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Energy ethics: a decision making perspective

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Özet

Energy is one of the critical issues of contemporary industrial, economic, political, and cultural affairs. The use of energy resources and their transfers is strictly shaped by developing the growth strategies of both the public and private sectors. However, the ethical background, which shapes our intimate relations with this universe and its things, is not adequately considered. Most literature on energy research addresses neither how the moral grounds of energy decisions work nor the energy decision-making processes giving rise to ethical problems. For this reason, this research aims to analyze and understand the relationship between deontological and utilitarian theories of ethics and their applications in the decision-making processes of the energy field in a methodological way in which a developed method of ethical decision-making process correspondences to the debatable issues of the energy field. Our focus is beyond ecological sustainability, concentrating on human beings' social/political existence and the effects of decisions with respect to deontological and utilitarian ethics in energy debates. The fairness of decisions is ascertained through a careful focus on how they are publicly communicated.

Keywords: Energy, Ethics, Decision-Making, Deontology, Utilitarianism

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Abstract

Enerji; günümüz endüstriyel, ekonomik, politik ve kültürel ilişkilerinin en önemli konularından biridir. Enerji kaynaklarının kullanımı ve bunların transferleri, hem kamu hem de özel sektörün büyüme stratejilerinin gelişmesiyle sıkı sıkıya bağlıdır. Ancak, yaşadığımız evrenle ve içindekilerle yakın ilişkilerimizi şekillendiren etik arka plan, sektör pratiklerinde yeterince göz önünde bulundurulmamaktadır. Mevcut literatür, enerji meselelerinin etik arka planlarının nasıl değerlendirilmesi gerektiğine ve dahası, enerji kararlarının etik sorunlar ortaya çıkardığı karar alma süreçlerini yeterince ele almamaktadır. Bu sebeple, bu araştırma; etik karar alma süreçlerinin, metodolojik bir izlek takip edilerek, deontolojik ve faydacı etik kuramlar ile bunların enerji alanındaki uygulamalarını analiz etmeye ve anlamaya çalışmaktadır. Çalışma kapsamında, ekolojik bir sürdürülebilirlik tartışmasının ötesinde, insanın sosyal/politik varlığına ve enerji alanındaki karar alma süreçlerinin deontolojik ve faydacı etik kapsamında ne şekilde ele alınabileceğine odaklanılmıştır. Kararların adaleti, kamuya nasıl iletildiğine odaklanılarak belirlenir.

Anahtar Kelimeler: Enerji, Etik, Karar-Alma, Deontoloji, Faydacılık

1. Introduction

Undoubtedly, energy is the most vital element of both industrial and economic development. All countries are looking for better ways to harness energy resources for future development projections. The relationship between energy use and economic output is more complicated than reflected in orthodox economic growth models that treat energy as a secondary input in the production process (Stern, 2004). While traditional models consider capital and labor as primary inputs, empirical findings reveal that energy may be a more critical input than labor in explaining forecast error variance of growth in manufacturing value-added (Soytaş & Sarı, 2007). For this reason, the concept of energy and related decision processes should be investigated more deeply by integrating different perspectives.

Electricity is usually considered a commodity, not a human right, whose production and use involve decisions about producing, transmitting, distributing, and consuming energy. Natural resources such as oil, coal, natural gas, and uranium are used globally to generate electricity, yet they have significant environmental impacts. However, since energy security is a crucial concern for economic development, many countries use unclean energy resources. The distribution stage manifests problems such as availability and affordability with implications regarding the stratification of consumers in various social classes. Additionally, people in underdeveloped countries do not have access to clean energy, which directly contributes to infant mortality and respiratory health problems. The distribution of energy is full of unfairness and inequalities. Hence, the critical importance of ethics in energy decisions is evident. Fair choices will enable the acceptance of energy-related policies by the public. Different economic and political perspectives affect energy decisions. The liberalization movements after the 1980s have created new policies in public administration, such as privatization, that shifted energy decisions to the private domain. In addition, the complexity of energy issues originates more due to the diversity of disciplines embedded in decision processes than different scales of operation (local, regional, national, and international) or the variety of stakeholders involved.

