Does energy poverty have a female face in Chile?

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ABSTRACT
The relationship between gender inequalities (GI) and energy poverty (EP) has not been discussed as a whole in worldwide recent debates, although feminist analyses have demonstrated that GI have had an impact on the everyday life of women, men, and their dependents. This research paper addresses the relationship between GI and EP through an analysis of relevant secondary sources on poverty and people’s use of time, in order to understand how GI affect women’s access to energy in Latin America, particularly in Chile. Moreover, it seems that there are reasons to believe that EP has a female face. Therefore, this study looks into strategic policies for ensuring safe and affordable energy for women. Likewise, this research paper presents how these efforts would contribute to deal with some other key issues, such as energy transition and a sustainable development process. To sum up, this investigation identifies the possible benefits that improving energy access would bring to women, as well as how those improvements would consistently help to meet the goals established by international treaties that aim to seek equality for women through ending poverty and by giving them access to energy.

KEYWORDS
Energy poverty; gender; women; care; unpaid work

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Será que a pobreza energética tem uma face feminina no Chile?

RESUMO
A relação entre Desigualdades de Gênero (DG) e Pobreza Energética (PE) não tem sido discutida como um todo em recentes debates mundiais, embora análises feministas tenham demonstrado que as DG tenham um impacto na vida cotidiana de mulheres, homens e seus dependentes. Esse trabalho de pesquisa aborda a relação entre DG e PE a partir de uma análise de fontes secundárias relevantes, a respeito da pobreza e o uso do tempo pelas pessoas, visando entender como as DG afetam o acesso feminino à energia na América Latina, particularmente no Chile. Além disso, há razões para acreditar que a PE possui uma face feminina. Em assim sendo, o presente estudo analisa as políticas estratégicas com o intuito de garantir energia segura e acessível.
Portuguese:

Às mulheres. Ademais disso, esse artigo apresenta como esses esforços podem contribuir para enfrentar outras questões importantes, como a transição energética e o desenvolvimento sustentável. Em suma, essa investigação identifica os possíveis benefícios que a melhoria do acesso à energia traria para as mulheres e, como tais melhorias ajudariam a alcançar as metas estabelecidas pelos Tratados Internacionais.

¿La pobreza energética tiene una cara femenina en Chile?

RESUMEN
La relación entre las desigualdades de género (DG) y la pobreza energética (PE) no ha sido discutida en conjunto en los recientes debates a nivel mundial, si bien los análisis feministas han demostrado que las DG han tenido un impacto en la vida cotidiana de las mujeres, los hombres y sus dependientes. Este documento de investigación aborda la relación entre DG y PE, a través de un análisis de fuentes secundarias relevantes sobre la pobreza y el uso del tiempo por parte de las personas, para comprender cómo las DG afectan el acceso de las mujeres a energía en América Latina, particularmente en Chile. Además, parece que hay razones para creer que la PE tiene un rostro femenino, por lo tanto, este estudio analiza las políticas estratégicas para garantizar energía segura y asequible para las mujeres. Del mismo modo, este trabajo de investigación presenta cómo estos esfuerzos contribuirían a abordar otros temas relevantes, como la transición energética y el desarrollo sostenible. En resumen, esta investigación identifica los posibles beneficios que el mejoramiento del acceso a la energía brindaría a las mujeres, y cómo esas mejoras ayudarían a cumplir los objetivos establecidos por los tratados internacionales.

1. Introduction

Debates surrounding energy poverty (EP) in Chile and throughout the world have slowly been gaining ground among different social actors, such as the public sector and academia. Despite EP’s relevance, those discussions have not been raised from a gender perspective. To address gender inequalities (GI) and EP together, a theoretical framework is developed in this paper, which includes a GI analysis within EP, as well as the eminently interdisciplinary viewpoint from science, technology, and society (STS). Thus, this framework will be used to analyze the relationship between EP and GI in a Chilean context.

The discussion presented in this study offers an account of how EP affects populations differently in the context of the feminization of poverty. In order to do that, the gender division of labor is taken into consideration as a key element with respect to the amount of time a woman dedicates to two home-associated tasks: unpaid housework and the caring for dependent people, that is, most commonly children and the elderly, who have been classified as part of the vulnerable population. Both activities are carried out at homes that demand managing the access to a diverse range of energy sources to satisfy needs such as heating, cooking, refrigeration, food preservation, and
hot water for sanitary use, among others. By assessing this information, it will be possible to observe the EP situations of a particular and vulnerable segment of the population.

