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Electric Youth: Young People, Energy Infrastructures, and Power Cuts

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Drawing on an interdisciplinary study that explored how large-scale regional, national, and supranational infrastructural crises are experienced, felt and lived with by young people, this article extends research and practice in energy geographies, sustainability, environmental education, and interdisciplinary childhood and youth studies through three interventions. First, we argue that many normative contemporary forms of energy studies, environmental education, and education for sustainability (EfS) could productively engage with children and young people's everyday geographies. Second, we highlight the surprising absence of literal, embodied, affecting encounters with electricity and electrical infrastructures in contemporary practice and literature, which is ostensibly about environmental education and energy geographies. Third, we question the limited consideration of energy in interdisciplinary childhood and youth studies, despite the predicative importance of electrical infrastructures and technologies for many young people's everyday geographies. We advance these themes through qualitative and quantitative data evidencing the prevalence of power cuts in many young people's lives, and the multiple bodily and material ways in which frequent power cuts are noticed and lived with. We call for major bodies of work in energy studies, environmental education and EfS, and childhood and youth geographies to be brought into more sustained conversation. *Key Words: childhood, electricity, infrastructure, power cuts, youth.*

Analyzing qualitative data from our survey of 3,705 ten- to twenty-four-year-olds from a metropolitan region in southern Brazil, we are struck by how often young Brazilians talk about the ubiquity and frequency of power cuts. Actually, we are struck by how often they talk about *not talking about* these frequent failures of energy infrastructures:

> Everyone has this feature of power cuts. Most don't worry. Most don't talk about it.

How might we think about young people talking about *not talking about* ubiquitous everyday experiences of electricity, and their engagements with large-scale infrastructures, in this way?

Multiscalar energy crises constitute multidimensional, compound, systemic socioenvironmental threats for current and future generations of young people, with those living in precarious situations globally most exposed to these asymmetric threats (Clark et al. 2020; UNICEF 2021). Drawing on an interdisciplinary, mixed-method study that explored how large-scale regional, national, and supranational infrastructural crises and insecurities are experienced, felt and, lived with by young people, this article extends research and practice in energy studies, sustainability, environmental education, and interdisciplinary childhood and youth studies through three interventions. First, we argue that many normative

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contemporary forms of energy studies, environmental education, and education for sustainability (EfS) could productively engage with children and young people's everyday experiences. We show how engaging with young people's participation and talk profoundly unsettles a range of normative concepts and approaches that do not readily accommodate individual, embodied, lived experiences. In particular, we emphasize the transformative significance of engaging with diverse, frequently marginalized young people's talk and silences regarding *energy itself*, foregrounding young people's voices from spaces in the majority Global South where power cuts are a regular, taken-for-granted, and inequitably felt feature of daily and nightly lives. Second, in so doing, we highlight the surprising absence of literal, embodied, affecting encounters with electricity and electrical infrastructures in a wide range of contemporary practice and literature that is ostensibly about, and targeted at, environmental education and energy use. Third, we also question the surprisingly limited consideration of energy in interdisciplinary childhood and youth studies, despite the predicative importance of electrical infrastructures and technologies for so many aspects of young people's everyday lives, socialities, lifestyles, and consumption.

We begin by situating the article regarding major bodies of existing work on energy studies, environmental education and EfS, and interdisciplinary childhood and youth studies. We argue that young people's embodied, material, deeply felt experiences of power cuts unsettle each of these normative ways of knowing. We then introduce the large-scale program of research on which this article is based: a survey with 3,705 diverse young people in southern Brazil, which constituted one of the largest studies of young people's experiences and knowledges of environmental challenges ever conducted. As in many contexts globally, it is well documented that many Brazilian communities experience frequent, widespread, and endemic power supply disruptions, which are a manifestation of complex histories of electrification in Brazil. Once celebrated as a feat of twentieth-century nation-building and economic development (Lipscomb, Mobarak, and Barham 2013), Brazil's hydro/electrical grid has, in recent decades, become emblematic of national and regional political, economic, and infrastructural crises. Most notoriously, our case study region experienced two of the most extensive and enduring power outages on record: the 1999 southern Brazil power cut (affecting more than 75 million Brazilians; "Wide Power Failure" 1999), and the 2009 Brazil and Paraguay blackout (affecting more than 60 million Brazilians and the entire nation of Paraguay; "Millions left in dark" 2009). Moreover, during the 2001 Brazilian electricity crisis, the region experienced a succession of federally mandated emergency electricity-rationing measures that tangibly affected industrial productivity; economic growth; domestic consumption habits; and availability of utilities, institutions, and services (Almeida et al. 2022). The systemic instability of the Brazilian electrical distribution system has led to efforts to unify Brazil's electricity grid at the national scale, notionally enabling suppliers to transfer electricity from one region to another in periods of regional supply–demand imbalances. Short household power outages have continued to be a commonplace, regularized experience, however. Available consumer data suggest that, on average, Brazilian households experienced ten to twelve hours of electrical outage per annum between 2010 and 2020 (Aneel 2025), and these data surely conceal substantial regional, classed, and demographic inequalities.

Subsequent sections analyze qualitative and quantitative data from this study to advance four wider contributions. First, we evidence the prevalence of power cuts in Brazilian young people's lives, and the multiple bodily and material ways in which frequent power cuts are noticed and lived with. Second, we present a quantitative analysis of young people's everyday energy practices. We note that dealing with power cuts is just one of a range of routine electrical practices, but also highlight statistically significant diversities and inequities concerning age, gender, ethnicity, and social class whereby certain groups of young people are disproportionately exposed to power cut risks and anxieties, as well as being disproportionately responsible for mitigating impacts of these infrastructural insecurities. Third, we analyze young people's talk about power cuts, exploring cross-cutting narratives of not caring, not worrying, and not talking about regular power cuts. Fourth, we explore how—in this normative context where power cuts are *not* talked about—families who do voice concern about electrical infrastructures are often labeled via individualized forms of blame linked to poverty, ineptitude, or irresponsibility. Collectively, these data constitute a call for major

bodies of work in energy studies, environmental education and EfS, and interdisciplinary childhood and youth studies to be brought into more sustained conversation around and with young people's lived experiences.

Young People and Energy: Three Interventions

This article advances three major lines of research—energy geographies, environmental education and EfS, and childhood and youth geographies. Across each of these significant, interdisciplinary areas of research and practice, engaging with young people's everyday experiences of energy infrastructures has the potential to transfigure and unsettle normative modes of theory, research, and practice (Zara et al. 2022).

