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HUMANIZING ENERGY



PAD. Pages on Arts and Design

International, peer-reviewed,
open access journal
founded by Vanni Pasca in 2005

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Publisher

Aiap Edizioni
via A. Ponchielli 3 – 20129 Milano – Italy
aiap@aiap.it – www.aiap.it

PAD © ISSN 1972-7887
#26, Vol. 17, June 2024
www.padjournal.net

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VALUES

ENERGY CULTURES & BEHAVIOURAL
CHANGE

Talking about Energy

Design and Language for the Energy Transition

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Keywords

Energy Transition, Energy Communication, Design and Language, Discursive Approach, Behavioral Change.

Abstract

The energy transition is central to contemporary debate and discourse, whether scientific, political, or social. Research, publications, funded programs, and awareness-raising projects are evidence of its relevance. Much is, therefore, being said about it, both from a global perspective, focusing on geo-economic balances and technological innovation, and from a local viewpoint, focusing on energy equity and accessibility and the realm of sustainable behavior. However, communication about energy is not always effective or transparent, and as a result, what communities and individuals perceive and learn seems far removed from their experience, as demonstrated by their resistance to change. Given these premises, it is in the authors' interest to develop a reflection on the potential of design in developing proposals to engage as many people as possible, cognitively and emotionally, in the discourse on energy sustainability. Design, which by its very nature is capable of elaborating innovations of meaning in the everyday environment, can contribute to the development of knowledge, awareness, and critical sensibility to support the development of sustainable behavior through a new language. The article, therefore, reflects on the value of language in promoting sustainability. In particular, the presentation of selected cases in the design field provides an interpretive model for promoting a sustainable energy transition through art, design, and language innovation.

1. Talking about the Energy Transition

The energy transition is at the center of contemporary public debate. Government bodies, politicians, economists, and experts are placing it at the forefront of the programs to be developed, highlighting the need for technological, economic, industrial, and social interventions on a global scale to respond to the environmental and geopolitical emergencies underway (European Commission, 2022; IEA, 2022; WEC, 2021; Rosen, 2021). On the one hand, they act as promoters of new global development pathways, issuing regulations and recommendations, promoting investment in R&D, and negotiating cooperation between the actors involved; on the other hand, they disseminate a new system of standards and reference values. Global policy plans, such as the recent European Green Deal (2019), promote responses to climate change that will transform current economic and production paradigms and social behavioral patterns. A popular search engine for scientific publications, such as Google Scholar, provides around 636.000 results in 0.09 seconds when searching for the words “energy transition” from 2020 onwards (more than 9.000 publications per month). The issues addressed in the energy discourse, both in the political-economic and scientific spheres, are articulated and diverse and have evolved. For example, as Kathleen Araújo reminds us, in the 1930s, the focus was on the changes brought about by molecular dissociation; in the 1970s, the debate revolved around fuel substitution to avert resource constraints and, later on, the possibilities of transforming production forms to reduce carbon emissions (Araújo, 2014). Today, the emphasis is mainly on investigating technical and strategic issues, such as technological and IT innovation, integration of

renewable resources, energy security, international policies, measurement of environmental impacts, and so forth. At the same time, references to the issues of universal access, energy justice and equity, social acceptance, and behavior change are significant. These shed light on the strategic, social, and cultural role of energy: in its production, supply, and consumption modes, energy is not merely a technical fact, but it is pervasively linked to culture and the individual and collective behavior of societies (Rainisio et al., 2021).

While many actors are involved in such an *energy dialogue*, others are excluded. If, on the macro level, it is necessary to work towards the sharing of universal values by overcoming the local dimension through an internationally shared means of communication such as language (Zygmunt, 2016), on the other hand, it is precisely at the local scale that the technical and specialistic cut of the syntax adopted in this context fails to be inclusive for a large part of the population. Indeed, most citizens perceive such linguistic complexity as not *close* to their daily lives (Bazzocchi et al., 2023; Cason Villa and Rebaglio, 2023). Yet, any effective energy transition approach needs to start with a change in people's behavior, lifestyles, and consumption habits. In this direction, working towards a broader understanding of sustainability discourses, in general, can reduce the distance of issues that are still perceived as far removed from individual responsibility. It is a matter of promoting the dissemination of a new everyday vocabulary that allows the *domestication* of sustainability to improve both the public perception of new renewable energy technologies and the involvement of individuals and communities in their

dissemination. Propensity to change and contentiousness or perceptions of risk and fatigue are key determinants that either drive or inhibit the uptake of energy transitions. At the same time, the narratives around these attitudes and experiences are full of contradictions and are continuously (re)produced and negotiated as people experience them.