A solid supporting argument regarding the feminization of poverty is found in Sandra Harding’s book (1986) where she offered a review on different types of critiques made of science from a feminist stance. The review defends the need to re-conceptualize scientific objectivity in the face of biases related to gender, class, and race at the same time. Moreover, the author analyzes different ways of theorizing about the relationship between scientific knowledge, technological developments, and the question of gender, demonstrating how gender-related factors are projected in science and technology methods, design, language, and contents. It is important also to point out that the benefits that come from scientific and technological developments are frequently used more as instruments for keeping the status quo rather than as contributors to solve inequality and other social problems (Subramaniam 2017).

Studies of the co-construction of users and technology can also help to provide a better understanding of the issue. Feminist scholars have been drawing attention to technology’s potentially problematic consequences as well as to the absence of women in technology’s historical accounts (Cowan 1985; Oudshoorn and Pinch 2005). Another major scholar’s contribution has been the concept of diversity, meaning that not all users have the same social context, economic situation or experience at the moment of using any specific technology (Cowan 1985; Oudshoorn and Pinch 2005).

This article seeks to problematize the EP phenomenon in Chile from a gender perspective. The hypothesis is that women are significantly and particularly affected by EP and its associated effects as a result of their duties of caregiving and the unpaid work done at home. Having established the problem, the emphasis here will be placed on “how” rather than on “how much,” since the gender distribution of housework leaves women responsible for a greater burden upon their shoulders. This situation worsens when adding other variables such as poverty, rural conditions, or ethnicity.

Two secondary sources were used for the research: the Encuesta de Caracterización Socioeconómica Nacional (Ministerio de Desarrollo Social 2017), also known as CASEN, in English, National Survey for Socioeconomic Characterization; and the Encuesta Nacional sobre Uso del Tiempo (Instituto Nacional de Estadísticas 2015) in English, National Survey for the Use of Time (ENUT). Likewise, other national research works were considered for the analysis, such as the one done by the Instituto Nacional de Estadísticas (2015) in English, National Institute of Statistics, and another from the Ministerio de Vivienda y Urbanismo (2013) in English, Ministry of Housing and Urban Development.

Bibliographical resources have proven to be necessary in order to frame the problem from a gender perspective, given that there is no other specific measurement information available about the country’s EP situation. Therefore, the lack of information has been one of the main challenges during the study, which, in turn, makes the characterization of the whole problem hard to establish. Also, it leads to one of the main conclusions: the need to produce information that will allow researchers to characterize the EP phenomenon from a gender perspective and with the purpose of making the issue more visible.

More information on the issue would allow the phenomenon to be detailed in the scientific and public sectors, so as to make advances in relevant and much needed public policies, as well as to raise awareness on how to better meet the standards of ratified international treaties. At the same time, making information visible could translate
into an improvement on the quality of life of the studied population, and also would strengthen human development within the framework of energy transition and sustainable development processes. A central aspect of the current “energy transition” is the process of transforming the energy matrix from a carbon-dependent to one based on non-conventional renewable energies.

2. History of the concept of EP

EP came up as the result of a debate in the UK about the concept of fuel poverty, and the issue spread quickly in other European countries (Liddell 2012). In doing so, a variety of ways for defining and measuring EP emerged. Most well-known definitions are markedly economic in nature, such as the ten percent rule (Boardman 1991), the low income–high cost indicator (Hills 2012), and the minimum income standard (Moore 2012). However, it is necessary to emphasize that understanding EP in such purely economic ways is not suitable for analyzing the realities of countries with a total lack of energy access, as is the case for certain African and Asian countries. Consequently, the concept of EP has been reformulated in those latitudes, and those reformulations have primarily been centered on measuring energy access availability and appropriate technology for local uses. In the case of Latin America, concerns are focused mainly on energy quality, revealing the importance of taking into consideration climate and geographical context, sociocultural conditions, and the available infrastructures, among other factors (García-Ochoa 2014, 2016; RedPE 2017, 2018).

Equal access to clean and quality energy is necessary for the development of required skills to participate in social, cultural, and economic activities in the world today (Sen 2000; RedPE 2017). More importantly, the access to energy becomes truly relevant in the face of current environmental threats, such as climate change (Ürge-Vorsatz and Tirado-Herrero 2012) and socio-natural disasters in Chile, which notoriously and severely affect vulnerable groups (Casas 2017).

