuances that arise from this approach, starting from the fact that the "gender" category does not emerge as "a datum of reality", but is built from definitions resulting from complex social networks. The paper first investigates the background of the appearance of the notion of gender in the field of energy studies and eco-technologies. Subsequently, it characterizes and discusses the most common reasonings that are built in the chosen academic corpus by grouping them into 3 thematic axes: the supposed empowerment of women through access to energy; the construction of tropes of women from the global north and south; and the flattening of the heterogeneity of the concept of gender. To identify relevant literature, a search for the notions of "gender", "energy", and "ecotechnologies" was carried out using the Open Knowledge Maps free software and 100 open access scientific articles published in the last 30 years were selected and analyzed. Finally, two suggestions that emerged from this debate are proposed: the continuous inclusion of feminist academics in interdisciplinary energy research teams and the need of a critical intersectionality gaze as a research paradigm in this field.

Keywords: Gender, Energy, Ecotechnologies, Intersectionality, Feminisms

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The Energy Access Project at Duke University takes an interdisciplinary approach to developing sustainable, modern energy solutions around the world. Established in 2017, the project advances foundational research and fosters constructive dialogue among the world's policy makers, entrepreneurs, and scholars to support evidence-based decision making related to energy poverty. It engages students, locally and globally, while supporting the development of new, disruptive tools and models that break down barriers to improved energy access

An intersectional gaze on energy and ecotechnologies

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ABSTRACT

There is an increase in scientific productions that seek to incorporate the concept of gender in the field of energy studies. This article aims to analyze the different nuances that arise from this approach, starting from the fact that the "gender" category does not emerge as "a datum of reality", but is built from definitions resulting from complex social networks. The paper first investigates the background of the appearance of the notion of gender in the field of energy studies and eco-technologies. Subsequently, it characterizes and discusses the most common reasonings that are built in the chosen academic corpus by grouping them into 3 thematic axes: the supposed empowerment of women through access to energy; the construction of tropes of women from the global north and south; and the flattening of the heterogeneity of the concept of gender. To identify relevant literature, a search for the notions of "gender", "energy", and "ecotechnologies" was carried out using the Open Knowledge Maps free software and 100 open access scientific articles published in the last 30 years were selected and analyzed. Finally, two suggestions that emerged from this debate are proposed: the continuous inclusion of feminist academics in interdisciplinary energy research teams and the need of a critical intersectionality gaze as a research paradigm in this field.

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Introduction

According to multiple authors, the lack of access to modern energy sources is a limitation for economic and social development around the world, especially in low- and middle-income countries (Sovacool, 2012; International Energy Agency, 2018; Bartiaux *et al.*, 2019; Masera *et al.*, 2020; Mazorra *et al.*, 2020).

According to the International Energy Agency (IEA), since 2018 around 13% of the world's population does not have access to electricity, 2.1 billion people lack access to drinking water and three billion (40 % of the world's population) do not have access to clean cooking solutions[1] (International Energy Agency *et al.*, 2018).

Given this situation, different proposals arise that present possible alternative solutions, which are, in some cases, the result of processes of collective social demands carried out by marginalized sectors (Ímas et al., 2015). Within these alternatives are eco-technologies which, for the purposes of this work, will be understood as "the different devices, methods and processes that provide social and economic benefits to their users in harmony with the environment and with reference to a specific socio-ecological context" (Ortiz Moreno, Malagón García and Masera Cerutti, 2017, p. 197).

The promotion of access to domestic energy through eco-technologies has countless projects of diverse origins. However, in many cases they lead to abandonment or unsustained use of the devices because they do not satisfy the needs for which they were created a priori or because they do not respond to the requests and preferences of the users (Vigolo, Sallaku and Testa, 2018; Brakema et al., 2020). Some authors also highlight various reasons for failure, such as a lack of analysis by those who execute and implement eco-technology projects, regarding their accessibility, as well as the dynamics and context of their use and management (Fingleton-Smith, 2018). On this point, sociology has also pointed out that energy research has underestimated the role of choice and human dimensions in energy use processes; they have even argued that much of the scientific production in relation to this topic is irrelevant for those who make political and business decisions (D'Agostino et al., 2011).

