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## Low carbon energy behaviors in the workplace: A qualitative study in Italy and Spain



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#### ABSTRACT

Large organizations are responsible for a significant amount of GHG emissions. This trend will even increase over the next 100 years. An issue for environmental research is the investigation of the factors promoting or hindering the transition to more sustainable energy behaviors in the workplace. This study is part of a larger project, funded under the EU-FP7 program, called "Low Carbon at Work" (LOCAW). We present the results of a qualitative study assessing the existing everyday behaviors in two large-scale organizations: an Italian-based multinational renewable energy producer, and a Spanish public university (The University of A Coruña). Data obtained by interviews with key-informers and focus groups were content analyzed, using ATLAS.ti. Results indicate many commonalities and some differences between the two case studies. Working in a green anergy company leads individuals to be more sensitized about environmental issues, although a core thematic category refers to the concept that energy-related behaviors "rely on individual feeling". Data from the University of A Coruña suggest this organization has the right values and objectives, but it does not always adequately implement organizational policies to support sustainable energy use among students and employees. Theoretical and practical implications are discussed.

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#### 1. Introduction

Despite the overwhelming scientific evidence, climate change remains a contentious and contested issue, so that many individuals and countries display skepticism on the anthropogenic causes of global warming (e.g., [67]). In present times, reducing carbon emissions is a fundamental goal for the transition towards more sustainable human societies, and it is reflected in official goals and political strategies of supranational authorities and intergovernmental bodies at the global level. As an example, we could mention here the 2009 Review of EU Sustainable Development strategy, which underlines how the EU has taken the lead in the fight against climate change and the promotion of a low-carbon economy (http://ec.europa.eu/environment/eussd/), although the

efficacy of traditional political responses to energy-related issues is still a matter of academic debate (e.g., [9]).

In this broader context, energy-related issues have acquired increasing centrality in the current agenda of social science research (e.g., [24,31,59]). The concept of energy transition [58], and its socio-cultural implications (e.g., [53]), has also been underlined as crucial to explain societal changes of this kind (e.g., [23]), and is particularly interesting in the domain of low carbon energy policies (e.g., [2,7,20,33,41]). Large organizations are an important player in this transition, as they are responsible for a significant amount of GHG emissions. Estimates for the year 2000 of the Emission Database for Global Atmospheric Research, from the Joint Research Centre of the European Commission (http://edgar.jrc.ec. europa.eu/), which considered 8 different categories of sources of GHG emissions (industrial processes, power stations, transportation fuels, among others), suggest that the potential contribution of large organizations to global warming over the next 100 years will be highly significant. Understanding the key factors affecting sustainable changes in everyday behvaiors in the workplace is then

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a worhty issue for social science research, in view of a transition towards more sustainable societies.

#### 2. The challenge of sustainable organizations

Redressing the ongoing and preventing the future ecological degradation is one of the most prominent challenges organizations face today [68]. Organizations and their employees are one of the largest users of the worldis energy resources [35,45,56,62,63]. Demands for social and environmental responsibility in organizations, together with raising consumption of energy and associated costs have led to an increase of the interest of organizations in ways to promote energy conservation at work (see for example: [1,54,60]). To date, however, most common strategies have focused on structural and operational changes such as removing or changing inefficient equipment or changing business processes, as these changes tend to be easy [54]. Even where they can have a clear impact, the environmental effectiveness of technological solutions to reduce carbon emissions is contingent upon the way in which users engage with and deploy them [40]. Previous research has also indicated that, besides structural and technological changes in organizations, substantial reductions can be achieved even by behavioral measures alone [19].

Most of the existing research focusing on sustainability in organizations has looked at their performance at an aggregate level [38]. However, much less research has focused on the environmental performance of organizations in terms of their attempts to encourage employees to behave pro-environmentally or to come up with initiatives and ideas to change organizational practices, processes or products in the direction of sustainability. This has been in spite of the evidence that a good level of pro-environmental performance of an organization might make it more attractive to competent prospective employees [28,29,65]. Labor productivity might be higher, as it has been suggested that individuals who choose to work for "greener firms" might work harder [6]. Recent research has also suggested that the adoption of environmental standards, and the organizational changes they entail, might result in higher labor productivity and improved interpersonal contacts within organizations (e.g., [18]). Different mechanisms can be identified at the basis of this effect: first, working for a more environmentally friendly organization might boost employee's identification with their company and this, in turn, is reflected in higher productivity. Second, implementation of employee training programs in the environmental domain might lead to higher levels of interpersonal contacts and employee engagement; this, in turn, helps the process of knowledge transfer and the generation of innovative ideas, promotes job satisfaction and motivation, and finally leads to increased productivity [18].