First, our work is contextualized by recent work on energy studies, infrastructural geographies, and the water–energy–food (W–E–F) nexus. In particular, recent conceptually innovative work within energy and infrastructural geographies (Huber 2015; Rohse, Day, and Llewellyn 2020; Barua 2021) has been key in framing our commitment to advance more-than-nexus approaches through engagements with everyday, intergenerational infrastructural participations and practices. Across several studies in this field (Kraftl et al. 2019; Horton et al. 2024), we have articulated a conceptual-ethical-empirical concern that experiences, issues, participation, and expertise of children and young people have been overwhelmingly and weirdly absent from these rich lines of work. In stark contrast, this article shows how young people are frequently key actors within, and intimately, disproportionately affected by, everyday energy infrastructures. Moreover, we argue that young people's diverse daily practices concerning energy supply and infrastructures—and their inequitable, intersectional exposures to energy nexus labor and risks—pose profound challenges to the often somewhat affectless, technicist, top-down analytical and presentational styles that characterize much extant work on the W–E–F nexus (Leck et al. 2015; Horton et al. 2024). As such, we draw inspiration from a range of work in energy and infrastructural studies that has mobilized interdisciplinary theories of practice to articulate how interrelated social and material relations are mutually construed through densely interwoven "bundles" of practices (cf. Schatzski 2002). When it comes to electricity and energy, and resource use more widely, such theories of practice have largely focused on consumption—very often in the context of reducing energy use with respect to climate change (Shove, Watson, and Spurling 2015) and just transitions to net-zero (Longhurst and Chilvers 2019). This focus on consumption is unsurprising given that such scholarship largely emerged from cognate social scientific fields of "consumption studies" (Warde 2005). We suggest, though, that conceptualizations underpinned by practice theory should be extended to reconsider more fully the ways that political-structural failings (themselves "bundles" of practices) overlap with other lived sociomaterial relations to harden existing social exclusion. By attending to these multiple, complex, lived sociomaterial relations, our findings not only illustrate how seemingly sudden events, like an abrupt absence of electricity, are indicative of infrastructural failings, which themselves are political, but they also make the deep-seated sociopolitical inequities legible through infrastructures themselves. We therefore propound a careful, open, and empathetic engagement with young people's practices and experiences as one way of placing greater political-ethical care, responsibility, and criticality at the heart of studies of nexus infrastructures (Lepawsky and Mather 2011; Crang et al. 2013; Urbinatti et al. 2020). In particular, through consideration of data from research with young people experiencing frequent power outages, we argue that normative accounts and visualizations of W–E–F nexus thinking often feel inadequate in relation to the kinds of affecting data about environmental injustices, embodied and inequitable insecurities, or slow sociotechnological violence that surface through qualitative or ethnographic studies (Sultana 2011; Cairns 2022).

This article is situated within a second major body of research that explores young people's energy consumption, behaviors, and knowledges, within broader contexts of environmental education and EfS (Ardoin and Bowers 2020; Rousell and Cutter-Mackenzie-Knowles 2020). Significantly, consideration of energy itself within such scholarship is comparatively rare. This is troubling given increasing challenges and intergenerational injustices posed by present and potential energy "crises," although perhaps unsurprising given how intangible energy often seems, and how access to and payment for energy is normatively viewed as an adult endeavor in many contexts. There are at least two subsets of research that frame this

article and that this article extends, however. First, a focus on energy education has chiefly explored how young people might develop and transmit energy knowledges, influencing family members in domestic spaces (Toth et al. 2013; Aguirre-Bielschowsky et al. 2017; Merritt, Bowers, and Rimm-Kaufman 2019). Although this work has primarily foregrounded effects of youthful environmental learning in formal and institutional educational contexts, here we widen this lens to recognize complex social-technological geographies of multigenerational energy practices and discourses. For example, we value work that has explored young people's everyday encounters with devices. This includes diverse examples highlighting the potential for digital technologies to amplify how young people might receive and transmit messages about energy use (Haunstrup-Christensen and Rommes 2019; Dias et al. 2021). More generally, this work also highlights the intimate copresence of contemporary young people with devices and, by extension, with electrical infrastructures. Second, scholars have attempted to grapple with complexities and contradictions inherent in the knowledge–action "gap," particularly in terms of how children and young people's understandings of energy might or might not translate into behavior change (Wallis, Nachreiner, and Matthies 2016). Despite advances in research about energy education, there remain key gaps that this article begins to address. Centrally, an important recent review of fifteen years of energy education (Dias et al. 2021) suggests that work in this field has tended to enable more efficient, larger scale energy planning, but understandings of personal values, attitudes, behaviors, and lived experiences remain rather limited. It is perhaps odd that—especially as intended recipients of many key forms of energy education—the details, feelings, and bodily materialities of children and young people's engagements with energy itself (and not just with energy education) often go unremarked. Often, energy is framed as intangible flows that can be measured or monetized, whereas this article makes clear that energy can be intimately experienced and cared about, although talked about in elusive and complex, knotty ways. For instance, as the article demonstrates, there is a certain apathy or ambivalence about energy (and its lack during power cuts), but this does not necessarily mean it does not *matter* to young people. Indeed, we argue that this *mattering*—and the multiple, sometimes deeply affecting ways that young people described it—provides important prompts for (re)thinking young people's experiences of energy itself, acknowledging a wider range of everyday encounters between young people, energy itself, and social-political materialities of energy infrastructures.

This article also contributes to a third set of literatures in interdisciplinary childhood and youth studies. Work in this context has often foregrounded children and young people's experiences of interacting with popular cultures and digital technologies (Ergler et al. 2016; Blum-Ross et al. 2018; Goodyear and Armour 2019). Here, there is ample discussion about interfaces between users and technologies (devices, screens, software) and an examination of thorny debates about the rights of those users, particularly during childhood (Ash et al. 2018; Livingstone 2019; Paakkari et al. 2019). Energy itself (e.g., electricity and its lack), as well as infrastructures through which energy is socially and technologically conducted, are often an absent presence, however. Rarely does scholarship on children, young people, and energy acknowledge the infrastructures, disconnections, flows, and stoppages on which digital cultures are predicated. Recent scholarship about children, young people, and energy, which has also sought to move beyond, but not to ignore, the centrality of energy education, offers an initial touchstone for this article. For instance, Kraftl (2020) sought to complicate and multiply the narratives told about both energy and young people, toward the telling of apparently "smaller" but far more diverse stories about energy (Taylor 2020). These enable energy to be articulated in diverse ways, both within immediate concerns of young people's everyday lives and within longer term, historical processes and inequities that pattern energy usage and inaccessibility. Theorizing "energetic phenomena," Kraftl (2020, 139) examined how questions of metabolism, embodiment, and socialization come to the fore. Elsewhere, in seeking to move beyond how dominant (neoliberal) systems literally account for energy and its flows, Montpetit, Kraftl, and Khan (2021) examined an experimental, "collaboratory" methodology for exploring confluences and discontinuities of "childhoods-energies." Again, they sought a more expansive language to grasp at, yet not overly and problematically specify, the elusive, slippery, multifaceted ways in which energies might also be "kinaesthetic, emotional, embodied, spiritual, and more" (Montpetit, Kraftl, and Khan 2021, 1). We

argue that young people's everyday geographies of power cuts and energy itself provide some important prompts toward this new, expanded register for thinking with and addressing inequitable infrastructural geographies, acknowledging that young people's encounters with infrastructures are unevenly affected by longer histories of social-environmental injustice (Cooper-Vince et al. 2017), producing multiple, compound forms of everyday inequities, anxieties, and harms (Sultana 2011; Wutich et al. 2020; Cairns 2022; Choudhary et al. 2023).

