

University of Vermont

**UVM ScholarWorks**

---

Graduate College Dissertations and Theses

Dissertations and Theses

---

2020

## **Energy Justice, Just Transitions, And Renewable Energy Policies: Examining Energy Transitions In The State Of Vermont**

Walter Keady  
*University of Vermont*

Follow this and additional works at: <https://scholarworks.uvm.edu/graddis>



Part of the [Other Environmental Sciences Commons](#)

---

### **Recommended Citation**

Keady, Walter, "Energy Justice, Just Transitions, And Renewable Energy Policies: Examining Energy Transitions In The State Of Vermont" (2020). *Graduate College Dissertations and Theses*. 1305.  
<https://scholarworks.uvm.edu/graddis/1305>

This Thesis is brought to you for free and open access by the Dissertations and Theses at UVM ScholarWorks. It has been accepted for inclusion in Graduate College Dissertations and Theses by an authorized administrator of UVM ScholarWorks. For more information, please contact [scholarworks@uvm.edu](mailto:scholarworks@uvm.edu).

ENERGY JUSTICE, JUST TRANSITIONS, AND RENEWABLE ENERGY  
POLICIES: EXAMINING ENERGY TRANSITIONS IN THE STATE OF VERMONT

A Thesis Presented

by

Walter Keady

to

The Faculty of the Graduate College

of

The University of Vermont

In Partial Fulfillment of the Requirements  
for the Degree of Master of Science  
Specializing in Natural Resources

October, 2020

Defense Date: August 24<sup>th</sup>, 2020  
Thesis Examination Committee:

Bindu Panikkar, PhD., Advisor  
Asim Zia, PhD., Chairperson  
Ingrid L. Nelson, Ph.D.  
Cynthia J. Forehand, PhD., Dean of the Graduate College

© Copyright by  
John Walter Keady  
October 2020

## ABSTRACT

In the United States, sub-national state policies play outsized roles in renewable energy policy. Vermont is considered a leader in renewable energy transitions, exemplified by its goal of a 90% reduction in greenhouse gas emissions by 2050. While scholars have praised Vermont's transition policies, few studies analyze it using energy justice or just transition principles. This is a crucial omission, as justice in energy transition has both moral and instrumental importance – unjust transitions may thwart themselves by failing to achieve widespread societal support. I make initial contributions to this study using original research conducted as a member of an environmental justice partnership. First, I find that policy ignores the opportunity provided by household transition benefits to mitigate energy vulnerability, benefitting wealthy property owners instead. The same policies also appear to impact public energy governance processes, marginalizing energy vulnerable households. As an alternative, I suggest policy frameworks which characterize energy a public good. Second, I analyze discourses in Vermont's renewable energy planning documents, as well as interview discourses about Vermont's renewable energy transition, to study how these policies prevent and/or encourage just transition politics. I compare these visions against those in just transition literature, finding marginal overlap. I conclude that Vermont energy transition discourses largely prevent just transition by assuming a neoclassical economic vision. I suggest just transition advocates may use of marginal overlap to advance rhetorical claims, but that further research into what fosters the small number of existing just transition discourses in Vermont is needed.

## ACKNOWLEDGEMENTS

I would like to acknowledge a number of people who helped me throughout this thesis process. First, I would like to thank my Committee. Dr. Bindu Panikkar especially has provided me with guidance and patience. Dr. Panikkar took a chance in bringing me to graduate school and I am grateful. Second, I would like to thank Dr. Ingrid Nelson, whose work as a “thinking coach” has greatly helped me shape my ideas. Third, I’d like to thank Dr. Asim Zia, whose flexibility and insight in the thesis process I have benefited from heavily.

I also thank the members of the Rural Environmental Justice Opportunities for Community Expertise (REJOICE) Partnership. This large project is worthwhile and exciting, and I am hopeful it continues. In the same vein, I would like to thank those individuals who participated in REJOICE surveys, interviews, and community meetings. I am so appreciative of your time, your patience, and your input.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
LIST OF TABLES.....	vi
CHAPTER 1: COMPREHENSIVE LITERATURE REVIEW .....	1
1.1. Energy Transitions in Context .....	1
1.2. Energy Justice .....	3
1.3 Just Transitions .....	7
1.4. Energy Justice, Just Transitions, and Policy.....	15
1.5 Vermont Transition Policy.....	18
CHAPTER 2: ENERGY JUSTICE AND INVESTMENT-FOCUSED RENEWABLE ENERGY POLICY MECHANISMS IN VERMONT .....	22
Abstract:.....	23
1. Introduction.....	23
2. Energy Justice, Anti-Resilience and the Vermont Context: .....	26
3. Methods .....	32
4. Results and Discussion .....	38

5. Conclusions and Policy Implications.....	51
6. Acknowledgements:.....	57
7. References:.....	58
7. Funding.....	63
8. Data Availability.....	63
CHAPTER 3: MARGINALLY JUST: NEOCLASSICAL VISIONS IN VERMONT’S ‘ENERGY FUTURE’ .....	64
Abstract:.....	65
1. Introduction.....	65
2. Background.....	68
3. Methods and Materials: .....	74
4. Results and Discussion .....	77
4. Conclusion .....	89
5. References.....	91
6. Funder information: .....	96
7. Disclosure: .....	96
8. Acknowledgements.....	96