Wallenborn and Wilhite (2014) also consider that most of the theory of energy consumption in the home has stripped the conceptualization of consumption of its foundation in historical processes, and has ignored the capacity of the material world, including human bodies; that is, this set of theories tend to ignore the

[1] Clean fuels and technologies are those that reach the levels of fine particulate matter (PM2.5) and carbon monoxide (CO) recommended in the WHO global air quality guidelines. The WHO Indoor Air Quality Guidelines: Domestic Fuel Combustion provide PM2.5 and CO emission rate targets for devices, which are linked to the Air Quality Guidelines levels (WHO, 2022).

experiences of the groups of people involved in the use and consumption of that energy. Likewise, other authors have emphasized the need to consider the importance of gender and identity as fundamental concerns in energy research and policy formulation, since these categories, generally ignored, mediate access to resources, exposure to pollutants and opportunities to engage in energy resource management, policy and science (Blake and Hanson, 2005).

The purpose of this text is to present some key concepts and ideas for those who want to delve into discussions about “gender and energy” with a focus on ecotechnologies, from a feminist perspective. Discussing the approaches presented in this introduction is key to forming a critical view of the gender-energy nexus, since in many of the studies that will be deployed here there is a tendency to link women with poverty, and therefore, to vulnerability, contributing to the construction of problematic "gender myths" regarding gender equality and its relationship with energy (Listo, 2018a). This combination masks the conceptual and structural foundations underlying gender inequality and poverty, which, although closely related, are not synonymous (Masika, 2002). Gender myths are described as essentialisms about women and gender, which often originate in situated feminist research[2], but which “become broad generalizations that operate in and shape development research, policy and practice” (Cornwall and Whitehead, 2007; Listo, 2018a).

Gender myths can then be understood as a way of encoding the “world in a way that resonates with the things people would like to believe, that gives them the power to affect action” (Cornwall and Whitehead, 2007). That is, these myths are political because they produce power through a discourse that directs resources or actions to sustain particular projects. For example, although some female-headed households have been shown to have a better quality of life than some male-headed households (Chant and Sweetman, 2012), the myth that “women are the poorest of the poor” marks the agenda of public policies, leaving women registered under that label without their own agency and at the mercy of international economic programs (Falquet, 1968).

Although, the incorporation of the gender dimension has gained relevance as a multidisciplinary focus in the last decade, this research proposes to discuss the symbolic order[3] from which the link between gender, energy and the use and

[2] In this work, situated knowledge will be understood as those “knowledge connoted by the particular experiences (gender, race and class) of those who generate and construct them” (Fleisner et al. 2023). To speak of situated feminist research is to refer to a dialogue contextualized in time and space, as well as made more complex by the experiences of those who dialogue. To delve deeper into this term, see Haraway 1991.

[3] By symbolic order, we mean what Mary Douglas (1966) explains about social groups and how they impose meaning on their world by ordering things in classificatory systems; that is, “give

adoption of eco-technologies is established. For these purposes, it is necessary to consider that the category “gender” does not emerge as “a fact of reality”, but rather is constructed from definitions resulting from complex social frameworks. As will be shown later, these elucidations arise from the hegemonic definitions resulting from the network of different hierarchical agencies, such as national states, academia, and Non-Governmental Organizations.

In fact, academy itself “is constituted as an agency with its own symbolic capital” (Kropff-Causa and Stella, 2017, p. 16) that is used to legitimize criteria for what is understood by gender. This way of interpretation and framing of empirical evidence of gender will later be used for policy and energy practice. Thereby, this research seeks to delve into the theoretical conceptions inserted in the field of energy studies.

To this end, this text first investigates the background of the emergence of the notion of gender in the field of energy and eco-technologies studies. Subsequently, it characterizes and questions the most common reasonings that are built in the academic corpus by grouping them based on the general theoretical emphases that allow us to centralize them in 3 thematic axes: the supposed empowerment of women through access to energy; the construction of tropes of women from the global north and south; and the flattening of the heterogeneity of the concept of gender.

A search for the words “gender”, “energy”, and “ecotechnologies” was carried out using the free software Open Knowledge Maps and 100 open access scientific articles published in the last 30 years were selected and analyzed. The choice and execution of this analysis is explained in the methodology section. Finally, in the discussion, two interventions designed from the said debates are proposed: the continuous inclusion of feminist academics in interdisciplinary research teams on energy, and the use of critical intersectionality as a research paradigm.