Furthermore, it is necessary to foster more profound awareness and critical thinking and to provide tools and methods to help decipher energy-related messages, which are often distorted through the filters of private interests or any other interests than those that would serve the common good. Indeed, the dominant language associated with sustainability and efficiency often runs the risk of not being transparent on crucial ethical issues but rather of expressing the strategies and interests of large corporations committed, in the global transition, to preserving their profits first (Morton 2019). In this context, at both macro and local scales, language - from a semantic point of view, namely the way sustainability is spoken about (the vocabulary employed, the morphology, syntax, and tone of voice) - is a crucial element. Language is undoubtedly one of the privileged expressions of cultural and social processes, and it can influence how people develop and organize knowledge about their environment, as well as the modalities they use to structure the worldviews and values they express concerning other species (Bang et al. 2007).

Embracing Tomasz Zygmunt's reflections (2016) on the role of language education for sustainable development, we recognize in the multiple functions of perception, thinking, memory, and

expression the potential that language holds for providing a more inclusive understanding of sustainability. Language is the basis for processing an initial perception of the reality of things and the environment around us. In particular, it is in naming that language manifests its ontological character: in naming, the phenomena of the world around us, with their challenges and complexities, become present, acquire meaning, and become *speakable* in the sense that they enter fully into public reflection and can therefore be the subject of discussion (Benjamin, 1995/1916). The possibility of elaborating a discourse, or rather a dialogue, is seen as “a common way of understanding the world” (J.S. Dryzek, 1997, p. 8), capable of activating the cognitive dimension through words, especially in those cases where speech is not based on assumptions, prejudices and disputes, but rather on objective data and truths that provide the basic terms for analysis, debate, agreement and disagreement, conveyed in the most transparent, open and comprehensible way possible. Therefore, the intense relationship between language and thought ultimately generates the culture in which we move and help preserve within memory and nurture through progress. Sustainable thought and culture make humans sensitive to the outside world and its needs, simultaneously becoming their own (Pullen, 2015). After all, “the language we use to describe things [signals] how much we care about them and will steward over them” (Beatley, 2011, p. 58). In other words, it expresses how we exist in the world through our conduct, manners, and individual or social behavior.

Indeed, talking about energy sustainability is not an easy challenge. However, as the research by Scrase and Ockwell

(2010) and Isoaho and Karhunmaa (2019) on discursive approaches in the field of energy transition shows, it is essential to recognize, with a multidisciplinary approach, the role of language and narrative in the formulation of energy proposals and policies that will influence the future.

In short, involving as many people as possible in the discourse around energy sustainability raises a number of questions: What language and engagement approaches can be used to make the energy transition more acceptable? What tools and methods should be employed to decipher and critically approach the mainstream lexicon and develop an autonomous and conscious knowledge of it? And consequently, how is it possible to promote a new everyday vocabulary that supports a new *energy culture* and an increasing expression of sustainable behavior?

2. Design and Language for the Energy Transition

Exploring the connection between design and language means, first and foremost, considering the mediating role both play in the contexts of use in which they operate. As seen in the previous section, language is as complex as it is an explicit and overt expression of our way of experiencing, perceiving, and thinking about the culture we are immersed in. It is the privileged mediator of any relationship. Design, a practice that is conversely characterized by tacit and implicit knowledge, nevertheless actively participates in the shaping of our everyday worlds through objects, environments, and services that, with their *language* (Barthes, 1970/2016; Baudrillard, 1970/2014; Kubler, 1962/2002; Sudjic, 2015), interpret and express aesthetics, socio-technical values and cultures

of contemporaneity (Griswold, 2012). In this sense, design is also an instrument of mediation between different needs and knowledge, as well as of translation, in an intercultural sense (Baule & Caratti, 2016). The design, seen as a language used to imagine, prefigure, and outline ways of living in the world, is continuously in conversation with the situation it is shaping (Schön, 1983). But that is not all. We are especially interested in observing how the discipline of design can intervene in the *matter* of language, promoting two-way innovation, that is, both in real-life situations and on the lexicon - language that characterizes them. Designing language is disseminating tools of critical reflection, imagination, participation, and resistance; it promotes profound social and cultural changes. The domains of this work are innumerable (from communication design to exhibition design, industrial product design, interaction design, and much more), as are the fields of its application. A new way of speaking is brought about through processes, devices, research, and experimentation. One can activate processes of community engagement and participation in a creative dialogue of social innovation through the adoption of shared vocabularies that strengthen local networks and identities, such as the vocabulary of the NoLO neighborhood in Milan (Tassinari et al., 2023); one can imagine installations and performances revolving around words that, once materialized, penetrate the inhabited space of the city and make themselves present, thereby entering into collective experience and memory, as in Luigi Mainolfi's first luminous tales in Turin and similar ones developed elsewhere, or as in the luminous words of the Illumina-MI collaborative project, developed during the pandemic and later turned into a neighborhood icon-reminder

