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To cite this article: Doris Fuchs, Julia Steinberger, Elke Pirgmaier, William Lamb, Lina Brand-Correa, Giulio Mattioli & Jonathan Cullen (2021) A corridors and power-oriented perspective on energy-service demand and needs satisfaction, Sustainability: Science, Practice and Policy, 17:1, 162-172, DOI: [10.1080/15487733.2021.1912907](https://doi.org/10.1080/15487733.2021.1912907)

To link to this article: <https://doi.org/10.1080/15487733.2021.1912907>



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Published online: 05 Jun 2021.



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A corridors and power-oriented perspective on energy-service demand and needs satisfaction

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ABSTRACT

In this article, we explore the concept of consumption corridors as it might apply to energy use, with specific attention to both wellbeing and power relations. We employ the distinction between energy provisioning and human-need satisfaction to explore different configurations of energy use, as well as their possible dynamics. Specifically, we draw on past research documenting the benefits of decoupling our thinking about energy services and needs satisfaction and use it as a basis to identify scenarios characterized by different degrees of access to energy services and levels of resource demand. We then translate this perspective to the logic of sustainable consumption corridors. We delineate how minimum and maximum consumption standards would relate to combinations of energy-service demand and needs-satisfier access. Finally, we explore how power dynamics, specifically exercises of discursive power, might move societal trajectories toward sustainable combinations of energy provisioning and needs satisfaction or away from them.

ARTICLE HISTORY

Received 27 October 2019
Accepted 31 March 2021



KEYWORDS

Energy services; power; human need; access; sustainable consumption corridors

Introduction

The concept of consumption corridors defines a space in which a good life for all, living now and in the future, is possible within planetary boundaries (Di Giulio and Fuchs 2014; Fuchs 2020). How does energy use relate to this concept? On one hand, we all use energy services to satisfy needs, in terms of subsistence, protection against heat or cold, or participation in society (Brand-Correa and Steinberger 2017). On the other hand, contemporary global energy demand and ensuing carbon emissions are the major cause of climate change (IPCC 2018) and thereby a significant contributor to biodiversity loss, among other problems (IPBES 2019), breaching the biophysical limits of the Earth system and putting the near future of human wellbeing (if not civilization) at risk. If considered from the perspective of energy services, the concept of consumption corridors suggests the need to jointly pursue the objectives of satisfying human needs and reducing demand for energy resources. In other words, staying within consumption corridors requires the low energy-demand satisfaction of human needs.

This article pursues the question of how a reduction of energy demand could be possible while enhancing human wellbeing, drawing on three conceptual lenses. Our basic premise is that the energy required to satisfy human needs can and should be understood, measured, and reduced as a basis for devising guidance for action and policy (Lamb and Steinberger 2017). We therefore choose, as our analytic starting point, a distinction between energy provisioning and need satisfaction. We use this differentiation to inform the discussion on consumption corridors. We find that the minimum consumption level may be best approached from the perspective of access to relevant needs satisfiers, whereas the maximum consumption level is necessary to reduce the totality of energy demand below the biophysical limits of the Earth system. In a next step, we focus on questions of power relations. We inquire into the implications of power asymmetries in society as well as possibilities to change satisfiers and services over time. This exploration enables us to suggest conditions for fostering or hindering climate-change mitigation and eco-social policy agendas and sustainability transitions more broadly.

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This Special Issue is sponsored and supported by the University of Geneva.

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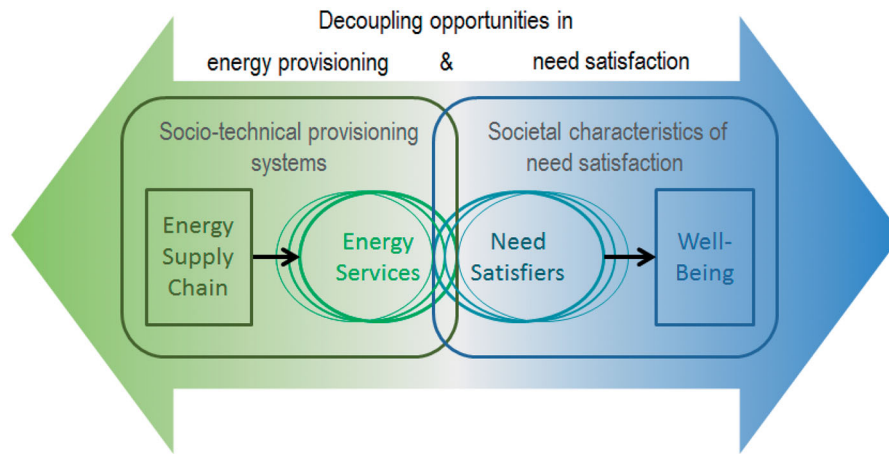


Figure 1. Satisfiers and their relation to energy services (adapted from Brand-Correa and Steinberger 2017).