The introduction of the concept of gender in studies on energy and eco-technologies background

The link between gender and energy has been little explored in the field of scientific-technological knowledge. However, in recent decades there has been an increase in the incorporation of this dimension of analysis in the academic corpus. Since the United Nations Declaration of the 17 Sustainable Development Goals

meaning to things by assigning them to different positions within a classification system” (Hall, 2010, p.421).

(SDGs) in 2015, the term gender has more intensely permeated academic literature and projects in general, but mostly in those related to equitable access to energy and the implementation of eco-technologies and renewable energies (Rojas and Siles, 2014; Kumar and Mehta, 2016; Zamora and Ortega, 2017; De Luca *et al.*, 2018; Fingleton-Smith, 2018; Bartiaux *et al.*, 2019; Mazorra *et al.*, 2020). This is due, in part, to the linking of SDG number 7 - which seeks to guarantee access to affordable, safe, sustainable, and modern energy - with SDG number 5 - which aims to achieve gender equality and empower all women and girls.

This link between access to energy and gender equality, both in the SDGs and in the academic corpus, also has antecedents in the approach based on the efficiency methodology applied to "women in development" (WID)[4], which more recently has been the subject of significant criticism within feminism and gender studies. These criticisms have focused on pointing out how, under this approach, the domestic and care work carried out by women is devalued, and non-economic aspects of inequality, such as gender violence, sexuality and reproductive health rights, have been underemphasized (Rai, 2011; Listo, 2018a). Subsequently, the Gender and Development (GAD) approach emerged as a critical alternative to WID, changing the perspective of women's access and inclusion in economic development to a supposed gender analysis linked to globalized development goals (Kaijser and Kronsell, 2014). GAD scholars and practitioners used the concept of gender as a lens to analyze social relations. They also equated it with the social and political norms of femininity and masculinity that shape social relations in such a way that women often have less power and resources than men (Rathgeber, 1990; Listo, 2018a). A GAD approach, therefore, considers the productive and reproductive roles of women within an agenda of transforming the structural and social constitution of gender unequal relationships (Listo, 2018a).

With these approaches as background, in 1995 the International Energy and Gender Network (ENERGIA) emerged, formed by a group of women who work and research in the energy sector. ENERGIA formed a research program that is still ongoing and that brings together professionals and researchers on gender and energy. Its members have been pioneers in making the link between energy in the home and women visible, and in bringing it to the attention of multilateral development agendas (Clancy, Skutsch and Hanke, 2005; Clancy *et al.*, 2007; McDade and Clancy, 2013). Despite this first approach, there have currently been few critical analyses of the ways in which gender is constructed in a field that stands out for being multidisciplinary but also because it is dominated by

[4] The "Women in Development" (WID) approach to development emerged from liberal feminism in the US and Europe, along with academic recognition of women's role in the sexual division of labor (Rathgeber, 1990).

academics from disciplines that are typically associated with the masculine and predominantly exercised and studied by men, such as STEM[5] (Ryan, 2014; Kahn and Ginther, 2017).

On the other hand, gender mainstreaming[6] is considered central to development practice and has been incorporated into the work of international organizations such as the World Bank and the United Nations. However, the understanding of the social constitution of gender relations and its inference in situated social dynamics has rarely been discussed (Jackson, 1993; Cornwall and Whitehead, 2007; Listo, 2018a).

Methodology

For this work, a selection of 100 articles was made using the open-source software "Open Knowledge Maps" (OKM). In addition to the economic benefits of this kind of software, which is free, this platform was chosen because knowledge maps provide an instant overview of a topic by showing the main areas immediately and the documents related to them. This makes it possible not only to easily identify useful and relevant information, but also to record those discourses that do not appear and that tell us about areas of opportunity, in this case, in the field of social studies of energy with a feminist approach.

Another reason why we chose to work with the OKM tool is that it does not restrict the language in searches, which increases the visibility of content that is not written in English, and therefore expands access to materials in other languages.

[5] STEM corresponds to the acronym that designates the academic disciplines of science, technology, engineering and mathematics.

[6] The incorporation of the gender perspective (or gender mainstreaming) is an international strategy that supposedly aims to achieve gender equality. According to the European Institute for Gender Equality, "it involves the integration of the gender perspective in the development, design, implementation, monitoring and evaluation of policies, regulatory measures, and spending programs, with a view to promoting equality between women and men and combat discrimination" (EIGE, 2017).