for the community of a Milanese suburb; finally, one can produce narratives that, through storytelling techniques, exhibitions, and verbal and textual installations, become devices for sharing an ethic of sustainability.

In view of the relationship between language, thought, design, and culture (and in particular, a culture of sustainability) described above, it seems increasingly necessary for the cultural sphere and the design disciplines to collaborate in the search for and in the co-construction of a common language that would allow and facilitate the discussion about the energy transition. A language aimed at reconnecting people and resources, technology and culture, thus counteracting the “energy illiteracy” that today makes majorities appear silent, disinterested, and paralyzed in the face of transition issues (Wilkinson & Lowe, 2021) and instead enabling them to participate in the debate with informed and proactive attitudes (Crippa & Ratti, 2023).

Based on these premises, this section aims to offer an insight into an international contemporary design scene that is already committed to the definition of such a language, which has proven to be able to cross and connect different disciplinary fields thanks to the way design’s own language is connoted, capable of combining the discursive, the pictorial, the persuasive and the instrumental (Doloughan, 2002). Specifically, a number of possible design approaches have been identified here to define mechanisms, dynamics, and tools of language design and language use that can support the processes of energy transition. Two *auxiliary verbs* indicate two mac-

ro-classes of design approaches that support *language actions* with high or low end-user engagement in promoting energy issues. The articulation of the proposed interpretive stance is presented in the table below (Fig. 1).

approach	strategy	design conjugation	language attribute	language unit
user = reader GIVE	ENERGY EXPOSURE	TO DESIGN is TO HIGHLIGHT	AWARENESS RAISING	SIGNS - WORDS
	ENERGY A VOICE	TO DESIGN is TO NARRATE	HUMANIZING	STORIES
user = writer MAKE	ROOM FOR DIALOGUE	TO DESIGN is TO INVOLVE	CONNECTIVE	DIALOGUE - DEBATE
	SENSE OF WORDS	TO DESIGN is TO REDEFINE	ENABLING	SHARED LEXICON

Figure 1. Outline of the relationship between design and language for the energy transition. (Credits: authors).

In the first approach, the user involved in the featured projects takes on the role of reader, first of words and then of stories, directing his or her attention towards the examined experiences without being directly involved. In the two underlying strategies, *design gives*. It gives exposure to energy in projects that play on the semantic level of words, making

them the raw material of awareness-raising messages, and it gives voice to energy, designing a recognizable identity for it through storytelling tools.

In the second approach, design *makes*, or rather *makes with*, users – writers who co-author the meaning of their experience through participation. The nature of the language used in these projects changes as the people involved change, in actions that make room for dialogue by creating tools that connect and facilitate the exchange of opinions about energy or help to make sense of words, in an example of co-construction of a shared lexicon for transition.

2.1. Give Energy Exposure: to Design is to Highlight (Awareness-Raising Language)

The first strategy, which sees design and the arts engaged in *giving energy exposure*, emphasizes the capacity of design culture to act and produce innovation not only at the functional level but also at the level of meaning (Verganti, 2009). As suggested by Judith Butler (1993), “precede any willful performance and become embedded in those performances”. Working on the significance level is, therefore, a necessary condition to stimulate concrete actions towards sustainable change in the long term.

Language, understood here in its basic units of sign-signifiers and words re-signified through the design lens, is used to raise public awareness of environmental issues through symbolic gestures and evocative messages conveyed through typical communication tools.