COMPREHENSIVE BIBLIOGRAPHY ..... 97

## LIST OF TABLES

Table	Page
Table 1: Energy Transition Questions by Household Income Responses .....	42
Table 2: Energy Transition Questions by Home Ownership Responses .....	43

## **CHAPTER 1: COMPREHENSIVE LITERATURE REVIEW**

### **1.1. Energy Transitions in Context**

Climate change's roots in fossil fuel energy emissions make renewable energy transitions – intentional political projects to replace such fuels – central to mitigation and adaptation. Yet this statement ignores important questions of who uses fossil fuel energy, how, how much, and why. These are questions of how energy entangles with social, political, and economic structures (equally applicable to renewable energies as well), which I think are critical to understanding energy transitions. The academic and activist fields of energy justice and just transitions point out that these are also questions of fairness. Energy transitions therefore cannot be neat and tidy substitutions, but are instead complex sociotechnical processes.

Williams and Doyon (2019:144) summarize this perspective with the claim that there are “normative and instrumental” reasons for justice in energy transitions. Their normative case refers aligns with the Just Sustainabilities framework, prioritizing social equality and cooperation alongside environmental wellbeing (e.g. Agyeman 2013; Agyeman et al. 2016). The norm is premised on an interconnection between society and nature, including in terms of energy. An example of such interconnection is how in many parts of the world, heating is necessary to human wellbeing. When dependent on fossil fuels, heating pollutes the atmosphere with greenhouse gases (GHG) and threatens life across the planet. From the sustainability framework, it is key to prevent GHG emissions without denying people the fuels they need to sustain themselves. For instance, raising the prices of heating fuels to discourage use may force low-income households to go

without adequate heating fuel in order to afford other needs (Sovacool and Dworkin 2014).

Williams and Doyon's instrumental case refers more to social, political, and economic systems, stating that injustices "erode support" for transitions in general (2019:144). Recent examples of this include the 2018 Yellow Vest protests in France, sparked by a fuel tax increase to discourage fossil fuel use (Nature Energy Editorial Board 2019). In Ecuador, the government's removal of subsidies for fossil-based cooking fuel also spurred widespread protests, leading to subsidy reinstatement in 2019 (BBC News 2019). Each of these upheavals stems from the interconnections between economic systems that provision energy as a commodity, political systems governing their pricing and access, and socioeconomic systems which leave the distribution of wealth uneven.

These cases alone demonstrate the importance of justice in climate mitigation (and adaptation) policy. But they gloss over an important, interrelated point, which is the interconnection of social hierarchies with these political and economic conditions. For instance, access to affordable energy varies significantly by race in the United States, with high prices and precarious access disproportionately affecting people of color (Finely-Brook and Holloman 2013; Baker 2019). The fields of energy justice and just transition both address these hierarchies, and are therefore crucial to climate change politics and policies. But both fields are broad with conflicting positions. In what follows I argue which positions in each field I find most useful for climate analyzing energy transition policies. I also discuss overlap between the two fields and suggest how they can be combined in analysis.

## 1.2. Energy Justice

Energy justice is largely an academic – as opposed to “activist” – field (Heffron et al. 2015; Jenkins 2018) addressing the social injustices surrounding energy use writ large. The field also addresses injustices that arise in energy transitions. It has roots in the environmental justice literature (Jenkins et al. 2016; Jenkins 2018) and therefore focuses on distributive injustices (e.g. the concentrations of polluting energy production facilities in areas populated by people of color), procedural injustices (e.g. lack of due process in energy infrastructure siting), and/or recognition injustices (e.g. utility companies failing to recognize the electrical needs of at-home medical patients in developing price models). By the same logic, it also focuses on energy issues faced disproportionately by the poor, people of color, and women (Sovacool et al. 2016; Lennon 2016; Baker 2019; Allen et al. 2020).

I find three main principles in the energy justice framework. First, energy and energy use are key components of livelihood and wellbeing (Sovacool and Dworkin 2014; Day et al. 2016). Energy vulnerability – “problems of access to sufficient and affordable energy” (Day and Walker 2013:15) – is therefore an injustice because it interferes with peoples’ ability to meet their needs comfortably. The usual example of this is fuel poverty, in which poor households spend disproportionate shares of their money on fuel costs (see for example Walker and Day 2012; Teller-Elsberg et al. 2016; Reames 2016). Second, social, economic, and political forces combine to produce energy injustices because energy systems are sociotechnical. This term refers to the fact that the politics, economics, infrastructure, purposes, uses, and technologies that make the energy

system function cannot be meaningfully separated from social questions (Miller et al. 2013). Energy injustices are therefore contingent on political, social, and economic systems, not the result of chance. Baker (2019) points out how concentrations of energy extraction, refinement, and pollution in communities of color in the United States is part of environmental racism and sacrifice zones more broadly (see also Agyeman et al. 2016).

Third, energy transitions must address these interconnections, and policies that do not are inappropriately technocratic or misguided. Eames and Hunt (2013:49) point out that energy transitions include “deeply contested technologies and prospective societal pathways to a range of different low-carbon futures” each with “differing distribution of socio-economic costs and benefits.” Sovacool and colleagues (2016:311) similarly remark that energy transitions are “highly confrontational” by default because they require “alterations at every level of the energy system, in a nearly simultaneous manner.”