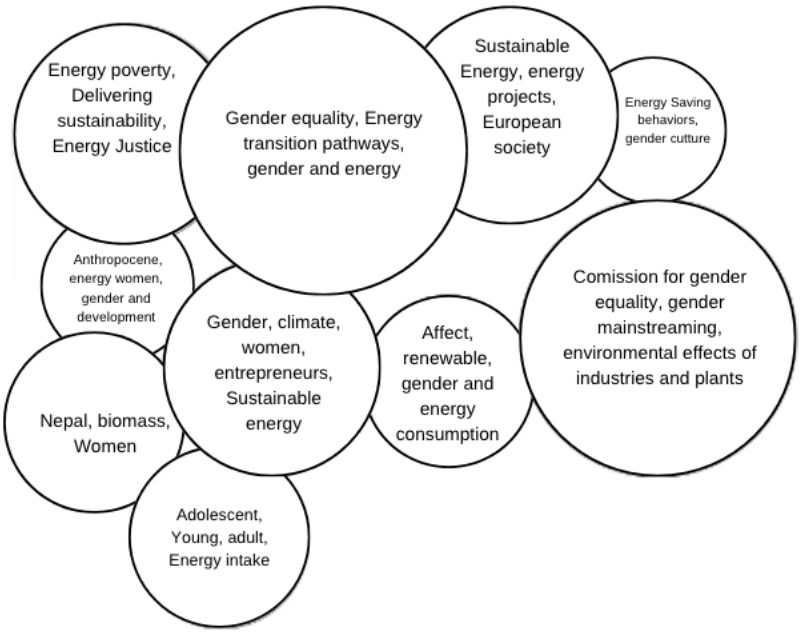

Fig 1. Open Knowledge Maps (2023). Knowledge map for research on gender, energy and ecotechnologies. Retrieved from: https://openknowledgemaps.org/

At first, using this tool, a knowledge map was created that presents a thematic general description of the research on "gender, energy and ecotechnologies" based on the 100 most relevant documents[7] of the last 30 years and that coincide with its search query. This program takes data from another information platform called BASE (Bielefeld Academic Search Engine), which provides access to more than 270 million documents from more than 8,900 content sources in all disciplines (Bielefeld Unibersity Library, 2022). The software uses text similarity to create the knowledge map, as its algorithm groups those documents that have many words in common and creates the titles of each circle using the keywords of the documents that have been assigned to the same area.

In a second stage, each of the articles[8] was reviewed using a Critical Discourse Analysis framework - in the sense proposed by Van Dijk (2003), in which he details not only a descriptive and analytical analysis, but also a social and political analysis. This methodology was chosen building on a recent recognition of the potential for its application to the field of energy studies, especially to understand "how political, economic and social power is intertwined with energy technologies and futures" (Listo, 2018, p. 10). Thus, 3 axes of discussion were

[7] The bibliographic references of the reviewed articles are found at the end of this article, prior to the bibliography used for analysis.
[8] Since scientific discourses are also social discourses, this article recognizes the terms defined by Yasmin Gunaratnam, who establishes that these "are entangled in the lived experience and in the embodied consequences for individuals and social relations of power that have emotional and materials for individuals and groups" (2003:7).

outlined to characterize the links between gender, energy and ecotechnologies that were found in this corpus[9] and that are developed below.

Access to energy equals women's empowerment[10]

Two of the most common assumptions revealed by the bibliographic review were: 1) the conception that access to energy was equal to or contributed significantly to the "empowerment of women"; and 2) that "women's empowerment" was key to ensuring the adoption of clean energy (Das *et al.*, 2020; Jeuland *et al.*, 2021).

From this perspective, most research associates women's empowerment with "the ability to choose between different alternatives (Das et al., 2020, p.2); and that these choices, in turn, determine their quality of life. Although decisions can be made at the individual or collective level, they have traditionally been limited by social norms, cultural beliefs, customs, and values that define gender roles, but these are not reviewed in the studies scrutinized.