Adequate access to energy is, indeed, a contributing factor to social equality, since it either enables or interferes with human development. Having had the chance to observe this in different contexts has allowed us to incorporate new variables into analyses of the phenomenon, which permits more accurate and complex definitions so we can deal with the phenomenon from multiple dimensions. In this sense, it can be stated that EP is a relative concept depending on each country’s definition of needs, satisfaction, the necessary quantity and quality of energy, and the acceptable cost threshold in relation to the incomes of the population, among others. This will vary considerably in accordance with such definitions (Scarpellini et al. 2015).

Bearing these factors in mind and considering the current international discussions, scientific literature and interdisciplinary dialogues, the Red de Pobreza Energética of University of Chile (RedPE; in English, Energy Poverty Network) has established a complex definition to observe the EP phenomenon in Chile:

A home is in a situation of EP when it lacks the sufficient amount of energy to cover the basic and fundamental needs, considering what society (viewed as “objective”) and household members (viewed as “subjective”) have determined to be sufficient, that is, a home affected by EP does not have the capacity to access adequate energy sources. This should grant the home the possibility to make a decision between a sufficient range of high-quality energy...
services (adequate, trustworthy, sustainable, and safe) permitting the preservation of the members’ economic and human development. Both needs and satisfaction are determined by particular populations, located in a particular area, in a time-defined context, and under specific socio-cultural conditions.¹ (RedPE 2018, 6)

With respect to energy, a distinction is made between fundamental needs and basic needs. The first ones have a direct impact on the population’s health, whereas basic needs correspond to the basic elements that society defines as an adequate quality of life and minimum standards, which are also dependent on the territory. In reference to fundamental needs, we considered the following features for our analysis: cooking, food preservation, access to water, a range of minimum and maximum healthy temperatures inside the house, and access to electricity in people with special needs (Sovacool 2012). Regarding basic needs, the cultural and territorial variations were also considered, and the term usually referred to thermal comfort, hot water for sanitary use, lighting, electrical appliances, and technology for educational purposes.

This definition becomes operational on the basis of three fundamental dimensions: access, equity, and adequate quality, and all three have a direct impact on the population’s health and safety. Access depends on physical thresholds, considering geographical, technological, and infrastructural barriers to energy access. Equity depends on specific economic thresholds, such as excessive expenses in home energy, hardships to reach comfortable heating levels, and the availability of both energy sources and appliances to fulfill needs. Finally, adequate quality depends on the thresholds established by society for the energy sources used (source quality), the required energy services, the inhabiting conditions, and energy supply stability. The last one is especially important in socio-natural disaster areas and in geographically isolated areas, regarding the capability to reestablish the energy supply after catastrophic events.

This EP definition proposed is embedded in the paradigm of multidimensional poverty analysis, which states that poverty is a phenomenon that deals with more areas other than just family income. In that sense, Sen (2000) proposes an approach that considers individual capacities in order to satisfy needs and to exercise rights in diverse areas of human development. The approach of individual capacities aims to allow subjects to participate socially, culturally, and economically in society; consequently the lack of energy sources limits people’s opportunities and quality of life. Therefore, in accordance with ECLAC policies, achieving “inclusion and thus underprivileged energy access constitutes a challenge that democracies must respond to if they hope to remain faithful to their own posture with regards to human rights, non-exclusion and transparency in the use of natural resources”² (2009, 9).

Furthermore, gender is a powerful indicator of resource inequality and vulnerability, in certain problematic contexts being either a woman or a man allows (or precludes) different forms of development. A number of authors have described this unequal reality, theorizing about the conditions that allow that system to continue to exist as well as questioning the repetition of certain practices (De Barbieri 1993; Lamas 1996, 2000; Lugones 2008; Pateman 1995; Rubin 1986; Valcárcel 2001, 2008). Several variables have been highlighted, gender being one of them, thus showing diverse forms of discrimination, inequality,

¹Authors’ own free translation.
²Authors’ own free translation.
and vulnerability. Accordingly, poor women are one of the most affected groups because of the home-related burden for which they are responsible (ECLAC 2016b).

As mentioned before, this article problematizes gender and EP in Chile through the analysis of relevant secondary sources, specifically CASEN and ENUT surveys. Both sources of statistics provide supporting information regarding the main characteristics of vulnerable populations, whose vulnerability became all the more visible after considering these variables.