This third tenet contrasts some with the dominant Multi-Level Perspective (MLP) theories about energy transitions such as “transition management,” and “technological information systems” (Eames and Hunt 2013; Geels 2005; Geels et al. 2017). These fields approach transitions less in terms of justice and injustice than of optimality and effectiveness. While MLP theories share the sociotechnical systems perspective with energy justice literature, they are somewhat more ambivalent about whether or not justice arises from energy systems (Eames and Hunt 2013). In such approaches to transition, energy systems are made up on one level of individual interactions, a second by rules,

policies, and available technologies which shape those interactions, and a third by overall system ‘paradigms,’ which are the prevailing character of the systems themselves (e.g. a ‘fossil fuel’ paradigm vs a ‘renewable energy’ one). The primary objective of ‘Transition Management’ or ‘Technological Information Systems’ is therefore to tweak rules and policies on the second level, often using technocratic measures like economic and behavioral modeling, to change individual behaviors or available technologies in the first. Once these behaviors change, MLP frameworks contend that the energy systems shift into new paradigms (Eames and Hunt 2013). Whereas this approach is thought to achieve energy transitions as efficiently and effectively as possible, energy justice perspectives, though they may draw on MLP theories, are concerned more with normative outcomes.

Authors in the energy justice field disagree about what measures are necessary to realize these principles in energy systems and energy transitions. Sovacool and colleagues (2017:677) provide a consensus definition of energy justice: “a global energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making.” To this, I would add contributions from the subfield of energy democracy, which Burke and Stephens (2017:35) define as a process of “democratically restructuring the energy and electricity sectors through the processes of shifting from fossil-fuel-based systems to renewable energy systems.” The definition of energy justice thus includes some kind of strong, egalitarian decision-making institutions (in a related paper, Stephens et al. [2018] cite Vermont’s Town Energy Committees as localized bodies which can make energy planning more democratic).

A reform-oriented branch of the field advocates for justice through policy principles, metrics, or criteria for energy decision-makers to consider or weigh. A central example is Heffron and colleagues' energy justice metric, which aims to quantify energy justice to "directly connect with economists" who are "dominant" in energy policy and decision-making (Heffron et al. 2015:172). Jenkins (2018:120) notes that such an approach, distinct from "activist" approaches of other fields, lets energy justice scholars make "significant contributions to mainstream policy-making." By contrast, Lennon provides a revolutionary approach to energy justice and energy systems, targeting not the criteria energy decision-maker's weigh as the causes of injustice but the nature of the system itself. Lennon, tracing the role of energy and energy systems in slavery in the United States and the legacy of racism, argues energy injustice comes from the material of energy systems and energy transformation themselves: "[w]e can talk endlessly about fossil fuels' deleterious impacts on communities of color, but the point here is that our commercialized infrastructure for transforming matter – which includes solar panels on low income buildings – has always taken shape through structures of meaning and materiality that deem certain lives expendable" through, among other practices, sacrifice zones (Lennon 2017:25; see also Mulvaney 2019)

I find Baker's 'anti-resilience' (2019) framework effective in bridging these two positions. Baker draws from Lennon, claiming energy systems should be analyzed with the assumption that they fundamentally harm low-income communities and communities of color (by creating relationships of dependence between these communities and for-profit energy providers, by turning these communities into sacrifice zones for energy

extraction or production, through exploitative energy workforce practices, etc.). However, the framework avoids the dichotomy of ‘reform or revolution.’ Instead, it draws a distinction between ‘resilient’ policies that address unjust outcomes in the energy system and transformative policies that disrupt the processes which produce such outcomes. It assumes the former will “freeze [injustices] in place” (2019:36), while anti-resilient, transformative policies will “yiel[d] new possibilities of ownership structures and relationships to power” (2019:46). Baker provides four guidelines for creating transformative policies and seizing opportunities for justice in transition: place “people of color and the poor at the front of the line to benefit” (2019:39), create official processes for energy policy that “specifically include under represented communities” (2019:43), “redistribute the economic benefits of the energy system” (2019:44) and reconceptualize energy “as a commons” (2019:46) rather than a commodity. As an example, energy policies like net metering, targeted explicitly towards low-income communities and communities of color, could be anti-resilient by disrupting dependence on for-profit utilities for energy production and energy access. By contrast, Baker cites the state of Hawai’i’s renewable portfolio standard as resilient, operating such that that “low-income communities home to large Native Hawaiian populations and people of color...will once again be home to new, largescale clean energy plants owned by corporate interests” (2019:19).