Analytic framework

We have three analytic starting points for our inquiry. The first starting point is the distinction between energy provisioning and need satisfaction when looking at energy use in the context of sustainability (Brand-Correa and Steinberger 2017, see Figure 1). Energy provisioning, here, encompasses the energy-supply chain and the energy services it generates. It manifests itself in a certain level of energy-service demand. We focus on energy-service demand (e.g., thermal comfort, illumination, mobility) rather than just energy demand (e.g., kilowatt-hours of electricity, cubic meters of gas, or liters of gasoline), because the service level allows for the exploration of efficiency improvement beyond energy-conversion technologies (for instance, instead of looking at improving the performance of a boiler, a service perspective allows consideration of the passive system and thus improvements in building insulation as well (for more details see Cullen, Allwood, and Borgstein 2011; Kalt et al. 2019; Roelich et al. 2015)). Needs satisfaction in the context of energy use connects satisfiers—diverse bundles of energy-service demands—with human wellbeing (see also Day, Walker, and Simcock 2016). These bundles are not viewed as fixed, either in composition of energy services or in the level of service demand. They are different from person to person, community to community, and across time. It is the very nature of human-needs satisfiers that they are geographically, historically, culturally, and technologically diverse and flexible (Doyal and Gough 1991; Max-Neef, Elizalde, and Hopenhayn 1991). Satisfiers constitute the myriad of ways in which basic human needs can be satisfied, in accordance with diverse social and physical arrangements. Indeed, this flexibility and diversity is at the heart of what makes this research analysis both interesting and promising for identifying potential alternative consumption pathways.

Our second starting point is the concept of consumption corridors (Blättel-Mink et al. 2013; Di Giulio and Fuchs 2014; Fuchs 2020). Consumption corridors describe a space for ecologically and socially sustainable consumption located between a minimum consumption level (necessary for individuals to be able to live a good life) and a maximum consumption level (necessary to protect minimum consumption levels for all—living now or in the future) in a world of limited resources. Between these two demarcations is the space in which sustainable consumption can take place and individuals are free to live lives safe from deprivation and dangerous environmental instability (see Figure 2). According to our understanding of consumption corridors, the design and implementation of them would center in societal deliberations about needs that every individual should be able to satisfy and about legitimate satisfiers for the satisfaction of such needs (Fuchs et al. 2021). On that basis, and taking into account planetary boundaries, maximum consumption standards could then be determined.

The third analytical starting point of this article is the concept of power.¹ We concentrate on discursive power which refers to power exercised via norms and ideas (Fuchs 2007, see also Lukes 1974 on the third face of power).² Exercises of discursive power can target different levels of our thinking, from the specifics of political problems and solutions, to ideas about the (political) legitimacy of different actors, or about what is political and what is private and thus within or outside the realm of governmental action, for example (Hajer 1997; Koller 1991). Discursive power has agent-specific as well as structural dimensions. Agent-specific resources, especially financial resources, are extremely important in the era of a dominance of private and social media. Here, money can directly buy advertising space as well as influence reporting and general communication, given the rise in power of marketing departments and interests within media

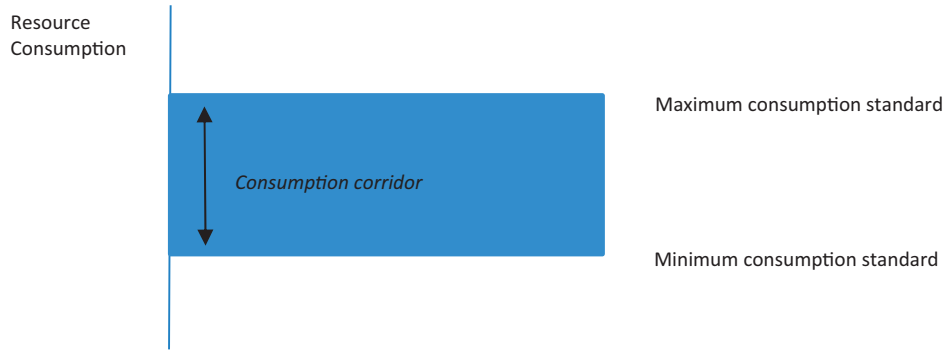


Figure 2. Consumption corridor.

