



Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

Original research article

Energy ethics, homogenization, and hegemony: A reflection on the traditional energy paradigm

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ARTICLE INFO

Keywords:

Energy ethics
Philosophy of energy
Energy humanities
Anthropology of energy

ABSTRACT

This article grapples with the meanings of the notion ‘energy ethics’ by looking at the emergence of what I call the ‘traditional energy paradigm.’ I begin by sketching the distinction between the notions of ‘energy ethics’ and ‘ethics of energy.’ Then, by reflecting on ideas and values implied in the modern Western conceptualization of energy, namely its metaphysical assumptions, I show how this concept is a cultural construct influenced by the natural sciences at the cost of a form of reductionism. Energy has been defined as a property of objects, primarily as the capacity of matter to do work. But this and other similar definitions are strongly dependent on geographical and historical contexts which we often dismiss. These definitions stress only certain measurable, quantifiable, and mechanistic properties of reality. By doing so they implicitly have been promoting instrumental and strongly anthropocentric attitudes toward the use of energy and nature. This traditional energy paradigm has been propagated throughout the world via cultural, socio-economic, and techno-scientific colonization. Different actors have carried out such processes, including multinational companies, educational institutions and international organizations. Meantime, on socio-political levels, this way of understanding energy (and hence natural resources), has found strong allies in neoliberal ideology and free-market capitalism. This homogeneous and colonizing understanding of energy is still prevalent in the energy debate and pervasive in energy policies, preventing different worldviews and more diverse values to be considered. In this article, I argue that the conceptual reduction of energy to what is practically useful, and physically and mathematically measurable hinders more nuanced, complex understandings of what energy might be for different social actors. Energy humanities generally, and energy ethnographies specifically, have a key role in contesting this homogenization, colonization, and hegemony. More diverse perspectives will enrich the energy discourse and hence benefit energy policy.

1. Introduction: philosophical reflections on energy ethics

This essay investigates the notion ‘energy ethics’ by exploring the ethical dimensions of energy through an ethno-anthropological analysis of its conceptualization.¹ I argue that the way ‘energy’ has been conceptualized by the natural sciences amounts to a ‘traditional’ or ‘paradigmatic’ way of thinking, talking and acting about energy, and ultimately towards nature. Conceptions of reality strongly depend on the geographical, historical, and cultural contexts in which they arise. As such any conception is a specific cultural creation that assumes and implies certain ideas and values. Energy is scientifically defined as “the

capacity to do work: that is, to move an object against a resisting force.”² This way of understanding energy I call here the traditional energy paradigm, a construct that started to emerge in 18th century Europe and encapsulates specific characteristics of reality privileging certain values.³

The traditional energy paradigm has influenced the public understanding of energy by emphasizing anthropocentric ideas and instrumental values about nature. Its norms, values, and principles derive from a *scientific*, *quantitative* and *mechanistic* approach that accounts only partially for the complexity of energy as a multi-faceted phenomenon. As such it bears the weight of its initial aim, which was

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¹ Here, by ‘conceptualization’ or sometimes ‘conception’ of energy I mean ideas and values about energy.

² Bob Everett et al. ([1], p.1). This definition of energy “has its origin in Thomson’s mechanistic theory of heat. From this, emerged the definition “energy is the capacity of a body of doing work”. Between this and that common definition of energy, there is a significant difference because in one, a body is the subject of the sentence whereas in the other, energy is. In this latter case, energy must be something real, since non-real things cannot do any work. Thus, the mechanical activity (energy) of a body has become a substance. Thomson, who introduced this concept, could not accept this hypostatizing of energy” in Ricardo Lopes Coelho ([2]: 1373).

³ A formidable critique of the conceptualization of energy as substance with agency can be found in [2].

improving the efficiency of machines. As Vaclav Smil has put it,

Theoretical energy studies reached a satisfactory (though not a perfect) coherence and clarity before the end of the nineteenth century when, after generations of hesitant progress, the great outburst of Western intellectual and inventive activity laid down the firm foundations of modern science and soon afterwards developed many of its more sophisticated concepts. The ground work for these advances began in the seventeenth century, and advanced considerably during the course of the eighteenth, when it was aided by the adoption both of Isaac Newton's (1642–1727) comprehensive view of physics and by engineering experiments, particularly those associated with James Watt's (1736–1819) improvements of steam engines.⁴

Therefore, the Western conceptualization of energy has depended on the scientific control of the forces of nature through mathematical language and the application of the scientific method: a rather homogeneous conception of energy emerged, which has become predominant and has been reigning substantially unchallenged in educational settings and policy-making.