This paper aims to embed ethics principles in energy decisions, highlighting how integrating two disciplines can contribute to fair and equitable outcomes. An analysis of energy decisions from an ethical perspective containing a formulation of the connections between utilitarian and deontological theories and their applications in decision-making processes in the context of energy debates is presented. Discussion of this relationship is particularly essential, as the literature of energy scholarship has missed the ethical dimension. Energy is an issue that affects humans and our environment, and all aspects of social and political life in the global economy today and in the future. That is why, as Sovacool (2013) argued, the energy debate could not be a topic of mere practitioners in the area but that of philosophers and social scientists so that a meaningful understanding of our very existence in this universe can be developed.

2. Energy Case in Turkish Context

In Turkey, the electricity market was launched in 2001 with a free-market framework. The introduction of a wholesale market was initiated in 2006. Later, electricity distribution activities were unbundled from retail activities, and Turkey was divided into 21 regional distribution regions. Coupled with the market transition, a transition away from fossil fuels is also occurring. Turkey is an import-dependent country in terms of energy. The economy is vulnerable to global shocks to oil and natural gas prices. Furthermore, there are pledges made by the Turkish government in international climate agreements. The Intended Nationally Determined Contribution (INDC) (UNFCCC, 2016) of the country involves a 21% reduction target in greenhouse emissions (GHG), 10 gigawatts (GW) solar and 16 GW wind power installed capacity, and hydropower capacity of 36 GW by 2030 (Kat et al., 2018).

According to Energy Market Regulatory Authority 2007 report (EMRA, 2017), the most significant increase in electricity generation is observed in solar (38.8%), followed by geothermal (29.6%). This looks promising; however, 2017 shares of alternative energy sources portray a cautionary picture. In 2017, approximately 33% of the electricity generation was coal and 32.3% from natural gas. Turkey has low-quality coal reserves and limited natural gas reserves. Imports from Russia and Iran primarily meet the natural gas demand. The electricity market is not the only concern. Transportation is also a very energy-intensive sector that relies heavily on imported oil. Therefore, although there is a transition towards renewable energy sources, another main policy target in Turkey is to reduce dependence on imported energy. Given this summary of the energy sector structure and key policy targets, it is seen that economic concerns mainly drive the energy policymaking process. Pure economic outcomes used as a basis for decision-making will not be a surprise given the traditional measures of economic growth. For example, real GDP is a misleading measure of national wellbeing. It must be replaced by metrics that consider other factors (i.e., environmental and social concerns) into account (Costanza et al., 2014).

Political concerns also seem to play a vital role in energy decisions. The new agreement between Turkey and Russia to construct a nuclear energy power plant in Mersin could be one example. It raised concerns regarding economic viability as well as potential adverse environmental impacts. Karaveli et al. (2015) compare the economic feasibility and environmental effects of the Mersin nuclear power project and a solar energy power plant project in mid-south Anatolia (Karapınar) with the same installed generation capacity of 4800 MW. Both projects have advantages and disadvantages, but the nuclear power plant payback depends on the unit electricity price, whereas the PV power plant does not. Furthermore, the environmental performance and payback time of the photovoltaic (PV) power plant is also better. Hence, economic concerns by themselves cannot justify this decision. Other dimensions must also be explored.

Another aspect of energy policymaking is social concerns. A recent study by Ediger et al. (2018) found that 49.6% of respondents of a structured survey (covering 1204 registered voters in 16 different cities) totally disagree with installing a nuclear power plant in their neighborhood, as opposed to 26.6% in total agreement. The agreement share is 86.2% for solar power plants. The same study shows that the nuclear power plant opinions correlate significantly with political preferences. Renewables are supported by 73% even if economic costs exceed fossil fuels. This suggests that other concerns (i.e., environmental concerns, personal or social norms, etc.) can overweigh economic concerns from public opinion. There is likely to be a divide between public opinion and government policy in many similar energy decisions. A lack of knowledge and experience may drive public opinion regarding alternative energy sources. Involving the public in the decision processes and providing accurate information can improve trust for authorities and lead to higher social acceptance of energy projects (Kânoğlu & Soytaş, 2018). In other words, concepts such as transparency and stakeholder involvement are essential antecedent factors for acceptability.