An example of this approach is the *A few degrees more* initiative, which the Leopold Museum in Vienna carried out in 2023 in collaboration with the Climate Change Centre Austria. Starting from the observation of a general tendency to ignore the warnings about the world's climate that have been coming from the scientific community for decades, the museum decided to play with the meaning of words, translating in a literal way the minimizing attitude that sees global warming as “just a few degrees more” on the thermometer. Paintings by Gustav Klimt, Egon Schiele, Gustave Courbet, and other masters depicting coastlines, mountains, lakes, and cities have been rehung on the museum walls, tilted by the number of geometric degrees corresponding to the difference in degrees Celsius that global warming would (or will?) make to the areas depicted in the paintings. Working on a semantic level and using language as a tool for creating meaning and modifying reality, the curators have thus managed to transform what for many seems an imperceptible difference into an immediately measurable and uncomfortable contingency. Accompanying the paintings with scientific captions describing the real impact that an increase of 3, 4, or 6 degrees Celsius would have on these landscapes, the Leopold and the Climate Change Centre have certainly succeeded in making visitors ask themselves whether they “still think that more than 1.5 degrees is not too much?”.

In the same vein, we note the diffused installation *Climate Signals*, realized in New York City in 2020 by artist Justin Brice Guariglia in collaboration with the municipality and the Climate Museum. The operation consisted of 10 solar-powered illuminated signs, much like the large LED banners used

to communicate emergency messages on highways, displaying flashing danger messages, this time to draw the attention of passers-by not to an accident or ongoing maintenance work down the road but to the urgency of the climate emergency. Messages such as “Climate change at work” flashing in Brooklyn’s Sunset Park, or “No icebergs ahead” looking out over the water from Governor Island, borrowed not only the physical medium of highway signals but also the lexical forms usually associated with “men at work” or “traffic ahead,” successfully bringing the effects of what we tend to ignore into real life, giving them the shape of media we are used to paying attention to, as we are accustomed to reading information on them that can have an immediate impact on our choices.

When design means highlighting and bringing forward the multifaceted issues related to environmental and energy sustainability, we believe language becomes a powerful and transversal medium, capable of spreading awareness messages directed at the most diverse audiences and contexts, whether they are implicit and whispered or pungent and shouted out loud.

2.2. Give Energy a Voice: to Design is to Narrate (Humanizing Language)

Energy, among other issues, has a seemingly trivial problem, but one that is actually crucial in defining our relationship with it: it cannot be seen. Its immaterial nature makes it inevitably elusive, and the impossibility of quantifying it, except through instruments and data of great complexity, makes it distant from the practical experience of everyday life.

The challenge of making energy a *thing* for everyone, in the absence of a *body* to make it visible, requires the effort to *give energy a voice* to make it at least *listenable*.

And with a voice comes a tone to be chosen for it. The choice of the tone of voice to be adopted in design projects that aim to make the energy transition comprehensible and accessible is anything but neutral. Since democratizing the energy discourse requires bringing it closer to people and their lives, it is necessary to find tools capable of overcoming the technical-normative approach commonly adopted in energy communication and instead create new relationships between it and the emotional sphere of those who interface with it. Charts and tables, numbers and physical quantities, however necessary, are not enough: narratives and stories are essential complements to the usual emphasis on technical data, as they help to translate the abstraction of quantitative and qualitative measures into the described impact of a problem on people's real lives and experiences (Norman, 2023).

In this second strategy, where the user of the projects again plays the role of *reader*, language is thus used in the composite form of stories and narratives.

Narrative structures are in fact, as Trocchianesi (2014, p. 11) suggests, “universal forms through which people understand and move through reality. Narrative allows people to interact with the system of cultural conventions in which they live”. Exhibition design, in particular, with its dynamics and tools of spatial storytelling, is seen here as a potential translator capable of transforming the content it conveys into hypertextual and spatial narratives.

The exhibition that dotdotdot designed for Enel Green Power in 2019 can be seen as an example of this narrative approach. Set in a hydroelectric plant in Trezzo sull'Adda (Milan), the exhibition is divided into four stations exploring different energy production and consumption aspects. In the designers' own words, it proposes "an informative story and an emotional and entertaining journey, characterized by comprehensible language and playful but educational activities" (Pignoloni, 2021). In particular, at one of the four interactive stations, visitors listen to the introductions - tailored to the different audiences - of five digital characters embodying the five sources of renewable energy: Idro, Mariasole, Gaia, Marina, and Levante. This narrative device, activated by the tour operators using screens that respond to speech recognition, creates an immediate sense of familiarity in the audience, who get to know the *good* energy sources as if they were meeting a new friend.