### **1.3 Just Transitions**

Just transition literature, by contrast, is more ‘activist.’ It is at once a mainstream political concept, an academic field, and a demand of social (and labor) movements

(White 2019; Jenkins et al. 2020; Stevis et al. 2020). The concept has much in common with energy justice, however. Healy and Barry (2017) refer to it as energy justice’s “politicization.” Like energy justice, just transition has roots in the environmental justice movement (Farrell 2012), focusing heavily on the distribution of benefits and burdens—often in economic terms relating to jobs and local economies—which occur as a part of environmental politics. While the term is most frequently used now in terms of climate change and energy transitions (Rosemberg 2020), originally it also addressed toxins and environmental pollution more broadly (White 2019). As opposed to macro-scale questions of economic ‘health’ or ‘efficiency,’ just transition is focused specifically on disadvantaged “workers and frontline communities” (Stevis et al. 2020:21). In the most general terms, just transitions literature calls for special measures to protect people whose employers will fire them in response to environmental or energy regulations, as well as local economies underpinned by these employers. As described below, the extent to which these special measures extend throughout society or across other disadvantaged groups is debated in the field.

The exact meaning of just transition, however, is contested (Stevis et al. 2020:4). Perhaps the single unifying principle is the moral commitment to protecting individuals from market forces. In other words, opposing the principle that individuals meet each other in the market as equals and that market exchange efficiently optimizes all individuals’, and therefore society’s, utility (Gowdy 2010). Newell and Mulvaney (2013:144) characterize this position as a need to “centrally address the key political economy questions of ‘who wins, who loses, how and why’ as they relate to the existing

distribution of energy, who lives with the side effects of its sites of extraction, production and generation, and who will bear the social costs of decarbonizing energy sources and economies.”

Like energy justice, the just transition advocates split on how to advance their goals. What I call ‘narrow’ just transition proposals concentrate on preventing or mitigating distributive conflict in energy transitions. Here, just transition is broadly a way to overcome the ‘jobs versus environment’ framing (Evans and Phelan 2016). Narrow just transitions involve proposals for retraining, direct compensation, or other mitigating measures for workers and frontline communities. Eisenberg (2019:324-328) for example proposes targeted federal aid packages and calls for long-term engagement of local economic planning with disadvantaged people. Tcherneva (2018) proposes a US-Federal Jobs Guarantee program which would place displaced energy workers in new positions automatically. Rosenberg (2017:8) suggests (among other proposals) active labor market policies to deliver “employment services and providing information, guidance, and matching services” to “workers at risk of unemployment.”

I consider these narrow because they are typically targeted programs with geographic or employment-sector specifications. By contrast, broad approaches to just transition focus on the political economy and socio-natural relationships as a whole (Giacomini 2020; Goldtooth 2020). I find general tenets of this perspective include 1) political economies are unfair, and the distributions of power within them are uneven (e.g. Newell and Mulvaney 2013); 2) modes of economic production themselves, as opposed to particular industries alone, are unsustainable and require “proactive

transformation” (White 2019); and 3) energy and energy systems are core components of these modes of economic production, and changing them disproportionately harms disadvantaged people within political economic systems. In this last tenet, the broad approach to just transition overlaps heavily with energy justice and energy democracy (Sovacool and Dworkin 2014; Sovacool et al. 2017; Lennon 2017; Baker 2019).

Proposals for broad just transition are usually for radical changes in political, social, and economic relationships. For instance, Snell (2020:214) calls for “an interventionist state committed to social partnership and union involvement in the transition process.” The Climate Justice Alliance’s just transition frame is maintains that “the profit-driven industrial economy rooted in patriarchy and white supremacy is severely undermining the life support systems of the planet” and accordingly “[w]e must build visionary economy that is very different than the one we now are in” (Climate Justice Alliance 2020). Similarly, leaders from the Cooperation Jackson movement advocate for political changes which “create the conditions for the ecosocialist future we need” (Akuno 2020:108).

These three examples demonstrate that in terms of policy, broad just transition advocates often propose vague frameworks. This contrasts with the narrow frame, which is typically rooted in calls for specific (even if large-scale) government programs (e.g. the jobs guarantee). The narrow frame has had significant uptake of narrow just transition proposals in mainstream politics (Jenkins et al. 2020), which I find important but insufficient. While the narrow field’s attention to distributional conflict is critical, I believe it inappropriately separates politics, economics, and environmental concerns into

problems which can be addressed in isolation. For instance, as Eisenberg (2019:323) points out, justifications for just transitions for energy workers may raise questions about just transitions for others: “where workers formed a longstanding dependency relationship with one industry [e.g. New York City Taxi Drivers]; their industry performed a quasi-public function; and the public’s failure to act left the workers vulnerable to an abrupt collapse of their industry, leaving them without meaningful alternatives.” This speaks to the difficulty of addressing a particular economic sector without addressing Newell and Mulvaney’s ‘political economy questions.’ Moreover, addressing one of these three areas in isolation ignores its impact on the others. Proposals for a job guarantee, for instance, may fail to consider the impact of full employment on the ecological consequences of economic growth it entails.

The broader just transition field focuses on the interdependence of these factors, drawing from frameworks in which political, social, and economics are materially embedded in non-human nature (e.g. Brown 2016) and environmental problems originate from social inequalities (Bookchin 1980; Salleh 2009). The broad just transition framework therefore addresses social, political, and economic justice through a political economy lens. It aligns broadly with Fraser’s Marxian definition of capitalism as an “institutionalized social order” (Fraser and Jaeggi 2018:166). By this, Fraser means that economic production depends on not only on labor exploitation also upon social and natural exploitation (e.g. paid and unpaid gendered labor, racialized expropriation of labor and land, and the need to pollute and disrupt land for fueling growth and depositing waste) (Fraser 2014).