It shall be noted that while individual pro-environmental behaviors are undertaken entirely voluntarily as part of oness personal life, employee green behaviors always involve some degree of organizational oversight [44]. Individual contributions to organizational sustainability goals can be quantified by rating the frequency and proficiency with which employees engage in pro-environmental behaviors. They can be undertaken as part of the tasks that the employees are required to carry out, or outside the formal duties and responsibilities in work contexts [44].

An interesting contribution on these issues comes from a recent work by Paillé and Mejía-Morelos [46]. These authors start from the consideration of the unconsistent results of studies on pro-environmental behavior at work that employed traditional theoretical approaches developed in environmental and social psychology, such as the value-belief-norm theory (e.g., [55]), the cognitive theory of stress [32], and the theory of planned behavior [27]. While, these theories have been useful to explain

pro-environmental behavior in household settings, new theories and frameworks are needed to explain employeesí behaviors on the job that would take into account the specificity of these settings. To this end Paillé and Mejía-Morelos [46] propose the social exchange theory (SET) as a suitable framework for the understanding of sustainable behaviors in organizations (see also Ref. [16]. A basic assumption of SET suggests that individuals are driven by the outcomes they expect and actually get from relevant others (e.g., [69]). Therefore, the authors argue that employees might be more willing to undertake sustainable behaviors at work when they perceive that the organization is actively engaged in initiating, developing and maintaining favorable work conditions. Consistent with this idea, these authors provided empirical evidence that organizational support positively affects the pro-environmental behaviors of employees (via positive job attitudes), while a breach in the psychological contract between the employees and the organization would undermine this positive path [46].

Among the specific organizational factors that have been proposed to have an effect on pro-environmental behavior in organizations we can mention aspects such as organizational focus, organizational structure, organizational/site type and size, departmental type and size, and organizational culture [64]. In particular, organizational focus and culture have been proposed as the most straightforward determinants of pro-environmental behavior [37]. Characteristics of leadership and leader's behavior are also important factors for the transition to more sustainable organizations (e.g., [4,49]). Leaders influence employee behavior through the setting up of descriptive norms that either support or hinder proenvironmental behavior. Descriptive norms have been defined as individual perceptions of what most other people do, and they have been shown to play a relevant role in human behavior by conveying social information about what is a normal or appropriate behavior in a given situation or context (e.g., [15]). Their effect has been studied for a wide range of human behaviors, and their link to pro-environmental behavior has been repeatedly confirmed in empirical research (e.g., [13,30]). Leadersí beliefs and actions play then a particularly important role in the perception of what constitutes an appropriate behavior in the workplace [50]. Likewise, recent evidence shows that perceived co-worker's support might encourage eco-helping among colleagues and engagement in proenvironmental behavior at work [47].

#### 2.1. Energy-related behaviors in the workplace

As a fundamental domain of human everyday life, work is a place and space where the sometimes contradictory demands of economic profit and environmental sustainability meet and are negotiated, with the resulting effects on individual behaviors, energy consumption and greenhouse gas emissions. As people spend an important part of their lives at work, within a community of values, norms and everyday actions, it is also the place where identities are defined, where individual values are transformed and where sustainability-related behavior can be either promoted and rewarded or hindered and discouraged [10]. Nevertheless, research on sustainable everyday behaviors at work, and on the factors promoting or hindering them, is still not abundant within social and behavioral sciences and environmental psychology (e.g., [61]). Specifically, a recent systematic review of the literature has argued that, among other gaps, there is insufficient evidence on the role of social norms on pro-environmental behavior in organizations, including the role of a lack of pro-environmental social norms; it has been also pointed out that there is little research available on general organizational determinants such as organizational structure or culture and their effects on specific behaviors; and that more qualitative research is needed to uncover the relationships between organizational and individual factors in organizations [38].

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