If it is true that "stories make us human," as Johnathan Gottschall reminds us in the subtitle of his *Storytelling Animal* (2012), then if *to design* means *to narrate*, language becomes the evolutionary trigger to humanize cold and intangible concepts, to bring them back to a recognizable level towards which it is possible to empathize through narrative devices that allow each "reader" to

rethink their own experiences and actions, reconstruct their meaning and highlight their possible developmental prospects, bringing to light the intentions, motivations, ethical and value options implicit in them, inscribing them in a network of culturally shared meanings. (Striano 2008, p. 17)

2.3. Make Room for Dialogue: to Design is to Involve (Connective Language)

Moving on to the second approach constituting the interpretive reading proposed in this article, the role of users shifts and takes on a more active form, seeing them as *writers* co-authoring the plot of experiences in which language changes shape to suit that of its recipient.

The first strategy in this frame interprets language as a connective tool and sees design engaged in the mission of *making space for dialogue* around energy issues.

Thus, Language is implicated in one of its most dynamic and democratic forms: dialogue. Indeed, every language user, including young children and illiterate adults, “can hold a conversation, whereas reading, writing, preparing speeches and even listening to speeches are far from universal skills” (Pickering & Garrod, 2004).

Unlike monologue, dialogue is also inherently interactive and contextualized: in conversation, each interlocutor is asked to both speak and understand (Coates, 1990); each interlocutor interrupts and is interrupted and creates – more or less consciously – balances between words and silences, constructing together with the other the direction of reasoning one exchange at a time. Conversation – turn-by-turn natural language communication – is one of the most common activities humans engage (Hurst et al., 2023), and its potential should not be underestimated. Indeed, recent studies have focused on the educational potential of conversation, finding that it enables learning and the exchange of beliefs and ideas (Huang et al., 2017). Furthermore, Hurst and colleagues (2023) investigated how conversation can influence sustainable behavior, gathering evidence of its effectiveness in

influencing knowledge and policy preferences (Brewer et al., 2019; Eveland, 2004), climate beliefs (Goldberg et al., 2019), and self-reported energy use behaviors (Sintov et al., 2019), as well as stimulating meaningful information processing.

These premises were the basis for the design of *Walk the Talk*, a human-scale board game created by Italo Rota and Carlo Ratti Associati for Milan Design Week 2023. Conceived in collaboration with the game design collective Blob Factory Gaming Studio as a giant game of goose composed of colored energy-harvesting tiles, the installation invites players to reflect collectively on sustainable urban mobility. The icons on the tiles represent obstacles or solutions to the challenge of navigating the city, encouraging participants to engage in dialogue to find sustainable solutions to problems such as traffic or lack of pedestrian areas. The playful and performative nature of design is central to *Walk the Talk*: step by step and intersection by intersection, the path within the garden is defined by the choices of the players, who are thus engaged in a collective conversation and shared challenge towards a new way of interpreting mobility in the urban space.

In Lewis's words (1969), dialogue is a game of cooperation in which both participants "win" if they both understand the dialogue, and neither "wins" if one or both do not. Suppose design equals involvement in the energy discourse. In that case, creating connections between people (and between people and their habitats) based on mutual understanding becomes a central node in weaving new relationships made of real meaning, shared values, and responsible actions of mutual care.

2.4. Make Sense of Words: to Design is to Redefine (Humanizing Language)

The final methodological-practical strategy proposed here focuses on language as an enabling tool.

The ultimate success of human contacts and relationships, as Tomas Zygmund (2016) reminds us, requires a mutually agreed upon and used tool of communication, and thus language, being the primary communicative tool with which we are endowed and thus presenting itself as the primary means of relating to others and the world, must be composed of formulas and structures that are shared by as many people as possible to be effective in its task of enabling relationships.

This does not always happen when talking about energy: on the contrary, the use of technical terms and the reference to specialized concepts, together with the many individual interests that interfere in such communication, often and quickly end up making it exclusive, difficult to understand, and therefore overwhelming. However, the creation of an *energy culture*, which would effectively bring it closer to people's lives, must necessarily pass through language since the *simple* use of a conscious language is capable of directing users towards culture and turning them into culture consumers by making them direct participants in culture, with a stake in its creation (Hopfinger, 1985).

It, therefore, seems necessary to redefine a common language to talk about energy, one that can truly function as a shared tool for understanding-decision-action, and it therefore seems inevitable that it is the users themselves who should create and shape this language and the ideas it would carry.

In short, participation stands as a necessary condition for the drafting of a new shared *energetic lexicon*. Thus participatory

design, with its potential to create open spaces where traditional power structures are suspended, appears as a potentially strategic tool to ensure that everyone's voice is heard in the drafting process and that different views of knowledge do not become mutually exclusive (Robert & Macdonald, 2017).