Reflecting on these three lines of work, we suggest a recurrent problem has been the flat, circumscribed, limited (non-)presence of infrastructures, practices, materialities, and experiences of energy itself, particularly, but not only, in the form of electricity. Despite the usefulness of these approaches, our project provides empirical-theoretical resources to develop new work with a more expansive and connected sense of energetic phenomena, particularly through the notion of *electric youth*. Our approach has been to mobilize interdisciplinary, mixed-methods projects that bring qualitative social scientific approaches into conversation with engineering sciences nexus expertise to simultaneously think with young people's hyperlocal microgeographies and supranational infrastructures. So, although this article affords a sense of the tangible orientation of young people to histories and politics surrounding energy and its inequalities, it also offers a far more explicit and thoroughgoing analysis of infrastructural elements of energy that have rarely figured in research on childhood's energies. Hence, rather than figuring energy as an intangible, taken-for-granted flow, a close attentiveness to youthful infrastructural materialities can constitute radical, uncanny, subversive narratives that recognize "the heterogeneous collectives within which lives—human and other-than-human—unfold" (Barua 2021, 3; see also Rohse, Day, and Llewellyn 2020). Important strides have been made in articulating these kinds of narratives with older people (Smith et al. 2017), particularly in postindustrial contexts in the minority Global North, but we want to electrify studies of children and young people through encounters with energy studies, and vice versa. All three of the previously mentioned lines of existing work can be unsettled and advanced by taking seriously the everyday materialities of infrastructures within young people's everyday lives, to better understand how electrical infrastructures (among other infrastructural materialities, flows, and affects) matter and become articulable (or not) in everyday lives.

Researching Young Brazilians' Experiences of Energy

In the following sections, our interdisciplinary conceptual interventions develop through a reading of mixed methods data from a three-year interdisciplinary project exploring young people's (age ten to twenty-four) everyday experiences of energy, water, and food in southern Brazil. Energy, and specifically power outages, emerged as a major concern for many participants throughout the project. The project focused on the metropolitan region of Paraiba do Sul River Basin and São Paulo State North Shore, as exemplary of urban-infrastructural geographies that are frequently overlooked in social scientific work principally located in mega-urban centers of São Paulo and Rio de Janeiro. In contrast, the metropolitan region is characterized by its considerable social, geographical, and economic diversity encompassing diversely patterned cities, rural communities, coastal and mountainous regions, and environmental conservation zones. Over thirty months, the project team completed a program of qualitative, ethnographic, and quantitative research across diverse communities, engaging with more than 4,000 young people ten to twenty-four years old.

Here, we particularly work with qualitative and quantitative data collected via a large-scale survey completed by 3,705 young people, in which regular power cuts were frequently present as everyday (and every night) features of their lives. The survey was co-developed via a sustained, collaborative process between the interdisciplinary, multilingual project team. The survey was designed to be accessible for diverse young people and aimed to gather detailed quantitative and qualitative data regarding participants' demographic and background characteristics and their everyday practices, opinions, knowledges, and learning relating to energy, among other infrastructures. The survey was primarily designed and administered in Portuguese using Sphinx online survey software (a widely used survey platform in Brazilian higher education that conforms to requirements of the European Union General Data Protection Regulation and UK Data Protection Act). Alternative analog formats were also available

for scenarios, participants, and settings lacking access to the Internet or information technology equipment. Invitations to participate in the survey were distributed to all schools, colleges and universities, and known educational outreach organizations, youth groups, EfS groups, and youth-focused nongovernmental organizations in the region. The survey was also publicized via a social media campaign. The project team undertook a major program of dissemination and field work to engage the widest possible sample. Where institutions, organizations, or groups consented to participate, members of the project team visited to provide a briefing and distribute information sheets and consent forms to potential participants. Individuals who responded to the social media campaign were e-mailed the project information sheets and consent forms. Those who completed the consent form were provided with a link to the online survey or an alternative version, as appropriate.

In total, 3,705 usable surveys were returned. Table 1 shows key demographic information about participants. All respondents were invited to provide background information about age, self-defined gender identity, location of home by government region (*regiões de governo*), self-defined ethnicity, and number of rooms in their home (commonly used as a proxy for income and social class in Brazil).

An English language translation and SPSS coding frame were used for data analysis. Responses to each question were subject to a six-step analytical procedure. First, for closed and quantitative questions, basic descriptive statistics were used as prompts for collaborative reflection between the project team members. Second, all responses were cross-tabulated against the independent variables of age, gender, location of home, ethnicity, and size of home. Third, chi-square tests of independence were used to explore whether apparent relationships from cross-tabulations were statistically significant. Fourth, a subsequent Cramér's V test was used to explore the "strength" of each statistically significant association. Fifth, the chi-square test of independence and Cramér's V values were tabulated as choropleth heat maps to visualize the significance and strength of cross-tabulated data. Sixth, qualitative data were thematically analyzed to identify key recurring phrases, themes, and discourses. When presenting qualitative data, we have removed identifying details, given risks experienced by some young people in naming and contesting corporate malpractice and political corruption in certain locales.

Table 1. Survey participants

	Frequency	%
Age		
10–14	1,428	39
15–19	1,815	49
20–24	462	12
Self-defined gender		
Male	1,677	45
Female	1,995	54
Prefer not to say	33	1
Government region (*regiões de governo*)		
Caraguatatuba	481	13
Cruzeiro	259	7
Guaratinguetá	741	20
São José dos Campos	892	24
Taubaté	1,332	36
Self-defined ethnicity		
Branca (White, European heritage)	2,065	56
Parda (mixed heritage)	1,036	28
Preta (Black, African heritage)	223	6
Not indicated	381	10
Number of rooms in home		
1–2	1,600	43
3–4	1,814	49
5–6	158	4
7+	70	2
Not indicated	63	2

Electric Youth: Young People and Energy Infrastructures

The following sections draw out several key issues regarding young people's everyday engagements with energy: the prevalence of power cuts, inequities and intersections in sourcing and using energy, moving beyond apparent senses of apathy about energy outages, and discourses of responsibility around energy security.