organizations. Similarly, money allows investments in personnel and technology to occupy communicative space on social media. The structural dimension of discursive power results from the crucial role that the legitimacy of ideas, institutions, norms, and values plays for an effective exercise of discursive power by actors (Holzscheiter 2005). Broadly speaking, such an exercise is more likely to be effective if it links up to existing norms and debates (Graf 2016). Actors thus are constrained by the discursive power of dominant ideas and norms in society, but they can also try to shape them strategically. Discursive power is the most pervasive, and at the same time least visible form of power, and accordingly, the most challenging to contest. By shaping ideas, identities, and perceptions of problems and solutions, it intervenes at the earliest point in political contests and oftentimes before actors’ interests are formed.

The subsequent sections combine these three perspectives to elaborate on the potential and barriers for a sustainability transformation in the context of the dynamic interaction between energy-services demand and needs satisfaction, consumption minima and maxima, and the distribution and exercise of power in society.

The sustainability challenge: energy services, satisfiers, corridors, and power

Energy provisioning and need satisfaction

When considering the relationship between energy provisioning as manifested in a certain level of energy-service demand and need-satisfier access, it becomes obvious that their interaction varies greatly. Energy-service demand can range from low to high levels, and need-satisfier access can be highly restricted to a privileged few or broadly spread across society. Accordingly, different scenarios of relating energy-service demand and need-satisfier access can be depicted in four quadrants (Figure 3). Each quadrant highlights a different scenario regarding the relationship between energy-service demand and need-satisfier access (clockwise from left-

		Need satisfier access	
		← Restricting	Expanding →
Energy-service demand	Decreasing ↑	Low satisfier access, low service demand.	High satisfier access, low service demand.
	Increasing ↓	Low satisfier access, high service demand.	High satisfier access, high service demand.

Figure 3. Energy-service demand and need-satisfier access.

hand corner): (1) low service demand, low satisfier access; (2) low service demand, high satisfier access; (3) high service demand, high satisfier access; and (4) high service demand, low satisfier access.

It is important to note that—in contrast to the consumption-corridor figure above—energy-service demand decreases as we move up the vertical axis. Also, the quadrants are “ideal types” which we lay out here for illustrative purposes. In reality, we are dealing with a continuum of possibilities in both dimensions as we explain below.

The illustration of different possible scenarios regarding energy-service demand and needs-satisfier access allows a number of interesting insights as well as the identification of further pertinent questions. The quadrant analysis focuses attention on the inclusivity of processes around energy-service provision and the mechanisms of this provisioning. Moreover, it forcefully poses the question of how we can transition to the top right quadrant—the most sustainable scenario of the four alternatives in terms of ecological impact and social justice. We will return to this question after introducing consumption corridors and power into the picture.

First, however, we illustrate how different combinations of levels of energy-service demand and needs-satisfiers access may play out in practice with two concrete examples: (1) communication and economic security and (2) food provision and adequate nutrition. We have chosen these examples to illustrate the general nuances to which the quadrant analysis can be applied.

Case 1: Communication (as energy service) and economic security (as human need)

Economic security as a human need. Security is a human need included in most catalogues of needs developed by philosophers and social scientists, be it as physical security, bodily security, or the need for survival (Costanza et al. 2007; Di Giulio and Defila 2020; Doyal and Gough 1911; Max-Neef, Elizalde, and Hopenhayn 1991; Nussbaum 1992). Recent conceptualizations of security have highlighted that aspects of environmental, emotional, and cognitive elements need to be considered when talking about security in today's world (Tadjbakhsh 2013). In the above-mentioned catalogues of human needs, these other relevant aspects of security are often spread across different needs such as partaking or living in a suitable environment. Economic security is put forward as a basic need in Doyal and Gough's (1991) framework. In terms of other frameworks, economic security is related to the needs for subsistence, participation, identity, and freedom, to name just a few (Costanza et al. 2007; Max-Neef, Elizalde, and Hopenhayn 1991). Here the breadth of the idea of economic security becomes clear. Economic security means that every person and household can be assured of a sufficient share of the sustenance available to them through the economy of their society as well as sufficient resources to participate in society. Economic security goes beyond the overly narrow interpretation of having a minimum income either through work or welfare payments. It encompasses meaningful interaction with participating in society and requires collective mechanisms to provide such opportunities for everybody, including the poor, disabled, young, old, or sick.