Another example is the natural gas market. There are two types of end-users in the natural gas distribution system in Turkey. Those who use smart metering and cards to purchase and manually load natural gas usage right on the device. Smart metering allows the distributors to reflect natural gas price changes to the consumers immediately. A quota is imposed on the cards to prevent consumers from stocking natural gas use rights during low price periods (i.e., summer months). This quota is updated in case of extreme weather conditions to allow consumers to meet their heating needs. Again, the quota imposed inherently creates a potential distributional justice problem. All residential consumers, regardless of home size or family size, are allocated the same quota. This conflict is likely to escalate when quota updates are lagged. A final example where ethics is expected to play a crucial role is in the transition to clean energy. If the country moves away from fossil fuels as a significant source of electricity generation, a key issue will be to re-train and re-employ people working in local coal mines and coal-powered plants. This issue has both economic, political, and ethical dimensions.

As mentioned above, production, distribution, transmission, and energy use include responsibilities and fragmented decisions. Some are government decisions, while others are private sector or even individual decisions. Ethical decision-making (applying ethical principles in decision-making) is critical in public and private decisions as a prerequisite for justice, accountability, and transparency. However, under the influence of liberal policies such as privatization and deregulation, management ideology has dominated both sectors restricting attention merely to outcomes such as efficiency, performance, and satisfaction rather than the ethical quality of the means employed. Politically biased preferences distorting the decision-making processes and efficiency-based traditional economics views have speeded up the depletion of natural resources. Therefore, the dissonance between environment and economy caused by sticking to a single discipline requires reconsideration. All decisions and indecisions concerning production, transmission and energy use must integrate ethical evaluation criteria to achieve sustainable wellbeing goals. More specifically, energy decisions concerning our existence as social beings need to incorporate an ecological sense secured by ethical perspectives.

3. Ethics and Energy Decisions

Discussing the relationship between ethics and energy, Sovacool (2013) formulates three critical questions to understand the connections between the theory of justice and ethics where the policy, technology, and security about energy are considered. Firstly, he points whether we are fair in presenting generations proportionate access to the benefits of energy and whether burdens are evenly shared. Secondly, whether we are fair to future generations in leaving a legacy of nuclear waste, the depletion of fossil fuels, and the pollution of the atmosphere and climate. Lastly, he explores the scope and potential of justice and ethics' contributions concerning how energy decisions could be improved (Sovacool 2013:2). Pointing out the importance of these questions, he underlined that the energy problem is not merely an economic issue for politicians, market leaders, or engineers. Still, it certainly subsumes philosophical issues, too. Given these arguments, energy ethics should be studied from a multidisciplinary perspective.

Ethics is the discipline, which studies "systematizing, defending, and recommending concepts of right and wrong behavior" (Fieser, Ethics, para. 1, n.d.). In reference to the analysis of Kitchener (2008), we will employ four subjects of interest in this research. First is descriptive ethics which studies "how people behave and what ethical values they hold." Secondly, normative ethics is concerned with questions: "how should an individual behave; what properties are valuable or good?". The energy ethics discussion in this paper will follow two paths: descriptive ethics studying actual practices and normative ethics interested in *what ought to be*. Thirdly, meta-ethics questions on "the meaning of ethical terms, the logic of justifying moral decisions, and the reality of moral properties, and so forth," and finally applied ethics "using principles and insights from normative ethics to resolve specific moral issues in concrete and particular settings (e.g., medical ethics, business ethics)" (Kitchener, 2000). According to this categorization, energy ethics is a form of applied ethics where energy practices and the underlying theories and policies are dealt with. However, although environmental ethics may be viewed as another applied ethics area such as business ethics and bio-medical ethics, energy ethics is an incipient field still in progress.

Studies on normative ethics generated three basic types of theories. Utilitarianism is a consequentialist ethical theory that focuses on outcomes in making decisions or policies and was developed by J. Bentham (1789) in the 18th century. The burden rests on the decision-maker to calculate the effect of each alternative in a decision on the parties concerned. Ultimately, optimization through the maximization of pleasures is sought. The hedonistic approach was later revised by J. S. Mill (1863), who attracted attention to quality instead of quantity of pleasures. The approach is criticized on two grounds; (1) it does not consider minorities, (2) it does not question the morality of means employed to maximize consequences. In business decisions, utilitarianism is practiced by tools such as cost-benefit analysis, statistical analysis of outcomes, or marginal utility of consequences for a larger number of stakeholders as the basis of actions or policies.