3. Poor people’s energy needs and conditions

There is no appropriate way of measuring the EP situation in Chile, so it is hard to diagnose its state accurately. At the same time, it is clear that public policy has not paid enough attention to the effect of gender on poverty distribution issues (RedPE 2018). So, for the purpose of this research paper, we turned to CASEN’s data.

The CASEN survey does a socio-economical characterization of the country’s homes. Then, using the information collected, CASEN measures poverty in two ways: by income and by multidimensional poverty. The latter refers to the situation of people who are part of homes which do not meet adequate living conditions, taking into account five relevant dimensions of well-being. These are: (1) education, (2) health, (3) work and social security, (4) housing and environment, and (5) networks and social cohesion.3 (Ministerio de Desarrollo Social 2016, 27)

In Chile, multidimensional poverty affects 18.3% of people in urban areas and 37.4% of people in rural areas (Ministerio de Desarrollo Social 2017, 116).

The dimension of housing and environment contributes to multidimensional poverty in 28.7%,4 reaching a 24.7% in urban areas and a 40.2% in rural areas (Ministerio de Desarrollo Social 2017, 145–47). This category is made up by three sub-dimensions: habitability, basic services, and environment, each measuring features linked to EP. The first one attends to overcrowding and general housing conditions; the second one refers to basic services, such as drinking water; and finally, the third one points to environmental pollution.

Furthermore, it is important to state that the home percentage with multidimensional poverty in terms of habitability reaches an 18.8%, basic services provides 6.6%, and environment 10.2% (Ministerio de Desarrollo Social 2017, 149). However, there are differences between urban and rural areas, as shown in Table 1. The main problems in urban areas are related to habitability, whereas in rural areas the main problems are associated to basic services and environment.

The use of bad quality energy sources, such as firewood with high moisture content, added to low thermal efficiency in the household, becomes a major environmental problem associated with particulate matter air pollution (PM2.5 and PM10). This problem affects cities mostly in central and southern Chile, and has important negative effects on people’s health.

Moreover, studies have shown that the EP situation is closely related to dwellings with poor quality building materials and poor heat insulation. This results in a higher demand

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3Authors’ own free translation.
4Some regions in the country have reached higher indexes than the national average, contributing with 37.5% in the Region de Araucanía.
for energy and the heavy use of wood-burning stoves to reach thermal comfort (Schueftan, Sommerhoff, and González 2016). Other studies have shown that outdoor pollution is just about as bad as indoor pollution, inasmuch as the poor insulation of dwellings allows for the constant flow of air circulation in and outside homes (Barraza et al. 2014). So, improving home conditions would reduce home energy demand by decreasing the need for heating, resulting in less wood consumption and, thus, reducing air pollution and energy expenses for families (Schueftan, Sommerhoff, and González 2016; Reyes et al. 2015).

Also, other studies have demonstrated the impact that “cold houses” have on the population’s health (Silva Posada 2016). In short, low temperatures in houses and atmospheric pollution create a public health problem when the increase in the number of respiratory illnesses linked to the inhalation of particulate matter is considered, especially among the vulnerable population, that is, children, pregnant women, chronically ill people, and the elderly. As mentioned, women take care of such populations in most cases, this increases their burden of unpaid work.

The issue of EP cannot be restricted only to economic and/or technical aspects. It is also linked to other relevant variables, such as sociocultural ones, like GI:

As the negative effects of climate change increase, these tasks, [such as food production, water supply, and energy for heating homes or cooking,] will become more burdensome in terms of time, energy and economic cost, while remaining the responsibility of women and sometimes children without any redistribution or shared responsibility assumed by men. (ECLAC 2016a, 71)

One in every five women finds herself in a multidimensional poverty condition, and around two in every five female-headed households find themselves in a poverty state (Ministerio de Desarrollo Social 2017). Women and girls are victims of multiple forms of inequality and the EP variable makes them even more vulnerable. The government and people in charge of this matter must diagnose, revise, and give assistance to the women who suffer from this situation.