Communication as an energy service.

Communication here is also considered in the broadest sense, and includes opportunities to share information through personal interaction and networks; participation or access to larger fora (including social media); awareness (through communication) of social groups, institutions, and developments; contact or consultation with government and public sector agencies, as well as private or business-oriented interlocutors. The communication can be through direct conversation, electronic devices such as telephones or computers, diverse types of traditional and social media, or intermediaries (where an agency acts as a go-between for different spheres of society). It can be one sided, bi-directional or multi-focal. Communication can be recorded, stored, and archived, or informal and instantaneous. The energy use associated with each of these ways of obtaining the energy service of communication varies greatly. For instance, to the

extent that some forms of communication require face-to-face interaction, this entails the need for spatial mobility, and customary forms of transport are typically the most energy-intensive sectors of human activity. At the same time, communication via digital means obviously requires energy as well, and energy demand for digital communication services has been increasing continuously over the last decades (Aebischer and Hilty 2015; Lange, Pohl, and Santarius 2020).

Links between energy service and human need. At the most basic level, communication is necessary for a person or household to gain the information they need to access socially available sustenance. What mechanisms exist to attain this security? Which persons and institutions are available to help with it, as well as logistical information, such as locations, times, and forms of interaction? For example, communication is required for individuals to be aware of opportunities of economic participation (e.g., available work, available materials for work, interested clients). Moreover, communication is important to participate in broader economic provision activities, such as organization of workplace conditions (through unionization, for example), innovation and improvements of various types, coordination of similar activities through sectoral production or consumption associations (e.g., guilds and consumer-advocacy groups, renters' unions, community groups), and so forth. Indeed, there is a large literature on the key role of spatial mobility for social inclusion and need satisfaction, including the need for economic security (Brand-Correa et al. 2020; Lucas et al. 2016; Mattioli 2016). Figure 4 illustrates four scenarios in terms of different combinations of high/low energy-service demand for communication and breadth of access to economic security in society.

Case 2: Food provision (as energy service) and adequate nutrition (as human need)

Adequate nutrition as a human need.

Nourishment is an element of the most basic of human needs in terms of subsistence. It is a matter of quantity and quality. Today more than ever, we are aware of the health-related effects of diets of insufficient quality and diversity, with respect to macro- and micro-nutrients, hygiene, and other factors. Food relates to the satisfaction of other human needs as well. For instance, norms and rituals around food preparation and consumption are relevant for needs such as belonging and participation. Contemporary societal debates about animal-based—and specifically meat-based/less—diets also relate to identity and meaning.

		Need-satisfier access: economic security	
		← Restricting	Expanding →
Energy-service demand associated with communication	Decreasing →	Isolated and atomized social relations, limited within closed groups. Opportunities relayed via word-of-mouth rather than shared publicly. Exclusion and impoverishment of those outside connected groups. [Mafia and segregated neighbourhoods.]	Basic economic security along multiple dimensions for all, at low energy-service costs due to inclusive and participatory networks and energy efficient service provision. [Sustainable, democratic utopia.]
	← Increasing	Limited and fragmented welfare, requiring extensive travel and energy-intensive interaction. Many in deprivation because of high energy-communication burdens (e.g., high mobility costs in absence of affordable public transit). [Many areas of UK and United States at present.]	Economic opportunities exist for all, but require energy intensive communication services (individual device, individualized transport). Although prosperous and plentiful, delivery of economic security entails considerable waste. [Egalitarian and technology-intensive welfare states such as Sweden]

Figure 4. Energy-service and need-satisfaction scenarios for communication and economic security.