The normative theory of rights emphasizes the entitlements of individuals. Hobbes developed this approach (1651) and Locke (1690) in the 17th century, which asserted that certain rights need to be considered in decision-making. The fundamental human rights referred to were the right to free consent, right to privacy, right to freedom of conscience, right to free speech, right to due process. Yet, this approach was criticized for leading to individualistic and selfish behaviors. Theories of justice suggest consideration of equity, fairness, and impartiality in decision-making. They primarily rest on distributive, procedural, and compensatory norms of justice. This approach focuses on the fair distribution of resources while protecting the interests of underrepresented groups in the community. The major criticism is that justice theories may be at odds with individual rights while accommodating justice for all. On the other hand, deontology claims that the rightness and wrongness of an action cannot be dependent on its consequences; instead, every action assumes universal moral rules - a view comprising the theoretical background of this paper. They believe that everything subject-of-a-life has an intrinsic value, and universal laws of morality work for them. Moreover, *biocentrism,* an example of deontological ethics, claims that "each individual living thing in nature- whether it is an animal, a plant, or a micro-organism- is a *teleological- center-of-life* having a good or well-being of its own which can be enhanced or damaged, and that all individuals

who are teleological-centers-of life have equal intrinsic value (or what he calls "inherent worth") which entitles them to moral respect" (Brennan & Yeuk-Sze, 2016: para.45).

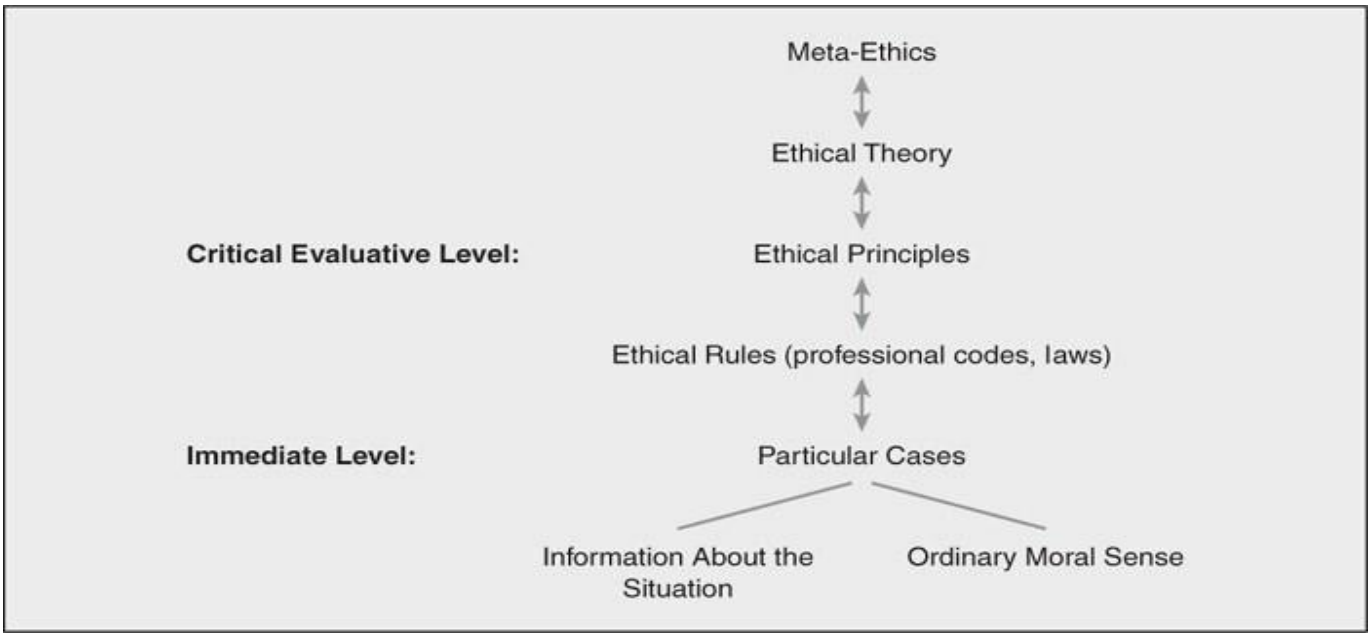
Although energy research had attracted the attention of social scientists starting from the last decade (Sovacool, 2014), previous research in the field had been designed and conducted from an economics or econometrics perspective employing quantitative tools and techniques. This is rooted in the evolution of economics as a discipline marked by incorporating an engineering approach to economics. The so-called positive economics focused on efficiency and rational behavior at the expense of weakening normative analysis. Economic decisions ignore the complexity of behavioral and ethical considerations by taking human behavior as a rational and predictable phenomenon. The dominance of a positivist approach, where attention was on efficiency and rationality, created difficulties explaining actual behavior. The gap between economics and ethics widened, neglecting the central issue of "how should one live?" (Sen, 1987). The culture of maximizing self-interest imposed by the economic view is embedded in decision-making styles that lead to inattention to other ethical aspects in decision-making. Before the global liberalization movement of the 1980s, energy-related decisions used to be taken by the public sector. However, liberalization of economic policies encouraged privatization and public-private partnerships (PPP), casting a significant role to the private sector in making social policy decisions. In the public sector, fair and ethical decisions are taken for granted as the public sector by nature is assumed to represent primarily public interests. Penetration of business values in public sector practice that emphasizes efficiency and profitability was justified as a response to inefficiency-related criticisms of the public sector. However, the resultant outcome was a trade-off between justice and efficiency. The primary concern became the minimization of costs in decisions putting rights, duties, and justice into a secondary position. Acknowledging significant policy changes and reconsideration of the decision-making processes concerning the distribution of critical goods such as energy, therefore, become inevitable to maintain fair outcomes.