### 4. Women’s energy needs and conditions

The gender division of labor and dominant cultural patterns are relevant aspects in the incidence and characterization of energy problems. For instance, in accordance with prevailing social reproduction and care patterns in Latin America, women continue to be the ones tasked with the feeding, cleaning and caregiving of dependent persons, as well as with solving heating issues, doing the gardening, and taking care of pets, among other tasks. Associated to housework distribution by gender, women also have to take responsibility for finding the necessary means to manage the required energy in order to satisfy their household needs (ECLAC 2016a, 2017).
There are different and important features involving EP that greatly burden women in terms of work, among them:

(1) **Water and sanitation**: Gastrointestinal infections remain a major cause of death and of losing healthy life years. They also impact school attendance and educational performance, as well as missing workdays. Households without drinking water face additional costs – getting water from tankers, negative health effects, and opportunity costs (such as the time spent fetching water, which has an impact on women in particular). Despite the progress made, Latin American countries show significant differences in income, and in access to tap water and sanitation.

(2) **Energy**: The lack of access to modern energy sources means that many households, chiefly the poorest and rural families, continue to use solid fuels, which produce high levels of indoor air pollution, causing respiratory problems that can lead to many illnesses and, ultimately, death. Collecting fuel, such as wood, restricts other possible activities particularly for women and children, and prevents or hinders them from participating in the labor market or going to school (ECLAC 2016b, 134–135).

Other factors should also be considered as influential on home EP, such as the fact that women spend a greater amount of time dedicated to unpaid work in comparison to men. Two of those factors are: house overcrowding and home environment pollution, and both require women’s different types of unpaid work. For instance, women’s home reproduction means spending more time inside the house and, therefore, inhaling contaminants coming from poor quality heating and cooking systems. Likewise, they also do the caretaking of most of the vulnerable population (minors and the elderly), who are also exposed to these contaminants and may get respiratory illnesses because of the inhalation of particulate matter. As a result, every inhabitant may suffer from the bad effects of air pollution and the lack of adequate energy heating systems.

The ENUT survey delivers some figures on the allocation of chores in people’s time. According to its data, a high percentage of the Chilean population partake in unpaid work (94.5% of males and 98.4% of females), but the amount of time dedicated to these tasks is unequal (Instituto Nacional de Estadísticas 2015). On average, women starting at 12 years old dedicate 5.89 h daily to this type of work, whereas men dedicate 2.74 (Instituto Nacional de Estadísticas 2015). Percentages speak for themselves: whereas employed, unemployed or inactive, women spend far more time doing unpaid domestic tasks than their male counterpart in Chile (Table 2).

A focus on housing reveals an especially vulnerable situation in a segment of the Chilean population that has been unable to find permanent housing solutions in the public and/or private market, and who must live in squatter settlements, a situation which has become all the more frequent in recent years (Centro de Investigación Social Techo-Chile 2015). People in squatter settlements suffer from a number of socioeconomic

| Gender/Work | Employed | Unemployed | Economically Inactive |
|-------------|----------|------------|-----------------------|
| Men         | 2.85 hours | 3.49 hours | 2.54 hours |
| Women       | 5.85 hours | 7.11 hours | 6.23 hours |
shortages. For example, in 2015, 47.6% of the people in that situation were illegally connected to electricity, which left them exposed to domestic accident such as electrocution or a fire due to a malfunction in the electric system. Only 37% of the people used the electricity provided by the electric company with their own or shared meter (Centro de Investigación Social Techo-Chile 2015). Therefore, at squatter settlements, the access to basic services is diminished in both quantity and quality.

Moreover, women’s vulnerability is even higher than men’s in this context. In 2013, it was stated that

22% of [squatter] families are headed by a female single parent, while only 4% are headed by a male single parent. Those families tend to be more vulnerable, particularly when they are only made up of the head of the family and minors, since they are unable to share the tasks of bringing up and caregiving of minors. As a result, this situation makes women’s insertion into the labor market even more difficult. (Ministerio de Vivienda y Urbanismo 2013, 43)

Finally, improving women’s conditions is necessary to meet the global objectives of securing equality for women, ending poverty, and last but not least, accessing energy.

Mitigation of climate change requires taking measures to reduce greenhouse gas emissions and analysing how the gender order relates to the prevailing cultural patterns of production, consumption, energy use and technology. In this context, it is important to consider women’s contribution to such reduction as producers, workers and consumers, as well as researchers in the areas of clean, safe technology and energy, and public policymakers. The challenges of eliminating poverty and inequality, care needs and demands, and the environmental crisis all demand that the existing gender division of labor be overcome; this is essential to achieving equality by 2030. (ECLAC 2017, 18–19)

5. Strategies for securing high quality energy for women

The preceding analysis is in line with international principles as a relevant topic for public discussion, and for national and international political agendas. One example is the Objectives of Sustainable Development (OSD) from the 2030 Agenda for Sustainable Development (UNDP 2016). EP deals with a series of objectives and goals mentioned in the OSD.