		Need-satisfier access: adequate nutrition	
		← Restricting	Expanding →
Energy-service demand associated with food provision	Decreasing →	Food shortages or unequal food distribution with relatively short and efficient supply chains and conversion processes for people who have food. [Local deprivation]	Plant-based diets, with seasonal fruits and vegetables and a significant share of local sourcing that is easily accessible and affordable to all. [Healthy and affordable plant-based food]
	← Increasing	Food shortages or unequal food distribution with highly processed and energy-intensive supply chains, for those with access to food. [Some areas of the United States]	Accessible, affordable, and varied diets, but based on high energy-intensity production and inefficient conversion (animal-based, long transit, air shipping of out-of-season fruit and vegetables). [Western welfare states]

Figure 5. Energy service and need satisfaction scenarios for food provision and nutrition.

Food provision as an energy service. The provisioning of food involves a vast range of energetic processes along relevant supply chains (Notarnicola et al. 2017; Vogt et al. 2012): from farming all the way into people’s refrigerators. In fact, it includes energy consumed before farming even starts in terms of, for example, seed production. The sum total of energetic processes furthermore encompasses the food products themselves (containing energy as calories), as well as the energy required to harvest, to distribute, and to purchase food (transport) and to cook and to preserve it.

Links between energy service and human need. The link between food provisioning and nutrition is obvious: nutrition cannot be satisfied or exist without food provisioning. Indeed, the two are so connected that they are often conflated with each other. Differentiating them is all the more interesting,

therefore, and allows us to consider the possibility of various configurations of nutrition access and food provision. This becomes clearer if we look at Figure 5 which illustrates four scenarios of how high and low levels of energy-service demand for food provisioning and restricted or expansive need-satisfaction access to adequate nutrition may play out.

Adding sustainable consumption corridors and power to the picture

We argue that the exploration of energy-service and need-satisfier pairs, as sketched above, can be relevant to the consumption corridor research and policy agenda. This section, therefore, first integrates consumption corridors into the above discussion and then explores how the distribution and exercise of power influences the resulting picture. To this

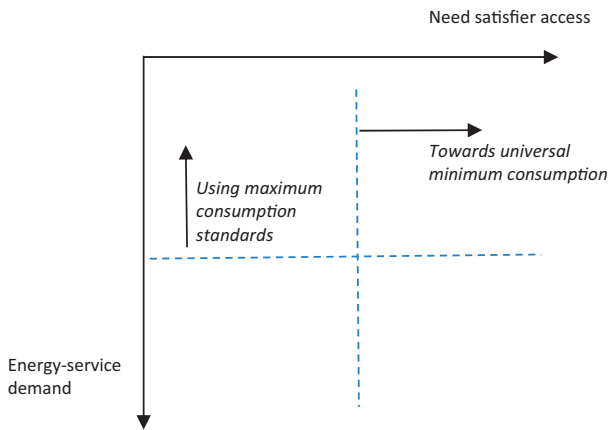


Figure 6. Energy-service demand, need-satisfier access and consumption corridors.

end, we dissolve the quadrants used in the Figures 3–5 for illustrative purposes and instead work with the continua as they exist in reality.

Extending the possibility of providing minimum consumption levels to all reflects a move from left to right along the horizontal axis; in other words moving toward access to need satisfaction for all (Figure 6). Curbing consumption according to maximum consumption levels, in turn, involves moving from bottom to top—decrease overall energy-service demand. Considering both, minimum and maximum consumption standards, a focus on consumption corridors thus turns our attention to the upper right-hand area of the grid and prompts us to inquire into how societies can chart a course to the upper right-hand corner.

This is where power enters the account. The power exercised by actors and indirectly through structures influences where in this field, and especially where on a potential trajectory toward the upper right-hand corner (or away from it), a society is located. Consider the dynamics as depicted in Figure 7. What is needed to move societies toward a combination of energy-service demand and need-satisfier access that reflects sustainable consumption corridors—the potential for a good life for all living now and in the future—is an exercise of power that pursues justice and ecological sustainability at the same time (Arrow A). Neither a focus that singularly prioritizes justice interests (Arrow B) nor a focus that only considers planetary boundaries (Arrow C) will get us there. More fundamentally, power imbalances in societies prioritizing the interests of elites, for instance, tend to move a society in the direction opposite of what is required (Arrow D). The exact point of a society in this possibility space, as determined by its positioning along the two axes of energy-service demand and need-satisfier access, is influenced by the distribution and exercise of power in that society.