Fraser's point is not that these relationships are 'functional' to capitalism or begin with capitalism (Fraser and Jaeggi 2018:19). Instead, it is that they are all interconnected ("imbricated") with one another. Changes in one or more of these relationships reshape the others with which they are intertwined (Fraser 2014:68). Accordingly, action towards 'economic' justice in energy transitions must necessarily overlap with and work for justice in other social relationships – race, gender, and environmental. "Workers and frontline communities" therefore becomes a shorthand for the disadvantaged people in such relationships.

Importantly, the term "does not mean essentializing workers by overstating their role or placing them above other alienated and oppressed groups" (Stavis et al. 2020:21). Instead, support for 'workers and frontline communities' implies support for a broad view of environmental justice (e.g. Sze 2020) recognizing that 'frontline communities' (e.g. a coal mining town) are typically low-income and/or communities of color (Farrell 2012; Baker 2019). Further, recognizing that 'workers' in low-carbon economies may be more likely exploited by gender (Pearl-Martinez and Stephens 2016; Littig 2018, Giacomini 2020). Membership in 'workers and frontline communities' is therefore more about "axes of injustice" (Fraser and Jaeggi 2018:171), themselves bound up with "the organi[z]ation of and relations at work" (Stavis et al. 2020:22), than specific people or places.

Just transition perspectives are thus multi-scalar (Pellow 2017). For instance, disadvantaged in the transition away from the use of coal would not simply be coal miners and coal communities but electricity customers who may experience rate

increases. The just transition vision is thus akin to Wichterich's (2015:83) There Are Many Alternatives (TAMA) framework. Here, people, rather than "wait[ing] for a single consensus on how to completely transform society" resist and unmake injustices "with multiple strategies" (Harcourt and Nelson 2015:10) starting from where they are with the conditions in front of them. The vision of the just transition discourse is thus one of strengthening political conditions ("enabling space" [Wichterich 2015]) in which these 'many alternatives' can thrive, and one in which 'workers and frontline communities' unmake "axes of injustice" by their own initiative (Fraser and Jaeggi 2018:171).

A central example would be Cooperation Jackson's build-and-fight strategy, working to 'build' or prefigure a just transition through construction of a "solidarity economy" of worker-owned cooperatives focused on environmental sustainability (Akuno 2020). Their efforts extend into official politics too, 'fighting' at the municipal level, national and international levels (Akuno 2020:106) for policies which support their efforts to 'build.' The organization's Just Transition plan, for instance, calls for "expanded and sustainable public transportation" (Cooperation Jackson 2015) strengthening the flow of people and goods throughout the solidarity economy (and beyond) and decreasing fossil fueled transportation emissions.

The end goal of just transition is therefore quite vague. It might be thought of as a democratized political economy in which people can pose and answer normative questions about the purpose of their energy and economies: "energy for what? And to sustain what kinds of modes of life?" (White 2019:14). The upshot should not be that just transition is 'unrealistic' or unwieldy, but that a neat, packaged 'just transition'

policy will be insufficient and overly simplistic. As opposed to targeting particular economic sectors for relief in energy transitions alone, better approaches would be targeting specific conditions preventing worker and frontline community initiatives. These conditions might include proposals under the narrow just transition framework (for example, a jobs guarantee would alleviate conditions preventing fired energy workers from finding new jobs) but under a broad transition framework these are understood as enabling, not causing, larger changes in political economic conditions.

What follows from this overview is that there is much overlap between the energy justice and just transition fields. An overly simplified distinction between the two would be that energy justice, with its emphasis on households and energy sufficiency, pertains to energy use while just transitions, emphasizing political economy, focus on energy production. The strength of the anti-resilience framework proposed by Baker, and the broad just transition frameworks laid out by White and Stevis and colleagues, is their ability to address production and use holistically. The broad just transition frame as I have described it necessarily includes energy justice perspectives because of its attention to “axes of injustice” ranging from energy production to consumption. The anti-resilience framework also overlaps readily with a build-and-fight strategy from the broad just transition framework, demonstrated by its proposals for “new possibilities of ownership structures and relationships to power” (Baker 2019:46) in energy systems. There is also a slight connection between the MLP framework off of which energy justice scholars build and the “enabling space” approach to just transitions. In this context, secondary or ‘regime-level’ policies and rules in the MLP framework are akin to policies

providing “enabling space.” Where the just transition framework breaks from MLP is in MLP’s assumption that the primary or ‘individual-level’ is composed of individual equals. Just transition, by contrast, sees these individuals organized along axes of injustice, with social, political, and economic injustices hardwired into the system. Therefore, like energy justice, just transitions perspectives cannot accept the ambivalent ‘optimality’ focus in some MLP frameworks, but the two share an approach to rules, policies, and ‘regimes’ governing behavior.