For example, objective number 3 mentions the need to guarantee a healthy life and promote the well-being of all and at every age. If we consider EP’s impact on people’s health, contributing to reduce such bad impacts will help to achieve this goal. Furthermore, objective 3.9 mentions that it is important to reduce the effects from dangerous chemical products, air, water, and earth pollution on health. We are also aware of the direct effects that EP has on homes where the exposure to such risks is considerably larger than at homes with good energy quality and utilities (UNDP 2016).

Moreover, objective 7 specifically pays attention to guaranteeing access to safe, sustainable, and modern energy for all. These goals do not only consider the importance of universal access to energy, but also of improving energy efficiency, since 60% of the global population in 2014 use technology and fuel with high levels of pollution for cooking, (UNDP 2016).

Finally, objective 5 mentions the need to achieve gender equality and to empower all women and young girls. This objective pays close attention to unpaid domestic work and caregiving tasks, and characterizes them as an important aspect of gender inequality.

5 Authors’ own free translation.
Women are more often in charge of those seemingly unimportant tasks and, because of this, they are exposed to a situation in which they work double shifts on many occasions (UNDP 2016).

It is a problem that the information provided by the government does not divide the information by gender. At present, most information shows percentages for both genders together without paying enough attention to specific variables affecting men and/or women, which leads to biased and fragmented information. This is an issue which has been openly debated in STS feminist literature (Harding 1986). The omission of particular gender distribution hides women’s specific problems. Thus, a first step to work towards an energy-poverty-gender equality is to generate separate gender measurements.

6. Conclusions. Who benefits from women’s access to safe and affordable energy?

Nowadays energy transition has become a priority from the point of view of public policies and from the efforts of global and national governments all around the world, as pointed in the recent Climate Change 2015 Paris agreements. Moreover, as some groups of social scientists point out (Geels et al. 2017), it is urgent to understand energy transition as much more than a sociotechnical challenge and to add social, cultural, and political aspects to the analysis.6

Feminist STS has underscored the gender biases of scientific theories and technological practices that have brought negative consequences for women, both through actions and the lack thereof (Harding 1986; Subramaniam 2017). In that sense, we strongly recommend constructing diagnostic instruments that show concrete data on gender differences about a serious situation experienced by thousands of women, and that also affects people under their care. It is fundamental to providing a more equal, fair, and healthy society.

In the last two decades, gender studies have emphasized the need to conceptualize women’s relation to technology in terms of women’s active and creative role in technology appropriation, instead of presenting women only as victims of technology (Oudshoorn and Pinch 2005). Moreover, also the need for a thorough understanding of the role of users in technological development requires a methodology that takes into account the multiplicity and diversity of users and locations where the co-construction of users and technologies takes places (Oudshoorn and Pinch 2008).

Women are main elements of change and development, and the 2030 Agenda for Sustainable Development recognizes this (UNDP 2016). This agenda promotes a global frame and contemplates gender equality, rights, and women as a sustainable, developmental, and constitutive axis for empowering women (UNDP 2016). Achieving gender equality in terms of EP provides a great opportunity, and women can start it. Furthermore, it will directly benefit those men (boys, grownups, the sick, and the disabled) who are under the care of women. In second place, an improvement in energy access and quality for women

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6In Chile, since 2015, the Millennium Nucleus Center of Energy and Society Research (NUMIES) has centered on studying the relationship between energy and society, addressing many sociocultural aspects related to energy (see, e.g. Tironi and Sannazzaro 2017; Alvial-Palavicino and Ureta 2017) but the gender perspective was added to the analysis recently.
means an advancement for everyone in society, taking into account that the achievements for specific collective groups can contribute to greater social change in a wide sense.

Finally, a promising new line of research would be to examine how it drives technology transfers at home from a gender perspective, aiming for energy efficiency with clean and adequate sources specifically for the context of Latin America. In that way, maybe, we can start saying that change has a feminine face in Chile.

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**References**

Alvial-Palavicino, C., and S. Ureta. 2017. “Economizing Justice: Turning Equity Claims into Lower Energy Tariffs in Chile.” *Energy Policy* 105 (C): 642–647. https://econpapers.repec.org/RePEc:eee:enepol:v:105:y:2017:i:c:p:642-647

Barraza, F., H. Jorquera, G. Valdivia, and L. D. Montoya. 2014. “Indoor PM2.5 in Santiago, Chile, Spring 2012: Source Apportionment and Outdoor Contributions.” *Atmospheric Environment* 94: 692–700. doi:10.1016/J.ATMOSENV.2014.06.014.