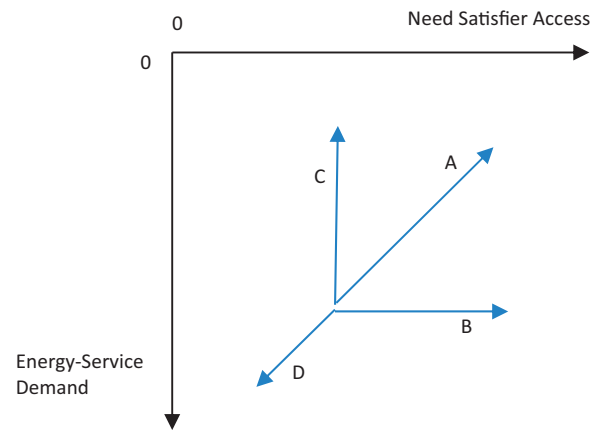



Figure 7. Trajectories in energy-service demand and need satisfaction.

Exercises of power could, for instance, focus on changing (the definition and/or evaluation of) various categories of societal structures ranging from the evaluation of biophysical impacts and the constitution and shape of broad societal norms and values, to economic superstructures, policies and regulations, and the evaluation and ideational elements of physical infrastructures (Fuchs 2005; Fuchs et al. 2016; see Table 1).

Attempts to use discursive power to influence societal trajectories with respect to energy-service demand and need-satisfier access are easily conceivable with respect to evaluations of, for example, biophysical impacts or the promotion of relevant societal norms and values. Thus, actors can emphasize the need for ecological sustainability, of course, attempting to foster a lowering of energy-service demand. Exercises of discursive power can also support or negate certain values. For instance, discursive contests can focus on the relevance of justice concerns with respect to access to energy-related need satisfiers relative to efficiency and growth objectives. Likewise, exercises of discursive power could focus on the idea of “freedom.” Critics of the corridors concepts, or more generally considerations of consumption limits, often base their arguments on an all-encompassing notion of freedom reflecting a sense of entitlement when it comes to consumption choices (Fuchs and Di Giulio 2016). This is a notion of freedom as “freedom from state intervention,” be it in the direction of broader access or lower energy-service demand, or a “freedom to consume according to one’s individual preferences and resources.” As Bohn and Gumbert (2021) show in their contribution to this special issue, however, this definition of freedom is only one of many possible alternatives even in the context of liberal philosophy. Thus, another definition of freedom could emphasize that as societies we choose to be “free from deprivation,” in terms of broadening our

Table 1. Categories of structures influencing energy-service demand and need satisfaction.

	Category	Description
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">General</div>  <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-top: 5px;">Concrete</div>	Biophysical impacts	Planetary boundaries (e.g., climate crisis, deforestation, ocean acidification)
	Societal Foundations Economic superstructures	Fundamental values, norms, belief systems, and paradigms Capitalist tendencies of overproduction, overconsumption, technological dynamism, temporal acceleration, financialization, appropriation, commodification, and alienation (see Pirgmaier 2018)
	Policies and regulations	Specific norms, such as laws and regulations that exist in societies to define and organize labor relations, investment, trade, land-use planning, education, welfare, and environmental protection.
	Infrastructure	Concrete material stocks and flows that manifest as a result of such legislation (e.g., quantity and design of mobility infrastructures (motorways, parking), building infrastructure, energy production and distribution systems)
	Appliances, technologies	Specific appliances and technologies available to transform resources into energy services (e.g., cars, heaters).

needs-satisfier access, and are “free to set the rules allowing us to protect our current and future members” in pursuit of sustainability.

At the level of economic superstructures, i.e., the broad structures underlying our production and consumption systems, discursive power plays a role as well. The difficulty of criticizing capitalism during the years since 1989 demonstrates the power that this economic paradigm has held and continues to hold. Embedded in this superstructure are ideas that see growth as necessary and desirable and that for a long time linked the pursuit of growth to the normative goal of increasing energy-service provision and demand. The related idea of decoupling suggests that further growth may be possible at lower levels of energy-service demand, even though decoupling from absolute energy demand is nowhere near in sight, and according to overwhelming evidence likely cannot be achieved rapidly enough to respond to the climate crisis (Haberl et al. 2020; Wiedenhofer et al. 2020). In this context, we also note the entrenchment of advertising in the capitalist superstructures. The multitude of messages aimed at convincing consumers, every day, to consume more, constitutes an exercise of discursive power and influences energy-service demand. Countering the power of growth and market-focussed paradigms with alternative narratives that highlight consumption limits (rather than overproduction and overconsumption) and promote extending needs-satisfier access (rather than efficiency improvements) provides a lever of change (Meadows 1999).