Prevalence of Power Cuts

It is well-documented that many communities in which we worked experience frequent power supply disruptions. Existing literature has narrated some social, political, economic, and environmental predicates of Brazilian energy crises, principally in terms

Table 2. Young people's involvement in nexus practices: Energy

	Percentage who do this at least once a week	Percentage who never do this
Helping to deal with power cuts	80	3
Charging cell phone battery	80	3
Turning off lights when leaving a room	75	3
Using a car, motorcycle, or other vehicles that use fuel	72	7
Charging computer battery	52	27
Trying to save energy in the home	48	16
Talking about using energy in the home	27	23
Paying for fuel in the home	14	40
Measuring how much fuel is used in my home	10	62
Chopping wood to burn for fuel	8	72

of deregulatory fragmentation of formerly public utilities (de Araújo 2006; Werner 2019), wider economic and investment crises (de Araújo 2001), national structural adjustment and inflationary control measures (Almeida et al. 2022), defunded infrastructural maintenance (Amann et al. 2016), political corruption and mismanagement (Armijo and Rhodes 2017), intensified demand for energy driven by a rapidly expanding middle class (O'Dougherty 2002), and energy insecurities and heightened anthropocenic risks of electrical storms and drought (Hunt et al. 2022). A range of contemporary social media discourses link and diffract these accounts via a heady mix of rumor, political populism, conspiracy theory, and even UFOlogy. In our reading, however, everyday lived experiences are typically curiously absent from chiefly political-economic and technical academic narratives of energy crises in the Global South. In particular, the experiences of children and young people living through and with these extensive, recurrent, politicized, internationally reported infrastructural outages have rarely been acknowledged in academic or media coverage of successive and seemingly intractable Brazilian energy crises. To redress this absence, our survey asked young people to indicate how frequently they participate in a range of energy-related practices (see Table 2). Our study reveals how intimately and routinely young people participate within energy infrastructures within communities. Participants were both acutely and intimately affected by regular power cuts and consistently articulate about these infrastructural geographies. A stark finding was that "dealing with power cuts" was one of the most prevalent experiences reported across the whole ten to twenty-four age range. Eighty percent of participants deal with power cuts more than once a week (we note that, for young people in this region, power cuts are as routine as charging a mobile phone battery). Indeed, 49 percent of participants reported dealing with power cuts at least daily. In qualitative data, young people consistently articulated a sense of power cuts as just a "common," endemic, taken-for-granted backdrop to everyday lives in Brazil, "always" experienced by "everyone," "constantly":

> Power outages are common here. It is daily.
>
> Energy is always lacking in my city because of the difficulty of the country.
>
> Everyone in my family has problems with electrical energy.
>
> The energy in my city lately is dropping constantly.

Indeed, power cuts—variously lasting seconds, minutes, hours, days or, weeks—were described as a frequent, "normal" reality for most young people in the region:

> In most neighborhoods there is a lack of electrical power most days. It is normal.
>
> In reality, many people experience shortage in power supplies. Power outages last a few minutes, or a half-hour, or sometimes all day!

These empirics differ markedly from aforementioned official statistics that record that, on average, Brazilian consumers experienced ("only") ten to twelve hours of power outages annually from 2010 to 2020 (Aneel 2025). This discrepancy can be

accounted for technically (official data records only "measurable events" three minutes or longer, excluding micro-outages common in informal settlements) and spatially (relatively remote districts experience eight times more frequent cuts than metropolitan areas due to outdated networks, lower prioritization by distributors, the socioeconomic disadvantage of aging infrastructure, and delayed maintenance factors; Thives, Ghisi, and Thives 2022; Instituto Polis 2024).

Young people described diverse ways in which frequent, prevalent power cuts were registered in their everyday lives. These data give a strong sense of young people's intimate, bodily, and deeply felt relationships with electricity, extending the multiply constituted ways in which recent scholarship has sought to witness young people's engagements with energetic phenomena (Kraftl 2020). Power cuts were principally registered in terms of interruptions, glitches, and discontinuities relating to young people's technologies and prerogatives. For example, many young people keenly felt the impact of power outages in terms of slow, delayed, or impossible mobile phone charging, which evidently constituted considerable worry and precarity. As some young people noted, this is how energy insecurities are actually "seen":

> Power outages make problems with loading your cell phone, washing and drying your hair, loading notebook.
>
> Power cuts create outages in cell phone, video game, showers.
>
> In this city, most young people and children see power cuts when they cannot charge cell phones, etc.
>
> Sometimes the energy in my neighborhood drops and we lack energy—delays charging of tablets and cell phones.

We worry that these kinds of everyday, intimate, and inequitable experiences, traumas, frustrations, and anxieties go largely undocumented in the normative languages, models, and visualizations of W–E–F nexus infrastructures and EfS practice (Kraftl et al. 2019; Horton et al. 2024). Opening a series of new concerns for scholarship around young people's engagement with technologies (compare Ergler et al. 2016), participants also widely reported the multiple impacts of power cuts on the functioning of other screens and devices within and beyond their homes. The glitchy, interrupted functioning of televisions, modems, and gaming devices constituted considerable, although taken-for-granted, anxiety and frustration. Meanwhile, power cuts were also widely noticed and felt in terms of impacts on domestic and street lighting. The prevalence and frequency of power cuts constituted a particular set of spatial and atmospheric affects and consequent adaptations (Nightingale, Gonda, and Eriksen 2022), where young people inhabit spaces with dim or flickering illumination and are conditioned to the possibility of being unpredictably plunged into darkness:

> In my region there are constant problems with computer, television not working because of power outages.
>
> Young people who are gamers worry about power supply.
>
> Everyone knows the light goes out at home and the Internet cuts out. Power shortage makes problems using Internet modems connected to the wall, etc.
>
> We pay for light but many people do not have light, you see the light is cut off or it falls.
>
> The light ends at home or flashes on and off.
>
> Light can cut out at any time, inside and outside.

Young people's talk about power cuts repeatedly articulated a sense of distrust in the functioning of devices and utilities, as well as a distrust of the dimly lit spaces constituted by power outages. This distrust was articulated in particularly affecting bodily terms when young people described the impacts of power cuts on the bath and shower water. The everyday possibility that water for showers, baths, and washing might run cold—"*extremely* cold!"—because of power outages was, understandably, a source of considerable dismay for many young people. Here it is important to recognize the inequitable, particularly gendered, impacts of this kind of energy–water insecurity, which a range of studies have shown to be particularly impactful for young women in terms of stress and loss of dignity (Cairns 2022; Choudhary et al. 2023):

> When there is no power there will be no hot baths or fans, etc.
>
> The electronics often malfunction in this part of the city. Shower can be *extremely* cold. Many people unfortunately suffer from this energy shortage problem.

We wonder what previously hidden geographies and inequities might surface if scholars in interdisciplinary childhood and youth studies acknowledged young people's engagements with and in energy and infrastructures in their settings. In our study, young people described a wide range of tactics and trade-offs they employed to mitigate effects of frequent power cuts. These were typically small-scale domestic habits where it was (believed) possible to "use energy well" and "minimize power outage situations" by micromanaging household electrical consumption. Others described larger scale spatial tactics to avoid unlit and potentially dark public spaces, which were cast as spaces of fear as a direct result of endemic and potential power cuts.

> Since childhood, you should learn how to use energy well because if you don't you may lack energy use for tablets and cell phones.
>
> Every time if you want to charge your cell phone, turn off the light.
>
> In my city, there are many streets without light facilitating a lot of thieves to rob us.
>
> I avoid places in this city where light levels can be lower.