Boardman, B. 1991. *Fuel Poverty: From Cold Homes to Affordable Warmth*. London: Belhaven Press.

Casas, M. 2017. *La transversalización del enfoque de género en las políticas públicas frente al cambio climático en América Latina*. Santiago: CEPAL. https://repositorio.cepal.org/handle/11362/41101

Centro de Investigación Social Techo-Chile. 2015. *Datos duros de una realidad muchísimo más dura. Informe encuesta nacional de campamentos*. http://www.techo.org/paises/chile/wp-content/uploads/2016/08/Informe-ENDC-2015-final-baja.pdf

Cowan, R. 1985. *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave*. New York: Ed. Basic Book.
De Barbieri, T. 1993. “Sobre la categoría género. Una introducción teórico-metodológica.” Debates en Sociología 18: 145–169. http://estudios.semam.cl/img/uploads/barbieri_sobre_categoria_genero.pdf

ECLAC (Economic Commission for Latin America and the Caribbean). 2009. Contribución de los servicios energéticos a los objetivos de desarrollo del milenio y la mitigación de la pobreza en América Latina y el Caribe. Síntesis ejecutiva. Santiago: Naciones Unidas. https://repositorio.cepal.org/bitstream/handle/11362/3724/1/S2009634_es.pdf

ECLAC (Economic Commission for Latin America and the Caribbean). 2016a. Equality and Women’s Autonomy in the Sustainable Development Agenda. Santiago: Naciones Unidas. https://repositorio.cepal.org/bitstream/handle/11362/40675/4/S1601247_en.pdf

ECLAC (Economic Commission for Latin America and the Caribbean). 2016b. Horizons 2030: Equality at the Centre of Sustainable Development. Santiago: Naciones Unidas.

ECLAC (Economic Commission for Latin America and the Caribbean). 2017. Montevideo Strategy for Implementation of the Regional Gender Agenda within the Sustainable Development Framework by 2030. https://repositorio.cepal.org/bitstream/handle/11362/41013/1/S1700033_en.pdf

García-Ochoa, R. 2014. Pobreza energética en américa latina. Santiago: Naciones Unidas.

García-Ochoa, R. 2016. “Caracterización espacial de la pobreza energética en México. Un análisis a escala subnacional.” Economía, Sociedad y Territorio XVI (51): 289–337. http://www.redalyc.org/pdf/111/1145317002.pdf

Geels, F. W., B. K. Sovacool, T. Schwanen, and S. Sorrell. 2017. “The Socio-Technical Dynamics of Low-Carbon Transitions.” Joule 1 (3): 463–479. doi.org/10.1016/j.joule.2017.09.018.

Harding, S. 1986. The Science Question in Feminism. Ithaca, NY: Cornell University Press.

Hills, J. 2012. Getting the Measure of Fuel Poverty: Final Report of the Fuel Poverty Review. London: Crown Ed. http://sticerd.lse.ac.uk/dps/case/cr/CASEreport72.pdf

Instituto Nacional de Estadísticas. 2015. Encuesta nacional del uso del tiempo (ENUT). Santiago, Chile. http://www.ine.cl/estadisticas/menu-sociales/enut

Lamas, M. 1996. La Construcción cultural de la diferencia sexual. México: Editorial Porrua y Pueg.

Lamas, M. 2000. “Diferencias de sexo, género y diferencia sexual.” Cuicuilco 7 (18): 1–24. https://doi.org/ISSN0185-1659.

Liddell, C. 2012. “Fuel Poverty Comes of Age: Commemorating 21 Years of Research and Policy.” Energy Policy 49 (October): 2–5. doi:10.1016/J.ENPOL.2012.02.036.