Discursive power also plays a role with respect to specific policies and regulations. Exercises of discursive power may focus on the nature and extent of the problem to be solved, the instruments to be used to solve it, and their calibration, as well as the roles and responsibilities of relevant actors. This is probably the most visible part of discursive contestation in the policy process. Thus, discursive power

may be used to argue for or against higher carbon taxes and for or against larger welfare payments. In these debates, the lobbying power of fossil-fuel industries and their allies cannot be underestimated (Brulle and Aronczyk 2020). Finally, discursive power may also focus on the evaluation of physical infrastructures and technologies. Debates around the usefulness or riskiness of different technologies used for energy production and the location of energy-relevant infrastructures are well known. Likewise, mobility infrastructures may be (re)designed with more or less of a focus on the associated energy-service demand and more or less attention to how they enable access to key services and opportunities (see e.g., Martens 2016; Lucas et al. 2019). Traditional approaches to transport policy and planning have, in many cases, reduced accessibility levels for those with no access to private cars, effectively coupling energy demand with need satisfaction (Brand-Correa et al. 2020; King, Smart, and Manville 2019). More generally, policies promoting car dependence (such as road building) tend to be legitimized based on a range of discourses which appeal to various political persuasions, all the while benefiting certain vested interests (Mattioli et al. 2020).

In sum, discursive power influences a society’s trajectory toward or away from low energy need-satisfier access in a multitude of ways. How can it shape such trajectories with respect to the above examples, communication/economic security and food/nutrition? What ideas, norms and values give rise to moving toward the upper right corner (A) of Figure 7, and which ones keep societies trapped in trajectories B, C, and D?

Case 1: Communication (as energy service) and economic security (as human need)

Our first case highlights that communication is necessary for a person or household to gain the information necessary to satisfy the need for economic socially available sustenance. Here we ask

what mechanisms and ideas exist to move toward the desirable state of economic security for all within planetary boundaries and which ones prevent it. What power dynamics push us toward the different quadrants in Figure 4 or stabilize a society's place in that quadrant?

Relevant ideas underlying the shape and use of communication in today's societies relate to the cognitive and material access to communication infrastructures. In the UK, for example, having IT equipment and skills influences access to unemployment benefits, as the alternative is waiting on the telephone for hours. In a similar manner, evaluations of changes in the frequency and reliability of public transport options can play a role, as missing an appointment by a mere ten minutes can lead to a cut in unemployment benefits, irrespective of whether the delay is caused by personal negligence or travel delays. In a more general way, ideas of "you get what you deserve" or "you need to work hard to deserve" that are in line with capitalist superstructures influence how communication-related energy services are linked to access to economic security in public and political discourse. They underline the requirement to invest in the necessary equipment and skills, typically in accordance with Conservative Party positions, and to stay up to date in the constant race for technological innovation. This is in direct contradiction with the political program put forward by the opposition Labour Party, for instance, which promises to deliver free broadband Internet for all households in the country. This necessity of such a broad vision of universally accessible and affordable (free) communication only became starker during the lockdowns of the COVID-19 crisis when households without Internet were shut off from schools, universities, access to safe online-grocery shopping, work-from-home opportunities, and so forth. Related policy approaches such as universal basic services (see Coote 2021 in this special issue) would pursue broad societal access to equipment, skills, and content. The energy demand of such universal services is not negligible, of course, but also not incompatible with a low energy-demand society oriented toward sufficiency (Millward-Hopkins et al. 2020).

Case 2: Food provision (as energy service) and adequate nutrition (as human need)

What ideas justify the provision of planetary healthy food in sufficient quantity for everyone and which ones do not? In the field of food governance, the tactics of discursive power might lie in sustaining ideas and mechanisms that make those who suffer from such deprivation largely invisible for those who maintain and promote the status quo.

Similarly, narratives that hide structural problems behind the lens of "individual choice" are relevant here. Feelings of shame, or guilt, for not being able to properly feed a family, are reinforced by ideas that blame individuals for the hardships they have to experience. The idea of "scarcity" rather than distribution as *the* fundamental problem is also key.