On the other hand, it is assumed that access to clean and affordable energy can potentially reduce the time burden that women spend collecting water, firewood, etc. and, therefore, also contribute to their empowerment (relating to SDG 5) (Das *et al.*, 2020; Mazorra *et al.*, 2020). This is based on the inference that since women, on average, spend more time on unpaid care and domestic work than men (ONU 2019), the use of technologies that guarantee clean and safe energy, with less investment of time, could improve women's quality of life. The absence of monitoring of the use of the supposedly "earned" time that access to clean energy provides is notable, however. Such monitoring would allow for a better accounting of this improvement in quality of life due to the greater availability of time, or of the participation or not of men in domestic tasks. As can be seen, the concept of gender makes its way into energy studies linked to the "empowerment" of women and the new available use of time. This type of data leads us to think that empowerment, understood as "a key development strategy"[11], is achieved by women when they access clean and affordable energy, and in turn, empowered women tend to use clean and affordable energy. Das et al. however acknowledge that rigorous evidence and monitoring of these effects is actually mostly lacking.

[9] The corpus is made up of American, European, African, and Asian authors, as well as a small percentage of authors of Latin American origin.

[10] The texts reviewed tend to use Friedmann's (1992) notion of empowerment, who considers it as an alternative strategy to the traditional way of promoting development; "his interpretation of this notion places emphasis on improving the living conditions of the excluded majority" (Senso, 2011).

[11] To explore the relationship between women's empowerment, development and globalization from a critical stance, the work of Jules Falquet can be reviewed (Falquet, 2017).

(2020). The monitoring of this effects is important to avoid a tautological approach, that is used in such a generalized way that it often loses meaning.

Likewise, it contradicts a critical vision of power as a relationship of forces that is constantly disputed to the detriment of one of the parties. In fact, according to Falquet, this slippage of the notion of empowerment is mixed “with a kind of idealistic naturalism that assumes that women necessarily make “good use” (feminine and, therefore, “altruistic and beneficent”) of power" (1968:124). From this point of view, the concepts of empowerment and gender in the reviewed texts have been characterized via the compilation of statistics disaggregated by sex[12], income and efficiency respectively, so its disruptive or critical intention has been distorted and becomes just another plain piece of information (Baden and Goetz, 1998; Chant and Sweetman, 2012; Listo, 2018a).

Tropes of the global north and south[13]: women with agency and women without agency

As in almost all the literature reviewed, the energy poverty discourse analyzed here is strongly based on a binary gender perspective, which places men in opposition to women[14]. There is no mention of queer or transgender identities, nor of gender inequalities between women (or for that matter, between men). With this clarification, we proceed to characterize the literature found.

According to Chant and Listo (2012; 2018) despite mixed evidence, households headed by women have been considered the most vulnerable group of women in poverty, and have been extrapolated to represent women in poverty in a more general way, because they are easily identifiable in demographic terms and, therefore, can be targeted more directly by public policies. This distinction dominates despite the fact that it has been shown that some households headed

[12] Understanding sex in its classic medical-oriented conceptualization as chromosomal-gonadal-genital differentiation. That is, the male and female categories.

[13] Although the notions of “global north and south” are useful for thinking about the social/economic/political division at the international level, it is possible to recognize that the particular frameworks of each society generate nuances in what the black feminist Patricia Hill Collins recognizes as the matrix of domination and which refers to the total organization of power in said society (2000). In summary, there are groups geographically located in the Global North that live in conditions of oppression like those considered to belong to the Global South, just as there are groups located in the geographies of the Global South that live and generate dynamics more like what tends to be called the Global North. In the specific case of this article, the idea is to explore the thematic nodes that are formed from within the academy, and how this characterization of gender, nationality and class can be problematic.

[14] It is worth clarifying that most of the literature reviewed for this work used the gender category as a synonym for cis woman. Cis is the prefix “used to name people who continue to identify with the sex/gender assigned to them at birth.”(Ciccia, 2020:18).

by women have a higher quality of life than some households headed by men (Fingleton-Smith, 2018).

Back in 1996, Cecile Jackson wrote about “rescuing gender from the poverty trap”. According to the author, the “Poverty Agenda” of that year incorporated gender within a new, broader concept of poverty (Lipton y Maxwell, 1992). The application of this concept allowed researchers and scholars to measure and evaluate gender bias in poverty reduction policies based on labor-intensive growth, targeted social services and safety nets. The multilateral positions on gender and development (GAD)[15], for their part, also emphasized women's poverty as a primary justification for development interventions designed to improve the position of women.