Energy decisions are critical for a country's economy, influenced by structural, cultural, and individual factors. The manifestations of the above-described approaches observed in many societies after the 1980s can be traced to utilitarian thinking. Energy issues started to be managed with a business case perspective, which dominated business decisions and penetrated in policymaking with liberal policies. Utilitarianism, with its interpretation of ethics, has contributed to the well-being of societies. However, "the outcome that generates the greatest good overall may be different from the outcome whose distribution of goodness comes closest to being just or fair" (Savulescu et al., 2020:621). Utilitarianism has been particularly central to business decisions, and such research has led to the negligence of rights and justice in business life. On the other hand, research findings explaining decision-making based on the moral development theory of Kohlberg (1977) revealed that managers mostly fall into the conventional stage of moral reasoning where peer and legal compliance is the dominant norm referred to (Aşcıgil, 2001; Logsdon & Yuthas, 1997). However, ethics requires thinking beyond laws rather than compliance with laws at a minimum. The reluctance to draw upon principled decision-making recognizing universal norms and social contract is evident in energy decisions and related research (Sovacool, 2014). Such fallacies can be avoided by employing methodological pluralism, where ethics theory will compass energy decisions.

4. An Ethical Decision-Making Model

Ethical decision-making is a complex process made up of interrelated elements. A detailed analysis of the decision framework of ethical decision-making, which can be applied to energy policies, is suggested, based on Kitchener's ethical decision-making model in this paper (Kitchener, 1984). Merging ethics into the decision framework will simultaneously help understand how ethical problems surface in the energy area. Based on this model, we will compare and contrast energy decisions concerning ethical theories such as utilitarianism and deontology in a concrete methodological way.

Figure 1: *Kitchener's fivel-level model of ethical decision making*



According to this model, the ethical decision-making process comprises two main parts: immediate level and critical evaluative level of reflections. At the immediate level, we can see particular cases and ethical rules as subcategories of that level. Particular cases refer to our ordinary moral sense and general information about the situation at hand. These cases are based on our pre-reflective ideas, which we derive from the totality of our experiences throughout our lives. Similarly, Hare (1981) describes the first step as the intuitive level of moral reasoning. Kitchener (1984) describes this stage as the immediate, pre-reflective response to an ethical dilemma, which is shaped by the set of knowledge, beliefs, and assumptions that individuals carry with them. Although the first step is the necessary starting point in ethical decision-making, Kitchener (1984: 45) further argues that this is not enough for reaching a moral judgment. The model for ethical justification proposes a critical–evaluative level of moral reasoning that is essential to guide, refine and evaluate initially flourishing intuitive moral judgment. The decision-maker pursues the three tiers up to the more general and abstract forms of justification. The process of refining reasoning involves respective consideration of each level by moving on to the next if the first form of justification fails. On the other hand, ethical rules are commonly accepted by the community temporarily, and they have a basis for moral principles. An immediate level of ethical reflection will be skipped due to the physical limits of this paper, for a much-detailed discussion of the critical evaluative level that has the potential to bring a radical change and is more directly related to the focus of this paper.