#### **1.4. Energy Justice, Just Transitions, and Policy**

Though they address a wide range of relationships beyond formal political ones, energy justice and just transitions of course concern themselves with content and purposes of energy transition policies. As discussed above, the criteria on which policymakers make energy decisions are central to some energy justice scholars. The distributive impacts of energy policy decisions are also central concerns of the field of just transitions. But the fact that both fields have roots in environmental justice complicates their relationships to policymaking and the state in general. Recent papers from Pulido and colleagues (2016) and Pellow (2017) criticize the state – and therefore policy decisions—as antithetical to justice. For Pulido and colleagues, this comes from the relative ineffectiveness and lack of enforcement for environmental justice policy in the United States. For Pellow, it comes from theoretical works about the state label it inherently unjust and anti-ecological. I find these claims important, but I break with them slightly. I consider each one to essentialize states and governments, treating them as unitary actors. Routledge and colleagues present an alternative framework in which the role of government is contingent and the state is

“contested terrain” for justice movements (2018:82). I find this perspective useful in recognizing the social, political, and economic forces which constrain ‘the state’ (e.g. for Pulido et al., racial capitalism), but not leaving the power lying in the state and policy to their control (Cumbers 2015).

Moreover, the urgency of climate mitigation and adaptation poses an instrumental reason for engaging with the state and policy as a means to coordinate systemic societal changes. Wichterich makes the point that for equitable political economy and sustainability in general (and in my reading, climate change mitigation) “a state is needed...[i]t must shift its focus to fair distribution through regulation and taxation of real and financial markets, and protection of nature, social reproduction and the public good from subjection to economization and privatization – thereby enabling spaces for an economy of solidarity, a change in society–nature relations and for overcoming the production–reproduction divide and the gender-hierarchical division of labour” (2015:94). Without holding “the state” and “policy” as interchangeable, and holding Wichterich’s point that such a state may not currently exist, I understand transition policies as potential tools for building such a state, and analyze them accordingly.

Academics in both fields have put forth examples of just energy transition policy inside this contested terrain, including in the US-state of Vermont. Baker (2017:233) cites community solar policies in Vermont as a “hint” of an energy just system. These policies allow multiple individuals to own solar arrays collectively, defraying upfront costs to ownership and spreading benefits of net metering payments among owners. Stephens and colleagues (2018) also highlight Town Energy Committees (local-level government bodies

providing planning and guidance for local energy policies) in Vermont as steps toward energy justice and energy democracy. On a global level, Jenkins et al. (2020) claim the use of the term in United Nations Framework Convention on Climate Change proceedings, including the 2015 Paris Agreement, as proof of policy success. In regional terms, Snell (2020) has described the difficulty of local-level just transition policy in the Latrobe Valley in Australia, offering instead the example of labor unions' efforts to broker agreements between firms to give preference to fired energy workers.

Jenkins et al. (2020) call for just transition scholars to 'politiciz[e]' their work in terms of the Nationally Determined Contributions stemming from the 2015 Paris Agreement. This poses a challenge for scholars studying the United States, the Federal government of which lacks a comprehensive plan for energy transition (and has sought to break with the Paris Agreement altogether). In this absence, the energy transition policies of subnational state governments in the U.S. take on additional importance (Rabe 2019). Many of these arose before the 2015 Paris Agreement, and therefore their interactions with energy justice and just transitions, however defined, are uncertain. In what follows, I will detail a case of Vermont's energy transition policies, a state considered a leader and a model for others and therefore influential. In light of Williams and Doyon's "normative and instrumental" calls for justice in transitions, I examine the extent to which previous academic papers have addressed these questions as well, foreshadowing my two research papers below.

## 1.5 Vermont Transition Policy

The Vermont state government has pursued renewable energy policy for more than twenty years, which this paper does not exhaustively describe. Instead, I focus on policies with household-level impacts, a core building block of which is the net metering program. Starting in 1998, the program mandated that electric utilities pay owners of ‘Certificates of Public Good’—awarded to small-scale renewable electricity producers, often solar photovoltaic arrays—for electricity generated and distributed on the grid (Vermont Department of Public Service 2020c). In 2005, the Vermont Legislature expanded on this with policy incentivizing electric utilities to enter long-term purchasing contracts with renewable energy producers (DSIRE 2015). More consequential renewable energy policies emerged in the 2010s, during which the state adopted two Comprehensive Energy Plans (CEP) which set goals to reduce all non-renewable energy consumption by 90% by 2050 (VDPS 2016), along with smaller benchmarks along the way. The Legislature also enacted a Renewable Energy Standard (RES) in 2015, compelling electric utilities to sell increasing quotas of renewably-produced electricity, source increasing amounts of electricity from ‘distributed’ (i.e. small scale, Vermont-based) generators, and invest increasing amounts in “energy transformation” infrastructure (e.g. electric vehicle chargers) (VDPS 2020c).

On top of these electricity policies, the CEPs call for 33% reduction in energy consumption per capita by 2050 (VDPS 2016:2), implicating the government’s longstanding thermal efficiency policies in its overall emissions reduction plans (Clement 2016). A total of 45% of Vermont’s total energy use comes from thermal

energy, of which 76% is non-renewable. Thermal efficiency efforts therefore play a significant role in meeting CEP goals (Energy Action Network 2019) Central to these are those governing “energy efficiency utilities” (EEUs) which, under oversight from the Public Utilities Commission, provide loans and rebates to consumers for electric and thermal efficiency upgrades (VDPS 2020a). The Department of Public Service also sponsors loan programs for low-income households to pursue thermal efficiency upgrades (VDPS 2016:74-75). Another body, the Department for Children and Families also implements the Weatherization Assistance Program (WAP) which combines funding from the Federal Low Income Weatherization Assistance Program and a tax on heating fuel to provide free weatherization services to low income households (DCF 2020).