However, Jackson (1993, 1996) argued at the time that the concept of poverty cannot serve as a substitute for women's subordination, and that “anti-poverty” policies could not necessarily be expected to improve womens’ positions. Jackson also added that “there was no substitute for a gender analysis, which transcends class divisions and material definitions of deprivation” (1996, p. 489). For the author, the instrumental interest in women to achieve development goals such as poverty reduction could ultimately undermine the GAD approach.

On the other hand, Ryan (2014) carried out an analysis of the research niches corresponding to the link between gender and energy, and from this, he delimited four pending agendas: eliminate indoor air pollution, strengthen community resource management, develop feminist energy jurisprudence, and increase the representation of women in STEM and other fields of energy studies.

The agenda on eliminating indoor air pollution has to do with the main fact that pollution from domestic sources not only causes millions of preventable deaths each year, but also contributes to multiple incidents of chronic lung diseases that are among the main causes of death worldwide (Rosenthal *et al.*, 2017). Furthermore, according to most of the studies related to this agenda reviewed here, indoor air pollution disproportionately affects an “economically vulnerable and medically underserved population: poor women” (Batliwala y Reddy, 2003). The second agenda refers primarily to the assumption that giving leadership roles in resource management to women from “postcolonial nations where current community structures reflect the past” (Ryan, 2014, p. 98) contributes to positive energy and environmental outcomes. This represents a problem, since the

[15] The Gender and Development Approach (GAD) emerged as a fundamental alternative to WID, shifting the focus from women's access and inclusion in economic development to a gender analysis and development goals. GAD scholars and practitioners use the concept of “gender” as a lens to analyze social relations, and the ways in which “gender,” meaning the social and political norms of femininity and masculinity, shape social relations, such that women often have less power and resources relative to men (Rathgeber, 1990; Listo, 2018a).

responsibility falls on the gender of the people who take leadership and not on the decisions that are made, or even on the original approach to resource management.

On the other hand, the third agenda on the need to develop a feminist energy jurisprudence finds a niche of opportunity in the construction of a comprehensive legal framework that specifically covers gender and energy. This raises several questions: can a feminist framework be integrated into a patriarchal legal field? How does an ecofeminist perspective[16] enter environmental law, a recent branch of the judicial system? Who decides what a gender and energy legal framework should contain? Who has the material and symbolic capital to legitimize these criteria?

Finally, the fourth agenda, which seeks to increase the representation of women in STEM and in the energy field, is normally focused on those territories where female education is high and reaches university levels. How to get more women to develop in science, technology, and energy if according to the UNESCO Institute of Statistics (2021) 16 million girls will never go to school?

Now, there is then a crucial difference between the studies reviewed that work with the first and second themes and those that do so with the third and fourth. The data or empirical fields that support the first two correspond mostly to what we know as Global South, while the third and fourth to the Global North. This creates a redundant (and not naive) trend in which poor, indigenous, and/or rural women will always be thought of as recipients of predetermined eco-technological packages, as well as the only agents responsible for building self-sustaining communities[17]; while only academic, professional and, in many places, mostly white or privileged women are constructed as genuine representatives of all women in political and institutional decision-making about the use and access of energy.

In summary, academic communities produce articles and reports, which will later be raw material for decision-making in public policies that, in turn, shape the crucial public discourse on energy poverty, building women and gender equality in ways that are overly simplistic, and in some cases, problematic. In the revised corpus, the very opposition of the use of categories “women from the global south” in contrast to “women from the global north” is not necessarily used to identify unequal energy agencies that refer to political and historical realities, but rather generate inequalities in themselves because they do not contemplate that "there

[16] For more on ecofeminisms, you can check out Herrero, 2014, 2018; Siliprandi, 2015; Vanegas Díaz, 2020 .
[17] For a broader discussion of the effects of globalization on the formatting of political identities in the field of food production, see Vanegas Díaz, 2022.

are numerous Souths, very different from each other and in addition there is some South and East in the North and some North in the South" (Falquet, 1968, p. 24).

Flattening the heterogeneity of the concept of gender

For Joan Scott (1988), the exclusion of women from the historical narrative - and in the case presented here, in scientific production on energy - is not solved by adding them as an annex to the discipline, since "their mere presence and visualization puts in check the idea of “universal man” that confuses the human with the masculine and “filters” into the language of research (Tarrés, 2013, p. 382).