Lugones, M. 2008. “Colonialidad y género.” Tabula Rasa 9: 73–101. http://www.redalyc.org/articulo.oa?id=39600906

Ministerio de Desarrollo Social. 2016. Encuesta de Caracterización Socioeconómica Nacional (CASEN) 2015. Santiago, Chile. http://observatorio.ministeriodesarrollosocial.gob.cl/casen-multidimensional/casen/docs/CASEN_2015_Situacion_Pobreza.pdf

Ministerio de Desarrollo Social. 2017. Encuesta de Caracterización Socioeconómica Nacional (CASEN). Santiago, Chile. http://observatorio.ministeriodesarrollosocial.gob.cl/casen-multidimensional/casen/docs/Presentacion_Síntesis_de_Resultados_Casen_2017.pdf

Ministerio de Vivienda y Urbanismo. 2013. Mapa social de campamentos. Santiago, Chile. http://www.ministeriodesarrollosocial.gob.cl/btca/txtcompleto/mapasocial-campamentos.pdf

Moore, R. 2012. “Definitions of Fuel Poverty: Implications for Policy.” Energy Policy 49: 19–26. doi:10.1016/J.ENPOL.2012.01.057.

Oudshoorn, N., and T. Pinch. 2005. How Users Matter: The Co-Construction of Users and Technologies. London: University Press Group.

Oudshoorn, N., and T. Pinch. 2008. “User-Technology Relationships: Some Recent Developments.” In Handbook of Science and Technology Studies, edited by Edwards J. Hackett, Olga Amsterdamska, Michael Lynch, and Judy Wajcman, 541–565. London: MIT Press.

Pateman, C. 1995. El contrato Sexual. México: Anthropos.

RedPE (Nº535) (Red de Pobreza Energética). 2017. Pobreza energética en Chile: ¿Un problema invisible?. Análisis de fuentes secundarias disponibles de alcance nacional. Santiago, Chile.

RedPE (Nº535) (Red de Pobreza Energética). 2018. Políticas públicas y pobreza energética en Chile: ¿Una relación fragmentada? Santiago, Chile.
Reyes, R., N. Nelson, F. Navarro, and C. Retes. 2015. “The Firewood Dilemma: Human Health in a Broader Context of Well-Being in Chile.” Energy for Sustainable Development 28: 75–87. doi:10.1016/J.ESD.2015.07.005.

Rubin, G. 1986. “El tráfico de mujeres: Notas sobre la ‘economía política’ del sexo.” Revista Nueva Antropología VIII (30): 95–145. http://www.caladona.org/grups/uploads/2007/05/Eltrafficodemujeres2.pdf.

Scarpellini, S., P. Rivera-Torres, I. Suárez-Perales, and A. Aranda-Usón. 2015. “Analysis of Energy Poverty Intensity from the Perspective of the Regional Administration: Empirical Evidence from Households in Southern Europe.” Energy Policy 86: 729–738. doi:10.1016/J.ENPOL.2015.08.009.

Schueftan, A., J. Sommerhoff, and A. D. González. 2016. “Firewood Demand and Energy Policy in South-Central Chile.” Energy for Sustainable Development 33: 26–35. doi:10.1016/J.ESD.2016.04.004.

Sen, A. 2000. Desarrollo y Libertad. Buenos Aires: Planeta.

Silva Posada, P. 2016. “Pobreza energética, cuando las casas hacen daño.” Tesis doctoral, Universitat Politècnica de Catalunya, Barcelona, España.

Sovacool, B. 2012. “The Political Economy of Energy Poverty: A Review of key Challenges.” Energy for Sustainable Development 16 (3): 272–282. doi:10.1016/J.ESD.2012.05.006.

Subramaniam, Banu, Laura Foster, Sandra Harding, Deboleena Roy, and Kim TallBear. 2017. “Feminism, Postcolonialism, and Technoscience.” In Handbook of Science and Technology Studies, edited by Clark Miller, Laurel Smith-Doerr, Ullrike Felt, and Rayvon Fouché, 407–433. London: MIT Press.

Tironi, M. and Sannazzaro, J. 2017. “Energía Huilliche. Experimentos en integración y disensos ontológicos en un parque eólico.” Revista Internacional de Sociología. 75 (4). http://revintsociologia.revistas.csic.es/index.php/revintsociologia/article/view/693

UNDP (United Nations Development Programme). 2016. Sustainable Development Goals. http://www.undp.org/content/undp/es/home/sustainable-development-goals.html

Ürge-Vorsatz, D., and S. Tirado-Herrero. 2012. “Building Synergies between Climate Change Mitigation and Energy Poverty Alleviation.” Energy Policy 49: 83–90. doi:10.1016/J.ENPOL.2011.11.093.

Valcárcel, A. 2001. La memoria colectiva y los retos del feminismo. Santiago: Naciones Unidas.

Valcárcel, A. 2008. Feminismo en el mundo global. Madrid: Cátedra.