4.1 Energy Justice and Critical Evaluative Level of Decision-Making

Kitchener's model encourages decision-makers to consider ethical principles such as autonomy, non-maleficence, beneficence, fidelity, and justice (Kitchener, 1984). Autonomy means freedom of action and freedom of choice so long as they do not infringe on another person's right to choose or act. Non-maleficence is understood as not doing intentional harm or avoiding participating in a behavior with a risk of harm. Beneficence is doing good; many

public or private decision-makers in the energy field have a clear obligation to act for the benefit of the public. Fidelity suggests faithfulness, promise-keeping, and loyalty. Justice means fairness, sometimes being fair means treating people equally, whereas sometimes it may be interpreted as treating people differently because of their individual needs. When two or more people enter into a voluntary relationship, ethical promise and trustworthiness are implied (Kitchener, 1984). Among the ethical principles Kitchener underlined above, only the justice perspective will focus on analyses in this paper, leaving others to future researchers.

Pointing to the need for employing a more human-centered research methodology, Sovacool (2014) emphasizes the importance of enriching topics in energy research. Energy is a common good, and commitment to justice is the only truth to serve common interest (Rawls, 1971). Beyond the physical transmission of energy resources, there lies a transfer of rights influenced by the choices of decision-makers. Central to Sovacool's claims, Justice Justice is related to "how to distribute goods and services in the human community" (Sovacool, 2013:15). However, justice is one of the most controversial concepts that occasionally deteriorated due to conflict of interest. In their energy ethics research, Sovacool and Dvorking (2015) underline the importance of informational and distributive justice. Without being informed, meaningful participation is improbable. Without distributive justice, they argue, individuals lose their right to realize their full capacities. Assigning seemingly technical decisions a moral dimension in his research, Sovacool identifies both protection of the natural environment and minimizing energy-related environmental threats as one of the primary responsibilities of decision-makers (Sovacool, 2013:12).

In establishing justice in energy decisions, several key issues need to be underlined. Firstly, energy justice indicates a more inclusive decision-making process for energy services whereby everyone is assured of a fairer sharing state. Moreover, it sets a framework whereby potentially unjust conditions are identified and eliminated (Simcock, 2016; Jenkins et al., 2016; Sovacool & Dworkin, 2015) using three tenets of energy justice. *Distributive justice* is about fairness in access to and distribution of energy sources. In contrast, *procedural justice* is about whether decisions on energy resources aim to accomplish social goals and whether decision-makers are free from bias. Finally, *informational justice* is about whether decision-makers and citizens are provided with accurate information that enables genuine consent and participation. Those tenets show that decision-making is highly universal and tap into ethically essential components of the energy field. The decision-makers need to ensure ethical decision-making processes where justice is interpreted beyond an instrumental perspective. This implies that philosophy and ethical theories are essential ingredients of decision-making in this field, complementing policies and practices shaping today and the future.

The historical roots of environmental ethics are based on discussions "about whether values in nature are anthropocentric (human-centered) or ecocentric (nonhuman-centered)" (Kopnina et al., 2018). The anthropocentric approach led to the overexploitation of nature. Parallel to this view, there have been many warnings concerning overgrowth and overexploitation that are against the duty of caring for our planet. Aldo Leopold, who contributed to the growth of environmental ethics as a discipline in the early twentieth century, claimed that "…that land is a community is the basic concept of ecology, but that land is to be loved and respected as an extension of ethics" (Leopold, 1949: vii-ix). Leopold pioneered drafting the concept of land ethics, which was later developed by Routley (1980). Rejecting the anthropocentric perspective where human beings are the most important entity in-universe, Routley (1980) claimed that mainstream moral attitudes of western tradition are incapable of recognizing that all-natural things have intrinsic value and the prevalent tradition itself needs regeneration. The rise of utilitarianism in parallel to the development of industrial practices legitimized monetary valuation of all aspects of the environment, whose real impact was to be observed in later stages. The rational decision-making framework using cost-benefit analysis assumed the commensurability of choices. This assumption gave rise to making choices among options that essentially can not be expressed in monetary choices. End-value-based approaches commonly assume that cost-benefit analysis brings in all inputs in decision-making. However, we are making choices of incommensurable options, despite the view that the environment has an intrinsic value independent of the valuation human beings assign to it (Piccolo, 2017).