But as philosopher of science Heather Douglas has shown, for instance, the ideal of a value-free science is a myth because the technoscientific apparatus does not operate in a void.⁵ Scientific research often implies, and sometimes inadvertently covers, the existence of specific ideas and values, which might be used to push or limit an economic or socio-political agenda too. In this wake, I suggest that the traditional energy paradigm is a form of reductionism that has aligned with notions typical of Western modern worldview such as: rational domination and efficient control of humans over nature, promises of human emancipation from natural limitations, human exceptionalism, individualism and so forth. As I will show in more detail, this conception thus embeds key characteristics of the industrial, capitalistic, technoscientific enterprise. I maintain that it has been spread to many parts of the world through decades of cultural and economic colonization by Western countries. It has been taught for generations within educational systems worldwide and it has been the prevalent, if not the only, conception to have informed energy policies.⁶

While the traditional energy paradigm accounts for physical phenomena such as heat transfer or electricity, it dismisses other less tangible ones,⁷ leaving out a myriad of phenomena that are not conceivable, quantifiable, or measurable according to the standardized requirements of modern science. The colonization of the traditional energy paradigm has raised issues of social and environmental justice in that its negative effects (e.g. pollution, health risks, or droughts) have been borne mostly by some groups of humans and other beings, namely those locally affected by the consequences of practices such as intensive mining, logging, damming or fracking. Nature has been seen in mechanistic and instrumental ways, and its materials and beings deemed as resources ready to be exploited by humans. Finally, the traditional energy paradigm has become hegemonic: the place where we take most of this energy – nature – is considered 'there for us' as untapped reservoir that humans have the right to exploit for their own sake.

The relevant fact is that when lay people, but especially educators, scholars and policy-makers think, talk and make choices about energy they are also indirectly supporting the traditional energy paradigm, thus reinforcing a Western view of nature that is strongly anthropocentric and sees resources as mere means towards human ends. More

and more often they are also inadvertently subscribing to the tacit 'alliance' between neoliberal political and capitalist economic theory. Moving from the perspective of environmental ethics, I argue that the traditional energy paradigm implies anthropocentric and instrumental ideas and values which have eventually affected not only humans, but countless other species, and possibly ecosystems, raising issues of interspecies, environmental, and climate justice. The origin and power of this predominant understanding of energy need to be unveiled and challenged.

Over the past few years, a new field of intellectual engagement has come forth which can be characterized as energy humanities and sits at the crossroad of humanities and social sciences. A branch of it, energy ethics, is the subject investigated in this article. My aim here is to offer a philosophical reflection on the emergence of a very influential conception of energy. I suggest that a more nuanced notion of energy would improve our understanding of reality generally, and specifically energy studies, education and policy making. I begin by delineating what I consider the essential difference between two notions: 'energy ethics' and 'ethics of energy'. Then, I search for some nuances in the etymologies of the two terms 'energy' and 'ethics' also by retrieving relevant scholarly attempts to engage the two topics. The core of the article is a cultural examination of the Western conceptualization of energy. There I propose a critique of what I define the 'traditional energy paradigm', a cultural construct that needs to be characterized and challenged. Once the traditional energy paradigm has been de-homogenized, de-colonized, and de-hegemonized, then we may proceed to enrich our ideas and values about energy. I suggest that the most constructive strategies to achieve this goal – ensuring that the energy ethics debate remains as open and inclusive as possible – come from the integration of the understandings of the natural sciences with those of energy ethnographies and anthropology as well as with some insights from environmental ethics.

2. The etymologies of 'Energy' and 'Ethics' and a key theoretical distinction

2.1. Etymologies

A brief genealogy of the two terms 'energy' and 'ethics' unveils the nuances of the terms in their historical adoption and evolution. According to the *Comprehensive Etymological Dictionary*, energy derives from Greek *energeia* (ἐνέργεια) 'activity, action, operation,' from *energos* (ἐργος) 'active, working,' from *en* 'at' + *ergon* 'work, that which is wrought [caused]; business; action.'⁸ The first use of the term energy in modern languages dates back to "1590s, [as] 'force of expression,' from Middle French *énergie* (16c.), from Late Latin *energia*."⁹ The *Oxford English Dictionary* reports that energy has been used in the sense "of 'force or vigour of expression' (since 1599), 'exercise of power' (1626), 'ability to produce an effect' (1677)."¹⁰ In the context of Western civilization, the term 'energy' was probably first introduced by Aristotle.¹¹ It was later (starting in the 18th century) approached scientifically by European physicists, and reached conceptual maturity only in the 19th century. Vaclav Smil affirms that "no noteworthy intellectual breakthroughs refined these definitions for nearly two subsequent millennia, as even many founders of modern science had very faulty concepts of energy. Eventually, the term became practically

⁸ Derivatives are, for instance, the adjectives *energetic*, and *energetic*; the verb *energize*; and the noun *energizer*. Interestingly, the term *energy crisis* was firstly attested in 1970. See, Ernest Klein (1951), p. 521.

⁹ http://www.etymonline.com/index.php?term=energy&allowed_in_frame=0. Retrieved on Feb 25, 2017.

¹⁰ Oxford Dictionary.

¹¹ It might be useful to point out that, for Aristotle, understanding energy was inseparable from understanding motion. In this sense, his concepts of potentiality (*dynamis*) and actuality (*energeia*) are interwoven, as well as related to those of *form* and *matter*.

⁴ Vaclav Smil [3].

⁵ Heather E. Douglas [4].

⁶ Similar definitions and the overall traditional energy paradigm is used in common textbooks on physics, chemistry and biology as well taken for granted in policy making when it comes, for instance, to the management of 'resources.'

⁷ For example, some people talk about the energy that can be found in human to human relationships, between humans and other animals, between humans and the earth, in social rituals, or in practices such as hiking or listening to a song.

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