As evidence of this last strategy, we present the case of a workshop that took place during Milan Design Week 2023 and involved academic researchers, 60 children, their teachers, and families in the co-writing of a “child-friendly energy vocabulary.” The workshop, titled *Words&Works* (Fig. 2 & 3), was part of the DE-Sign research project promoted by ENEA in collaboration with Politecnico di Milano, Università degli Studi di Milano, and Università Iuav di Venezia, and brought together different generations of citizens in the search for new words to talk about energy together, at home, at school, and in the city. To create this new vocabulary, each child was assigned a letter of the alphabet and asked to think of all the energy-related words they could find starting with that letter, write them down, and illustrate them with a drawing before explaining them to the rest of the group.

The approximately 200 words, collected in a large book assembled at the end of the workshop, showed on the one hand – with terms such as Hydrogen, Photovoltaic, KiloWatt – an already deep knowledge of the topic, given the young age of the participants (primary school children); on the other hand, words such as Community, Care, Support and Balance showed how the children see energy concepts linked to a dimension that is not only technological but also human, where the sense of collective responsibility and individual commitment is vital.



Figure 2. *Words&Works*, the young participants of the co-design workshop for a child-friendly energy vocabulary, 2023. (Credits: authors).



Figure 3. *Words&Works*, the moment of the collective writing of the child-friendly energy vocabulary, 2023. (Credits: authors).

By making their voices heard, the children constructed an inclusive terminology. This new vocabulary became a shared asset for work, exchange, reflection, and sedimentation in everyday school and family life.

When making sense of the words we use to describe and understand, energy becomes the object of our action, then *to design* begins to mean *to redefine*. To help connect signs and ideas and to create definitions for the latter that are appropriate to the social group to which they belong; to help grasp the meanings beyond the terms that people use every day – or always hear but never fully understand – by linking them to images and notions that are familiar to those same people; to amplify the resonance of communications about energy, enabling an ever wider audience to hear and evaluate them critically; and finally to help create a common ground for communities to move on, made up of a set of collective principles and a shared way of talking about them.

3. Shaping Possible Worlds with the Stories We Tell

At a time in history so profoundly marked by what Wendell Berry calls the “failure of imagination,” when most people live “sheltered from sources toward which they feel no gratitude and exercise no responsibility” (2001, pp. 37-38), working to promote a culture of sustainability means spreading tools and values that foster reconnection.

The disconnection between humans and nature, and the resulting utilitarian and morally detached approach to the resources it offers us, is indeed at the heart of the ongoing environmental crisis (Zylstra et al., 2014, p. 119).

The capacity of art and design disciplines to generate culture, values and shared meanings can act in this sense as a good conductor of collective responsibility. As we have seen, designing a new language for energy transition can be a strategic lever to activate the change we all hope for. The proposed *grammatical* framework is intended to serve as an interpretative outline for potential further work in this direction, for the research and design of processes, visions, and individual and collective endeavors that will activate new perceptions around energy sustainability, greater awareness and, above all, solid changes in behavior. Indeed, changing the way we talk about reality not only changes our inclination towards it but has the power to change reality itself, or rather the future of reality, as Betti Marenko (2023) explains: “Futures can be crafted through the stories we tell, and these stories make and unmake our possible world.”

In conclusion, when it *gives energy exposure*, to design is *to highlight* the importance of energy sustainability and the issues related to it, and this mission implies the use of an awareness-raising language; when it *gives energy a voice*, to design means *to narrate* stories in which energy becomes a relatable and approachable character, through a humanizing language.

At the other end of the framework, when design *makes room for dialogue*, it sees its scope to be *to involve* new audiences in the debate around energy through a connective language able to create new relations between them; and when finally it helps *making sense of words*, to design comes to mean *to redefine*, seeing language as an enabling tool, capable - when shared - of making reality adjustable and negotiable.

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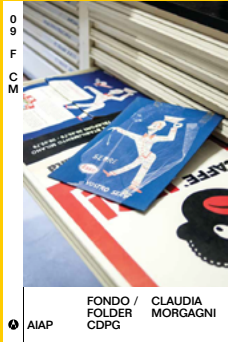
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PAD. Pages on Arts and Design

International, peer-reviewed,
open access journal
ISSN 1972-7887

#26, Vol. 17, June 2024

www.padjournal.net



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