Sovacool and colleagues (2014) as well as Stephens and Colleagues (2018) praise the Vermont government’s participatory processes for developing and managing renewable energy plans. Central institutions for these tasks include the Public Utilities Commission, a quasi-judicial body which “supervises the rates, quality of service, and overall financial management of Vermont’s utilities” (Vermont Public Utilities Commission 2020), and more locally, Town Energy Committees which provide “democratic space for local conversations about energy planning and energy innovations...[and] provide input on the state-level conversation about Vermont’s energy future” (Stephens et al. 2018:7). The Energy Generation Siting Policy Commission also provided space for public engagement in determining siting procedure (Sovacool et al. 2014:52), which eventually influenced the Vermont Legislature allowing

municipal governments to set town-level ‘energy plans’ with local input (Vermont Legislature 2016). The 2016 CEP also claims “substantial” public involvement in designing it (VDPS 2016:8), including focus groups and public feedback solicitation processes.

So far, reports on Vermont policy claim success in emissions reductions: “The increasing renewability of our electricity sector has brought us very close to achieving the first CEP milestone — 25% renewable by 2025” (EAN 2019:3). Though these reductions do include newly constructed generation facilities in Vermont, these reductions also stem from Renewable Energy Certificates (RECs), which allow the purchasers like electric utilities to ‘offset’ their carbon emissions by paying producer to generate renewable electricity elsewhere. They also include electricity purchased largely from the Canadian generators owned by Hydro-Quebec (EAN 2019:235). How to advance emissions reductions in the transportation and building heat sectors appear more difficult, (EAN 2018) and these sectors appear to demonstrate more “lock-in” (Urge-Vorsatz et al. 2013). Despite this, academic and non-academic sources consider Vermont as an overall “leader” in US-State renewable energy transitions (Sovacool et al. 2014; Levine 2016; Silverman 2017; Glitman 2018; Stephens et al. 2018).

This recognition aside, few studies have addressed Vermont’s energy transition using justice-based frameworks. Policy evaluations too address the Vermont energy system at the level of utilities and large-scale renewable generators, as opposed to a focus on households, ignoring a core area of focus of energy justice, for instance.

In general, authors have found high energy costs in the state (Mittlefehldt and Tedford 2014:11) and disproportionate concentration of energy poverty (spending greater than 10% of monthly income on energy costs) among low-income residents (Teller-Elsberg et al. 2016:83-87). Still, these studies relate to energy use writ large, but deal less with energy transition policies. While these papers use energy justice concepts, to my knowledge, no paper has studied Vermont using a just transition framework. This absence has motivated the research papers below, which intend to call attention to prospects for justice and injustice under Vermont's current frameworks. As this review of literature has shown, these subjects can be investigated from a variety of frameworks, themselves full of divisions. What follows is an attempt to draw lessons from a case study of Vermont particular, but with an eye towards how they may relate more generally to energy transitions and justice in the United States.

## CHAPTER 2: ENERGY JUSTICE AND INVESTMENT-FOCUSED RENEWABLE ENERGY POLICY MECHANISMS IN VERMONT

**Journal Format:** *Energy Policy*

**Title:**

Energy Justice Concerns in Investment-focused Approaches to Renewable Energy Transitions: A Case Study of Energy Vulnerability in Vermont

**Authors:**

Walter Keady,<sup>a</sup> Bindu Panikkar,<sup>b</sup> Ingrid L. Nelson,<sup>c</sup> Asim Zia<sup>d</sup>

**Affiliations:**

<sup>a</sup> University of Vermont, Rubenstein School for Environment and Natural Resources, George D. Aiken Center, Burlington, Vermont 05401 [walter.keady@uvm.edu](mailto:walter.keady@uvm.edu)

<sup>b</sup> University of Vermont, Rubenstein School for Environment and Natural Resources, George D. Aiken Center, Burlington, Vermont 05401 [bindu.panikkar@uvm.edu](mailto:bindu.panikkar@uvm.edu)

<sup>c</sup> University of Vermont, Department of Geography and the Environmental Program, 200 Old Mill Building, Burlington, Vermont 05401 [ilnelson@uvm.edu](mailto:ilnelson@uvm.edu)

<sup>d</sup> University of Vermont, Department of Community Development and Applied Economics, 208E Morrill Hall, Burlington, Vermont 05401 [azia@uvm.edu](mailto:azia@uvm.edu)

**Corresponding author:** Walter Keady

**Highlights:**

- Access to household renewable energy benefits such as solar net metering and thermal efficiency upgrades correlate significantly with wealth and homeownership
- Knowledge of and participation in energy policy correlates positively with wealth and homeownership
- Interview data suggest typical approaches to mitigating these barriers (such as on-bill financing) can only partially address the problems, not overcome them.