Taken together, young people's experiences of power cuts emphasize their multiform interactions with "energy landscapes" (Llewellyn et al. 2017, 818), ranging from microspatial interactions with individual devices to impacts on domestic routines, to affective atmospheres and adaptations prompted by dimly lit streets. Importantly, these findings extend extant scholarship about young people's energy practices because much of that work—sited in the minority Global North—tends at least to assume a stable energy supply and is concentrated on behavior changes for using and conserving energy in the longer term (Wallis, Nachreiner, and Matthies 2016). Instead, in our work, energy knowledges and concerns are seen, felt, and adapted to more immediately, such that energy-saving or mitigation strategies center as much around the absence of power in the short term. This is not to say that young people in our survey were not also aware of wider and less immediate debates about energy security and environmental futures (as per Table 2, 48 percent were engaged in domestic energy saving at least once a week). Rather, both the prospect and reality of power outages shape the temporal, emotional, and practical relationships that young people have with energy.

Inequities and Intersections in Energy Practices

As we have argued, relatively little research and practice has explored the details and experiences of young people's everyday energy practices. In this context, our survey was specifically designed to gather baseline data regarding young people's participation in energy practices. Beyond dealing with power cuts, participants were asked to indicate the frequency of their participation in diverse energy-related practices (see Table 2). We would highlight that, although children and young people might seldom feature in energy studies to date, they should be understood as intimately and routinely engaged with energy infrastructures through diverse habits, everyday sites, and bodily-material practices. For example, many participants were engaged in more or less daily energy practices like battery charging (80 percent) and switching off lights (75 percent). Many participants were also involved in activities like purchasing fuel for homes and vehicles, handling domestic fuels, and talking about household energy use.

The data in Table 2 also conceal striking and statistically significant differences between diverse groups of young people that highlight the need to understand how interactions with energy are intersected by social and geographical positioning (Montpetit, Kraftl, and Khan 2021). To illustrate some of the complexities of young people's energy experiences, Table 3 shows a heat map of the chi-square test of independence and Cramér's V values for data from Table 2 by age, gender, region, ethnicity, and size of home. Young people's everyday encounters with electrical infrastructures are evidently complexly differentiated in terms of aged, gendered, regional, ethnic, and classed identities. We note three key findings. First, a wide range of commonplace everyday energy practices are markedly and significantly differentiated in terms of age, region, ethnicity, social class, and especially gender. For example, the charging of computer and cell-phone batteries is markedly less common, whereas the handling of domestic fuel is significantly more frequent, among young people from smaller households and regions with relatively high levels of economic poverty. Second, responsibilities for forms of

Table 3. Young people's energy practices by age, gender, region, ethnicity, and size of home

	Age	Gender	Region	Ethnicity	Size of home
Using car, motorcycle, or other vehicle that uses fuel	$\chi^2(18) = 78.39$, $p \leq 0.001$, $V = 0.08$	$\chi^2(6) = 54.79$, $p \leq 0.001$, $V = 0.12$	$\chi^2(24) = 103.97$, $p \leq 0.001$, $V = 0.08$	$\chi^2(48) = 119.92$, $p \leq 0.001$, $V = 0.07$	$\chi^2(18) = 57.32$, $p \leq 0.001$, $V = 0.07$
Turning off lights when leaving a room	$\chi^2(18) = 21.68$, $p = 0.247$, $V = 0.04$	$\chi^2(6) = 47.99$, $p \leq 0.001$, $V = 0.12$	$\chi^2(24) = 87.72$, $p \leq 0.001$, $V = 0.08$	$\chi^2(48) = 37.30$, $p = 0.868$, $V = 0.04$	$\chi^2(18) = 41.41$, $p = 0.001$, $V = 0.06$
Trying to save energy in the home	$\chi^2(18) = 41.13$, $p \leq 0.001$, $V = 0.06$	$\chi^2(6) = 37.58$, $p \leq 0.001$, $V = 0.10$	$\chi^2(24) = 79.78$, $p \leq 0.001$, $V = 0.07$	$\chi^2(48) = 41.76$, $p = 0.725$, $V = 0.04$	$\chi^2(18) = 33.01$, $p = 0.017$, $V = 0.06$
Helping to deal with power cuts	$\chi^2(18) = 28.60$, $p = 0.054$ $V = 0.05$	$\chi^2(6) = 44.59$, $p \leq 0.001$, $V = 0.11$	$\chi^2(24) = 81.76$, $p \leq 0.001$, $V = 0.07$	$\chi^2(48) = 48.46$, $p = 0.001$, $V = 0.12$	$\chi^2(18) = 22.70$, $p = 0.001$, $V = 0.10$
Charging cell phone battery	$\chi^2(18) = 56.86$, $p \leq 0.001$, $V = 0.07$	$\chi^2(6) = 35.00$, $p \leq 0.001$, $V = 0.10$	$\chi^2(24) = 81.57$, $p \leq 0.001$, $V = 0.07$	$\chi^2(48) = 49.44$, $p = 0.415$, $V = 0.05$	$\chi^2(18) = 42.56$, $p = 0.001$, $V = 0.06$
Charging computer battery	$\chi^2(18) = 79.41$, $p \leq 0.001$, $V = 0.09$	$\chi^2(6) = 26.38$, $p \leq 0.001$, $V = 0.08$	$\chi^2(24) = 115.90$, $p \leq 0.001$, $V = 0.09$	$\chi^2(48) = 62.89$, $p = 0.073$, $V = 0.05$	$\chi^2(18) = 37.56$, $p = 0.001$, $V = 0.07$
Chopping wood to burn for fuel	$\chi^2(18) = 37.62$, $p \leq 0.001$, $V = 0.06$	$\chi^2(6) = 84.80$, $p \leq 0.001$, $V = 0.15$	$\chi^2(24) = 149.67$, $p \leq 0.001$, $V = 0.11$	$\chi^2(48) = 80.09$, $p = 0.001$, $V = 0.06$	$\chi^2(18) = 20.66$, $p = 0.297$, $V = 0.04$
Measuring how much fuel is used in my home	$\chi^2(18) = 61.77$, $p \leq 0.001$, $V = 0.08$	$\chi^2(6) = 57.03$, $p \leq 0.001$, $V = 0.13$	$\chi^2(24) = 89.09$, $p \leq 0.001$, $V = 0.08$	$\chi^2(48) = 64.12$, $p = 0.060$, $V = 0.05$	$\chi^2(18) = 19.16$, $p = 0.382$, $V = 0.04$
Paying for fuel in the home	$\chi^2(18) = 163.13$, $p \leq 0.001$, $V = 0.12$	$\chi^2(6) = 41.68$, $p \leq 0.001$, $V = 0.11$	$\chi^2(24) = 122.95$, $p \leq 0.001$, $V = 0.09$	$\chi^2(48) = 69.74$, $p = 0.022$, $V = 0.06$	$\chi^2(18) = 40.21$, $p \leq 0.001$, $V = 0.06$
Talking about using energy in the home	$\chi^2(18) = 87.61$, $p \leq 0.001$, $V = 0.09$	$\chi^2(6) = 26.93$, $p \leq 0.001$, $V = 0.09$	$\chi^2(24) = 111.27$, $p \leq 0.001$, $V = 0.09$	$\chi^2(48) = 61.41$, $p = 0.093$, $V = 0.05$	$\chi^2(18) = 25.51$, $p = 0.111$, $V = 0.05$