5. Meta-Analysis

As stated above, eta-ethics considers the origins and justification of ethics itself. "It is the attempt to understand the metaphysical, epistemological, semantic, and psychological presuppositions and commitments of moral thought, talk, and practice" (Sayre-McCord, 2014: para.1). This supports the view that acquiring energy sources from the ecosystem and using energy in an industrial approach are related to the same moral background. Theories and concepts and the practices related to energy affect each other strongly in the same way that social and biological existence in our world is bound to each other. We have seen that energy ethics is a large area of study, and classical dichotomies between science vs. philosophy, morality vs. social policy, and technology vs. ethical behavior must be regenerated. The examples of this regeneration must be reflected in changes in decision-making methodology.

The principles suggested by Kitchener, such as autonomy, justice, not harming others, responsibility to contribute to the welfare of others, honoring commitments, are significant in shaping decisions. However, while reflecting on decisions taken in the light of ethical theories at the meta-analysis stage, it should be acknowledged that the principles referred to may be assigned different priorities depending on value systems. Kitchener (1984) stated that non-maleficence is given priority among other obligations by many ethicists. On the other hand, avoiding harming others is a passive approach that needs to be corroborated by different principles. In energy decisions, the interests of all stakeholders need to be considered in decision-making. In addition to stakeholder collaboration, self-awareness of decision-makers about their values and a careful analysis of the context are also essential.

6. Conclusion

The domain of energy decisions is social, combining ecological, economic, political, and cultural dimensions. The interface of these dimensions posits well-crafted decision processes reaching perfection with a particular focus on ethics. As a result, the decision-making process needs a redesign involving current and future stakeholders' interests. To the extent that energy decisions meet human, non-human, present, and future generations' rights and expectations, they may be publicly justified as socially and morally responsible decisions. The broader interpretations of stakeholder and governance theories in making energy decisions may serve Kant's idea of treating human beings with respect and never as means only (Kant, 1785/1996, 4:429). We may cite revising environment impact assessments with a deeper focus on stakeholder management and ethics among the practical implications. Those assessments are generally not seriously carried out and not given the importance it deserves. Moreover, the regulations on restoration obligations, waste clean-up obligations need to be developed and applied systematically. Energy policymakers need to acquire awareness on energy justice issues, use ethical decision-making as a decision support tool. Integration of ethics may be by way of training decision-makers on ethics. Moreover, changing the composition of the decision-making boards and having ethics experts as members at the energy planning and regulation boards may be more effective. In this respect, the cooperation between academia and policymakers will enhance opportunities for better governance systems. These arguments imply that moral sensitivity is a prerequisite for ethical decisions (Rest, 1984). When energy decisions are made based on consequences, a delay in recognition of moral issues arises. Immediate choices refer to the ordinary moral sense of right and wrong, which Kitchener (1984) refers to as the pre-reflexive model. Such decision-making involves intuitive, automatic, and pre-reflexive responses based on the knowledge and experiences of decision-makers. Reflexive decisions may be advantageous due to efficiency in the use of time. Cost-benefit analysis provides such efficiency as it is based on justifications backed by financial evaluations rather than moral sensitivity. However, it creates conditions where moral aspects are hindered and surface at a time which is too late to correct. Therefore, complex decisions such as that of the energy field require much more indebt enlightened analysis.

To sum up, energy practices and policies, including academic research in the field, have a significant place for designing the future of societies. Societal approval depends on the prerequisite that these policies are perceived as just. The duty to serve the interests of all stakeholders requires maintaining decisions' legitimacy through critical moral thinking. The fairness of decisions is subsequently ascertained through a careful focus on how they are publicly communicated. Communication of risks as a prerequisite of transparency will engender trust and confidence towards decision-makers. Public engagement will further breed perceptions of autonomy and help to understand the ecological background of our being in a more meaningful way.

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