Trajectories moving societies away from sustainability are also fostered by the promotion of highly processed and energy-intensive food by producers and retailers. This reality is backed by ideas that achieving "food security" require large-scale production and producers, which increases dependency on distant and unaccountable international markets and corporations. Ricardo's "comparative advantages of trade" argument—the idea that countries should specialize in and export products in which they have a comparative advantage and import the others—that underpins the paradigms of "development" and "free trade" fits well in here too.

Alternative narratives focus more on social justice and sustainability, while still promoting market-based, technology-intensive options. Concepts such as "climate-smart agriculture" (championed by the United Nations Food and Agriculture Organization) or "high-tech precision agriculture" are part of a discourse in which agribusiness, backed by government institutions, present themselves as problem solvers. Teresa Anderson (2019, 32) makes this point when she writes,

Corporations such as Monsanto, McDonald's, Syngenta, Walmart, and Yara (the world's largest fertilizer manufacturer) all claim that they are pioneering climate-smart agriculture practices. They argue that the biggest climate benefits will come from the biggest players taking action, and that polluting corporations must be part of the solution.

Critical observers postulate that these discourses delay climate action and that they disguise that large corporations are a major cause of climate change. They highlight that ideas such as "sustainable beef" are full of contradictions in that they fail to question the neoliberal market framework and underpinning power dynamics that make such products impossible (Kothari et al. 2019).

Finally, ideas and narratives exist in food governance that aim to promote broad access to food as a need satisfier and/or reductions in food-related energy-service demand. Movements for food sovereignty, permaculture, slow food, agroecology, biopiracy, and food rights as well as those against land grabbing, for instance, deserve mention. Such ideas are characteristic of and tend to arise from and support social movements to democratize and humanize food systems and to protect small-scale farmers' livelihoods from corporate and investor power.

They are also compatible with the scientific evidence of the need for a shift to healthy plant-based diets (Willett et al. 2019).

Overall, what can we learn from exploring discursive power in the context of our examples? We can identify a broad range of ideas and narratives pushing societies toward or away from a situation in which they would be able to provide broad access to food as a satisfier of essential needs at low levels of energy-service demand. Relevant ideas include those highlighting ecological and/or justice concerns, as well as discourses of denial, silence, or delay. Clearly, many more ideas and exercises of discursive power as well as key actors and institutions backing them could be identified here. Evaluating them in terms of their assumptions and meaning for needs-satisfier access and energy provisioning will allow societies to make more informed decisions and identify forward-looking policies for a more sustainable future.

Conclusion

In this article, we have explored the combined contribution of different perspectives on energy consumption and wellbeing to our understanding of the potential for sustainability transformations. Our aim in this endeavor is to open up a theoretical space to address the challenge of satisfying human needs at low levels of energy demand. This discussion also exposes the limitations of many mainstream economic and technological approaches that we see as deliberately closing out more systemic and fundamental change-oriented perspectives.

Specifically, we have used the differentiation between energy-service demand and need-satisfier access as a starting point to discuss how consumption corridors would be shaped by the distribution and exercise of power in society. In this discussion, we have considered especially discursive power and different structures influencing energy-service demand and need satisfaction as targets of change. We thereby have shown how both a balance of power within society and its decision-making processes as well as in the focus on ecological and social justice are preconditions for just sustainability transformations.

It is evident that we will have to fundamentally change structures and acknowledge and address the failure to consider planetary boundaries and to protect social justice that we have built into our systems if we want to achieve a sustainability transformation. Given that the existing structural failures are the result of long-time developments and supported by powerful economic and political interests, the challenge is clear. By conceptually decoupling energy-

service demand and need-satisfiers access and integrating a focus on consumption corridors and power, we hope to have opened up a deliberative space, allowing us to make some progress in the much-needed direction.

Notes

1. The social science literature knows many different concepts of power. Scholars differentiate between power over, power to, and power with; de facto power and de jure power; ideational and material power; and agent-specific and structural power. A particular school of thought distinguishes between various dimensions of power, including instrumental, structural, and discursive power (Barnett and Duvall 2005; Fuchs 2005).
2. This focus is due to space constraints and does not mean that other forms of power do not play a role. However, discursive power is particularly pertinent to, as well as illustrative of, our topic at hand.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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