Note. $\chi^2(df)$ = Pearson chi-square value; p = asymptotic significance (two-sided), V = Cramér's V value. Where $p = < 0.05$ and assumptions of chi-square test of independence were met, lighter shading denotes $V \geq 0.03$ (weak but statistically significant association) and darker shading denotes $V \geq 0.10$ (moderate statistically significant association).

labor concerning energy infrastructures (e.g., chopping fuel wood, measuring domestic fuel, or working to save household energy) were consistently inequitably patterned, being significantly more frequent among eleven to fourteen-year-olds, young women, minority ethnic groups, and young people from smaller households and more rural or economically deprived regions. These findings echo Katz's (2004) work in Sudan, which highlighted gendered divisions of rural young people's labor, highlighting complexly patterned and intersecting inequalities that characterize gendered work.

Third, young people's exposure to, and responsibilities regarding, crises of electrical infrastructure were similarly patterned. Youth engagement in work to mitigate power outages was again significantly more commonplace among eleven- to fourteen-year-olds, young women, minority ethnic groups, and young people from smaller households and more economically deprived regions. For many young people from these groups, helping to deal with power cuts was markedly and significantly more commonplace than charging a cell phone battery.

As an indicator of young people's experiences and feelings toward energy, participants were asked to indicate to what extent they agreed with attitudinal statements. Table 4 presents a range of responses relating to energy, and Table 5 presents a chi-square test of independence and Cramér's V heat map for these data in terms of age, gender, region, ethnicity, and size of home. Table 4 shows how, despite their overwhelming absence from energy studies literature, including within calls to witness "cultural and geographical diversity" around energy transitions (Krupnik et al. 2022), many young people understand themselves as being routinely involved in decision-making about domestic and community energy practices (28 percent), and regularly worrying about energy usage and outages (29 percent). As Table 5 suggests, these attitudes are again significantly aged, gendered, and

Table 4. Young people's attitudinal statements about energy

	% agreeing or strongly agreeing	% disagreeing or strongly disagreeing
Young people in my community often use too much energy	57	7
Too much energy is wasted in my community	47	8
I would like to know more about issues relating to energy in my community	34	12
Young people in my community sometimes worry about energy issues	29	21
Young people in my community are involved in making decisions about how energy is used in their home	28	26
Young people in my community regularly think about how much energy they use	24	27
Young people in my community often do not have enough energy	20	35

regionally variegated, with involvement in household decision-making and community discourses regarding energy being markedly more frequent among eleven- to fourteen-year-olds, females, minority ethnic groups, and young people from smaller households and more economically deprived regions. It is also notable that many young people (34 percent) actively want to know more about energy-related issues in their own community, and this proportion was greatest among participants who were most intimately engaged in everyday energy activities and worries.

Beyond Apparent Apathy: (Not) Articulating Energy Out(r)ages

As the foregoing analysis shows, young people in this region are acutely, intimately, and inequitably affected by frequent energy infrastructure failures. Indeed, we approached the project with a (Eurocentric, paternalistic?) sense of solidarity, and expectation that young people's narratives would be raw, angry, politicized, and perhaps activist around these issues (Kraftl et al. 2019; Navne and Skovdal 2021; Walker 2021; Horton et al. 2024). Instead, participants overwhelmingly displayed a kind of disinclination to explicitly speak at length about power cuts. There was a lack of outrage about outages. Instead, young people were consistently articulate about how deeply affecting experiences of power cuts are not spoken aloud in their communities, friendship groups, and spaces of education.

At first glance, qualitative data might be read as young people simply and apathetically "not caring" about power cuts (and, perhaps, social, political, and environmental issues in general):

> Young people do not care much about this issue.

> Energy lacks in my city but this is not talked about among people I know. I don't know anyone who cares about these issues.

> We are aware, but difficult to find young people who care about the power cuts.

> In my city, as well as several other cities, there are power outages but I don't think young people care.

In tandem with very recent scholarship on global youth climate action (Bright and Eames 2022), however, our analysis leads us to strongly repudiate the lure of normative discourses that represent young people as apathetic and uncaring about contemporary political and environmental challenges. In particular, we note that young people's talk about "not caring" was very often coupled and undercut with a sense that young people are deeply affected by regular power cuts, but they try to "not worry" and "live with whatever comes." As with other more subtle forms of action and activism that are undergirded with emotions like anxiety (Brown and Pickerill 2009), frequently, overt narratives of not caring masked a more subtle sense of trying not to consciously worry about power outages, as a strategy for coping with everyday social, political, and infrastructural inequalities:

> Many citizens try not to think about power outages consciously.

> We are all aware. I cannot say there are no problems with energy in my city … but we try not to think about it.

Table 5. Young people's attitudes by age, gender, region, ethnicity and size of home

	Age	Gender	Region	Ethnicity	Size of home
Young people in my community are involved in making decisions about how energy is used in their home	$\chi^2(15) = 106.73$, $p \leq 0.001$, $V = 0.10$	$\chi^2(5) = 37.50$, $p \leq 0.001$, $V = 0.10$	$\chi^2(20) = 91.87$, $p \leq 0.001$, $V = 0.08$	$\chi^2(48) = 59.44$, $p = 0.024$, $V = 0.06$	$\chi^2(15) = 20.70$, $p = 0.147$, $V = 0.04$
Young people in my community sometimes worry about energy issues	$\chi^2(15) = 82.45$, $p \leq 0.001$, $V = 0.09$	$\chi^2(5) = 15.12$, $p \leq 0.001$, $V = 0.06$	$\chi^2(20) = 90.50$, $p \leq 0.001$, $V = 0.08$	$\chi^2(48) = 72.50$, $p = 0.001$, $V = 0.06$	$\chi^2(15) = 22.86$, $p = 0.087$, $V = 0.05$
Young people in my community often use too much energy	$\chi^2(15) = 63.83$, $p \leq 0.001$, $V = 0.08$	$\chi^2(5) = 38.14$, $p \leq 0.001$, $V = 0.10$	$\chi^2(20) = 103.49$, $p \leq 0.001$, $V = 0.08$	$\chi^2(48) = 97.38$, $p \leq 0.001$, $V = 0.07$	$\chi^2(15) = 22.48$, $p = 0.096$, $V = 0.05$
Young people in my community often do not have enough energy	$\chi^2(15) = 45.96$, $p \leq 0.001$, $V = 0.06$	$\chi^2(5) = 26.53$, $p \leq 0.001$, $V = 0.09$	$\chi^2(20) = 91.49$, $p \leq 0.001$, $V = 0.08$	$\chi^2(48) = 91.65$, $p \leq 0.001$, $V = 0.07$	$\chi^2(15) = 17.35$, $p = 0.298$, $V = 0.04$
Young people in my community regularly think about how much energy they use	$\chi^2(15) = 89.17$, $p \leq 0.001$, $V = 0.09$	$\chi^2(5) = 22.84$, $p \leq 0.001$, $V = 0.08$	$\chi^2(20) = 94.02$, $p \leq 0.001$, $V = 0.08$	$\chi^2(48) = 68.02$, $p = 0.004$, $V = 0.06$	$\chi^2(15) = 15.62$, $p = 0.408$, $V = 0.04$
Too much energy is wasted in my community	$\chi^2(15) = 70.27$, $p \leq 0.001$, $V = 0.08$	$\chi^2(5) = 22.42$, $p \leq 0.001$, $V = 0.08$	$\chi^2(20) = 107.28$, $p \leq 0.001$, $V = 0.09$	$\chi^2(48) = 97.23$, $p \leq 0.001$, $V = 0.07$	$\chi^2(15) = 22.97$, $p = 0.085$, $V = 0.05$
I would like to know more about issues relating to energy in my community	$\chi^2(15) = 41.96$, $p \leq 0.001$, $V = 0.06$	$\chi^2(5) = 31.79$, $p \leq 0.001$, $V = 0.09$	$\chi^2(20) = 72.26$, $p \leq 0.001$, $V = 0.07$	$\chi^2(48) = 61.34$, $p = 0.017$, $V = 0.06$	$\chi^2(15) = 30.57$, $p = 0.010$, $V = 0.05$