Furthermore, authors such as Cornwall and Rivas (2015) and Listo (2018b) build on theories of queer and gender performativity, to debate the combination of sex and gender, and the binary between “men” and “women” in the practice of policies framed in development. According to Listo, this argument resonates with Mohanty's (2003) analysis of the “Third World Woman”, which, homogenizes women as saviors for development, despite the significant variations in the constitution of gender relations that Scott already described. Likewise, it flattens the meaning of the concept of gender in different geographical and social contexts.

The essentialization of gender as binary sex constitutes another simplification within the field of energy studies, as it reduces the complexity of identities and power to identity categories. In fact, according to Fathallah y Pyakurel (2020), most of the studies that investigate the impacts of energy access on “gender” have used this term to refer to the binary of man and woman, which can be interchanged arbitrarily with the term “sex”[18]. For example, Pachauri and Rao (2013) discussed the idea that women's participation in energy projects can increase their bargaining power, and Oparaocha and Dutta (2011) reported that energy poverty has disproportionate effects on women and girls. These are important studies to make visible problems of differentiated access to energy, but the use of the word "gender" is imprecise and is not well defined in the work.

Gender, however, is not the only category that cuts across the dynamics of energy access and use. From black feminist studies and the field of ethnic studies, it is widely recognized that gender as a category, and as a material reality, is fundamentally intersectional, that is, it is intertwined with multiple axes of power and inequality, such as class, sexuality, ethnicity, age, nationality and race (Dhamoon, 2011; Viveros Vigoya, 2016). It is then considered necessary to expand

[18] For a more robust criticism of the conceptualization of sex from biology, one can review the work of Ciccia, who, from his experience in neuroscience, explains in his doctoral thesis that there is no “true” biological characteristic that distinguishes men from women. (2017).

the discussion on gender by including other social identities that intersect through intersectionality, not only as a theoretical tool, but also from practice (Benhadjoudja, 2019).

On the other hand, intersectionality also serves as an important corrective to the overemphasis on the generalization of standardized programs that overlook the priority of producing valid knowledge claims, programs and resources to individuals, groups and communities who demand them (Hancock, 2007). This can be carried out through the continued inclusion of feminist scholars with intersectional perspectives in interdisciplinary energy research teams because it is important to also study intersectionality in the social dynamics and relationships that constitute subjects, displacing what often seems to be an emphasis on the subjects (and categories) themselves as the starting point of research.

Final thoughts

In the introduction to the book “Reflections on Gender and Science” by Evelyn Fox Keller, a quote from Simone de Beauvoir written in 1970 appears: “The representation of the world, as well as the world, is the task of men; they describe from their particular point of view, which they confuse with absolute truth” (1989). Although the concept of gender has been gaining space in science, the objective of not perpetuating or deepening inequalities is often lost. Chant and Sweetman (2012) warned about the danger of confusing the empowerment of women as individuals with the feminist objective of eliminating the structural discrimination faced by women.

In this sense, and consistent with the work of this study, it can be read that the reference to fair access to energy and gender rights passes directly to the instrumentality of women for “development”. Furthermore, it uses the identity category of “woman” as a synonym for gender, erasing its relational core and the different nuances provided by other categories of oppression, such as class, ethnicity and even nationality, to name a few.

It is not the purpose here to suggest or argue that women do not unequally experience the impacts of energy poverty. In fact, there is ample empirical evidence to support the claim that uneven access to energy and resources is a manifestation of gender inequality (Köhlin *et al.*, 2011; Listo, 2018a). Rather, we seek to stress the way in which women are constructed in a homogeneous community (Mohanty, 1988), in the discourse of academics, policy makers and professionals who actively address energy issues. In other words, this evidence is only interpreted through a limited view, and this interpretation misrepresents the likely heterogeneity underlying the observations made in the article. This creates a

tendency to make certain technical interventions such as improved stoves or gas or electricity supplies that seem logical or common sense, but which erase the need for situated interventions.

An intersectional perspective that acknowledges this heterogeneity, is therefore crucial to recognize that the processes of access and use of energy sources are shaped, implicitly, and explicitly, by existing power structures and social norms, and that different energy technologies have different impacts and contributions depending on the context in which they are thought of. This article seeks to ultimately encourage the energy research community to place greater emphasis on gender and intersectionality considerations in their work teams.

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