Note. $\chi^2(df)$ = Pearson chi-square value; p = asymptotic significance (two-sided); V = Cramér's V value. Where $p = < 0.05$ and assumptions of chi-square test of independence were met, lighter shading denotes $V \geq 0.03$ (weak but statistically significant association) and darker shading denotes $V \geq 0.10$ (moderate statistically significant association).

> None that I know of worries about energy. It is better if we do not think about it. We are more worried about playing and having fun and studying.

In particular, young people widely described *not talking about* power cuts as a common strategy to avoid, subdue, and mitigate worry about these endemic infrastructural failures, as per diverse studies of community responses to trauma and loss of dignity in contexts of infrastructural insecurities (Sultana 2011; Wutich et al. 2020; Cairns 2022; Choudhary et al. 2023). They consistently described how, despite their widespread and deeply felt impacts, power cuts were mostly not spoken of in their communities, friendship groups, and spaces of education. Significantly, power cuts were typically framed as private, domestic, individualized matters, not to be said aloud or asked about beyond the home:

> Young people worry about it but they talk little about it. I never talked about it with my parents. I never talked about it with my friends.

> People don't always want to talk about it. At school, with my friends, we do not discuss this subject.

> We never talk about it in class, but we know about these problems.

> We understand there are energy problems because of difficulties but we talk about other things.

> Rarely do friends talk about it. My parents discuss it. Everyone at home is concerned about this fact but it is not discussed with neighbors so much.

> Young people are afraid electricity will be lacking because they are aware. I think there is bad supply for all urban residents, but they talk about it very little.

We want, then, to recognize and think with the complex politics of young people apparently not caring about contemporary social-political issues. In this study, not caring was multilayered. The overt narrative of not caring was typically underpinned by a sense that young people mostly always care but try not to worry or do not speak of it. When understood in this light, and alongside everyday adaptations and forms of coping with power cuts examined earlier, these responses afford a fascinating counterpoint to Hards's (2013) account of how relatively privileged households might actively make visible their energy practices and concerns as a symbol of status. Hards (2013) also argued that some (economically disadvantaged) households might view their own practices as stigmatizing and will choose to compare themselves with others they view as similar. Yet, in our survey of young people, there was a clear sense that neither strategy was in place and that families rarely, if ever, managed their energy practices to render them visible or conspicuous, despite their very real concerns. Although dealing with power cuts was a routine, daily reality for many young people in our study, one critical insight is the prevalent choice among participants to not talk about power outages. Through a practice theory lens, this reframes apathy as a strategic coping mechanism to subdue anxieties associated with endemic infrastructural shortcomings and failures through decentered, yet deeply affective participation. Moreover, debate associated with practice theory has begun to engage with questions of power asymmetries, albeit to a limited degree. Extending such discussion, our data expose the uneven geographies of systemic inclusion and exclusion by illustrating how the availability of electricity, along with exposure to power cut risks and the burden of their mitigation is patterned across gender, age (eleven- to fourteen-year-olds), ethnicity, and class, and thereby imagining energy systems as sociomaterial constitutions (Chilvers, Pallett, and Hargreaves 2018). By illustrating how these inequitable geographies are in part comprised by moralizing narratives that place undue responsibility onto individual families, behaviors, or consumption, we illustrate how, without careful consideration, theories of practice might efface structural inequalities.

Discourses of Responsibility, Blame, and "Using Energy Well"

The prevalent expectation that young people would not speak of power cuts sometimes had a darker side. Although we have principally framed young people's not speaking about power cuts as a tenacious strategy for mitigating worry, it could also constitute a set of judgments and labels directed at those other families and communities that do express concern about power outages. Young people's responses implicitly constituted a whole series of othering senses of individualizing, moral judgments that the only families "really" troubled by power cuts are those who use energy "badly," wrongly, wastefully, or thoughtlessly. These narratives prompt reflection on ways in which extant youthful inequalities, normativities, and intersectional exclusions are frequently compounded and hardened through experiences of material-economic crises (Horton et al. 2024). In particular, some young people—most frequently young males living in larger properties in more affluent subregions—articulated a kind of denial that power cuts are an issue, "really." This group of young people conveyed a normative sense that their peers should not complain or care about outages:

> There are power cuts but I have no interest in these problems nor curiosity.

> There is no problem really. … Most young people don't even want to know. … They don't want to know a lot.

> Young people should not argue and they don't care much about it.

These participants often figured the existence of power cuts as a normal, inevitable imperfection of urban life, and an inarguable feature of contemporary youth, to be lived with:

> Young people should be happy with what they have. … Always there are those who care about these matters. … Some think about lack of energy but no city is perfect.

> Most of the time it is the adults who participate in decisions about energy. We do not know [about power cuts]. We live with whatever comes.

After all, these young people suggested, surely everyone has "enough" energy to power cell phones, video games, and other tech:

> Everyone I know has enough energy. Don't think about it a little bit.
>
> For now there is enough energy, so young people do not care.
>
> Enough! We all have enough energy! Do not think it! Do not worry! Everyone has enough!.
>
> Young people do not care if they have enough electricity to use electronic devices.

Or, at least, these issues were not identified as a significant concern in their own neighborhood, and this was presumed to be the case elsewhere:

> I do not know who cares about these issues. many of the children I know use tablets, cell phones, video games, etc. Everyone I know has full access to energy. I do not know anyone who worries about it.
>
> Everyone I know has enough access to energy. You will not find anyone here who fits this.
>
> Where I live has enough energy; many do not think about the amount of energy they use.
>
> Our energy supply is in good condition so we receive enough. No one cares for this issue.

This latter kind of phrasing—of our energy supply and neighborhood "in good condition"—was widely used, implicitly rendering visible the existence of other neighborhoods and infrastructures in lesser condition. Many young people spoke of other places—variously labeled "poorer," "lacking," or "challenged"—where young people did care or complain of power cuts, unlike themselves, thus extending and hardening already-existing classed geographies of community exclusions, marginality, and otherness:

> People from poorer regions suffer from a lack of energy. I don't worry about how much energy I spend in my day-to-day life.
>
> We have enough energy to carry out activities but some neighborhoods have challenges.
>
> Where I live there is no problem, but on TV and the Internet I see places that do not have enough.

Notably, a distinction was often made between (mostly rural) communities that "naturally" and "sadly" experienced energy supply precarities, versus neighborhoods where power cuts could be squarely blamed on certain residents' "wasteful" behaviors.

> In rural areas, they naturally end up not having a lot of energy access but in the city power shortage is caused by waste.

Strikingly, then, many young people articulated some moralizing narratives about the kinds of individuals who experience, or complain about, power outages in these kinds of neighborhoods. In so doing, young people implicitly mobilized anxieties about power outage as an indicator of classed otherness in several ways. First, families who experience problems with power cuts were said to lack education or understanding, which underpinned many "problems in their life."

> It depends on your education because I don't know anyone with these problems but others who don't have this information will have problems in their life.
>
> There are certain people who don't know how to use energy. They want more knowledge to avoid problems. … They hurt themselves.

Second, problems and anxieties relating to power cuts were often figured as emblematic of incompetence (whereas [*our*] more competent, skilled families are simply better able to cope with vicissitudes of power supply). For example, competence was figured in terms of family budgeting and timely bill payment.

> Power cuts happen because of lack of competence in some homes.
>
> My family can afford to spend and remembers to pay our bills.
>
> Some people are not careful. They spend energy unnecessarily. They will need to review their concepts and behavior.

Third, expressing concern about power supply was widely seen as reflecting badly on a person's "attitude" or character. For example, a distinction was often made between families who "care" about using energy prudently versus those who "don't care," and between those who behave sensibly versus those who act recklessly in relation to energy-use practices.

> Some have the wrong attitude. They use more than they need. Many do not care or think about knowing the causes.
>
> They end up recklessly using the resources. They use so much energy in some neighborhoods. They waste the energy. They don't pay bills.
>
> In my house, we try to save as much energy as possible but many people do not care how to use energy.

Fourth, some young people were singled out for actively "abusing" energy supplies: using resources "wrongly" such that problems associated with power cuts were inevitable or deserved. In contrast, families with "conscience," who "use energy well," could avoid such problems.

> Some young people abuse energy. Yes, some people don't think how much energy they are using and wasted a lot of energy.
>
> I know energy outages are caused by people wasting a lot. Some others use excess energy, and sometimes they use it wrong.
>
> Some young people leave the shower running for a long time, depends on the family structure. Some people I know don't care. Some people don't have conscience.
>
> Some adults should know better how to use energy well.

Repeatedly, such narratives locate blame for endemic power cuts not with political or institutional actors or structural inequalities, but within individual actions of certain (othered, minoritized) young people and families. As such, expressions of anxiety about power cuts were widely figured as constituent indicators of otherness, such that those young people most exposed to energy nexus risks were further excluded through narratives of educational, attitudinal, behavioral, and moral difference.

Conclusions

Fundamentally, we have asked how careful attention to young people's everyday encounters with energy might enable and require new ways of working, writing, and thinking, particularly for multidisciplinary theory, research and practice in relation to energy studies, environmental education and EfS, and childhood and youth studies. We have called for researchers and practitioners working in and across these disciplinary settings to make space to reflect on and think with young people's lived experiences of energy itself. Although our study examined young people's daily and nightly engagements with electrical infrastructures—specifically the taken-for-granted, inequitable experience of regular power cuts in the majority Global South—the article is intended as a call for a much wider range of studies working with young people in relation to diverse energy infrastructural contexts. In particular, we offer three concluding prompts for reflection. First, we would ask how young people's participation and lived experiences might unsettle and waymark research, concepts, and methods in infrastructural and W–E–F nexus studies. Our sense is that the present, normative forms and conceptualizations of many infrastructural and nexus studies do not readily accommodate and engage individual, embodied, personal experiences. We write from a concern that assured, important academic and policy narratives and visualizations of W–E–F nexus infrastructures can have a distancing effect, with all manner of everyday, intimately experienced and personal experiences, inequities, and traumas going undocumented (Kraftl et al. 2019; Horton et al. 2024). In particular, attention to lived infrastructural geographies in majority Global South contexts provides especially stark evidence of global and site-specific injustices that have often been effaced in scholarship unduly influenced by Global North–based studies and modes of analysis.

Second, we would also highlight the absence of lived, embodied, affecting encounters with electricity infrastructures in wide-ranging practice and literature in fields of environmental education and EfS, even that which is ostensibly about energy use. We are struck by just how intimately and routinely young people participate within community energy infrastructures. In our focal case study, for example, young Brazilians were both acutely and intimately affected by regular power cuts and consistently articulate about these infrastructural geographies. The specific ways these young people willingly and frequently articulated energy through talk (or nontalk) of ubiquitous, frequent power cuts surely offer a range of challenges and opportunities for environmental educators, as do young people's frequent (and frequently inequitable) discourses of responsibility, blame, and "using energy well." Third, we also highlight the limited consideration of energy in

interdisciplinary childhood and youth studies, despite the centrality of electronic devices, and therefore electrical infrastructures, for everyday lives, socialities, and popular cultures. We therefore ask how young people's encounters with, and lived experiences of, energy might matter in all manner of contemporary geographies of childhood and youth: What previously hidden geographies and inequities might surface if scholars in interdisciplinary childhood and youth studies acknowledged the copresence of energy and infrastructures in their settings? At heart, then, this article has considered how young Brazilians live with, feel about, but rarely articulate the power cuts that are a regular, often daily or nightly, thing in their lives. Perhaps it is only in the sudden, unpredictable *absence* of electricity that the centrality of energy for young people's lives becomes starkly evident. Perhaps it is only in unanticipated darkness that the inequitable geographies of contemporary electrical infrastructures may become articulable.

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Ethical Approval

Full ethical approval for this project was given by the Science, Technology, Engineering and Mathematics Ethical Review Committee at the University of Birmingham, UK (Ref. ERN_15-1599).

Disclosure Statement

No potential conflict of interest was reported by the authors.

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Data Availability Statement

Anonymised survey data from participants who provided consent, other supporting data, metadata, and further details relating to the restricted data, are available from the UK Data Service archive (persistent reference 10.5255/UKDA-SN-853398). A secondary analysis of the survey data is available from The University of Northampton Research Explorer at https://doi.org/10.24339/65121ca6-a2e4-4862-a30e-ae9a92a407c1.

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