**CRedit Author Statement**

**Walter Keady:** Conceptualization, Investigation, Data Curation, Writing – Original Draft, **Bindu Panikkar:** Writing – Review & Editing, Supervision, Project Administration, Investigation, **Ingrid L. Nelson:** Writing – Review & Editing, **Asim Zia:** Writing – Review & Editing

## **Abstract:**

This study examines relationships between Vermont’s renewable energy policies and energy vulnerability in the state. Drawing on survey and interview data, we argue that current policy mechanisms such as incentives for benefits such as solar net metering or thermal efficiency upgrades accrue to wealthy property owners, as opposed to energy vulnerable households. These policies incentivize transition benefits through subsidizing them as investments available to households with capital and property rights. This incentives mechanism contrasts with energy justice proposals that argue policy should treat transition benefits as opportunities to mitigate high energy prices and/or thermal inefficiency energy-vulnerable households. The incentives mechanisms also appear to impact public process over energy permitting and siting, marginalizing energy vulnerable households and prioritizing the same beneficiaries. As an alternative that is more likely to overcome political-economic barriers of property and income distribution, we suggest policy frameworks that characterize HTB access and energy as a whole as public goods to which everyone is entitled. We argue such an approach could overcome ownership and access concerns whereas typical proposals such as on-bill financing cannot.

**Keywords:** Anti-Resilience, Energy justice, Energy transitions, Vermont

## **1. Introduction**

Replacing energy sources that emit greenhouse gases (GHG) with low- or no-carbon sources is a key climate change mitigation strategy. In the United States (US), where there is no comprehensive federal policy to reduce GHGs, state-level<sup>1</sup> policies are

---

<sup>1</sup> I use this term to refer to the subnational ‘states’ within the US, not to countries.

core drivers of energy transitions. Studying state-level renewable energy policies is especially important because the content of energy transition policy also varies greatly across energy systems. Williams and Doyon (2019:144-5) note that there are “normative and instrumental” reasons to center justice in energy transitions because unjust transitions “erode political support for transition efforts”. The disruptive Yellow Vest protests in France provide a stark example: an increase in the price of fuel triggered widespread backlash among disproportionately affected drivers outside of rural areas. In response, after the French President conceded and suspended the proposed tax (Nossiter 2018). Williams’ and Doyon’s paper extends the work of energy justice scholars emphasizing that *how*, not simply whether transitions occur matters in ethical terms too. As energy systems are fundamentally entangled with social, political, economic, and technical issues, energy transitions may unjustly harm certain segments of society, frequently low-income populations and/or people of color. Energy transitions are therefore matters of social justice (Newell and Mulvaney 2013; Miller and Richter 2014; Sovacool and Dworkin 2014; Jenkins et al. 2016; Lennon 2017; Eames and Hunt 2017; Geels et al. 2017; Baker 2019; White 2019). Baker (2020), for instance, describes how Mexico’s climate action agenda disproportionately concentrated wind energy development in the poor, ethnically diverse state of Oaxaca without meaningful consultation of residents or equitable distribution of economic development.

Distribution of energy transition benefits also relates to household-scale concerns. As Finley-Brook and Holloman (2016:3) note “wealthier populations are more likely to gain, sometimes at the expense of the poor.” For brevity, we refer to these gains, such as

residential solar with net-metering (allowing owners to sell electricity ‘back’ to the grid), or household weatherization (reducing energy expenditure through insulation efficiency), as household transition benefits (HTBs). The distribution of and access to HTBs is a question of equity as much as equal distribution as these technologies can reduce household energy burden (the proportion of spending a household spends on energy costs) which disproportionately affects people of color and low-income people (Baker 2019).

This paper applies energy justice frameworks to energy transition policies in Vermont, a U.S. state considered to be a national leader and a model for other states because of its successes in increasing the consumption of renewably-generated electricity, investments in electric and thermal efficiency, overall energy renewable energy goals, and planning processes for renewable energy development (Koliba et al. 2014; Sovacool et al. 2014; Levine 2016; Silverman 2017; Glitman 2018; Stephens et al. 2018). While some studies have analyzed Vermont’s general transition policies, few have done so using an explicit justice focus. This paper applies Baker’s “anti-resilience” energy justice framework to original research data evaluating energy *vulnerability* as a broader category of injustice. Using a convergent mixed methods approach (Creswell and Plano Clark 2018), we analyze surveys, interviews, and government data to ask what injustices arise as a part of the renewable energy transition in Vermont, and how? Following a results section, we identify a concentration of energy vulnerability among low-income and non-homeowning households. Focusing on HTBs, we identify injustices in access to transition benefits such as solar net metering and energy efficiency upgrades, as well as in participation in energy decision-making. We conclude by drawing on proposals from Wichterich (2015), White

(2019), and Stevis and colleagues (2020) that promote justice in transition policy as “enabling spaces” for bottom up change, as opposed to providing justices itself. We suggest an alternative policy principle that treats energy as a public good, mitigating access barriers and encouraging more meaningful participation in energy decisions.

## **2. Energy Justice, Anti-Resilience and the Vermont Context:**

### **2.1 Energy Justice:**

Sovacool and colleagues (2017:677) define energy justice as “a global energy system that fairly distributes both the benefits and burdens of energy services, and one that contributes to more representative and inclusive energy decision-making.” While the field is diverse, it is possible to distinguish three major tenets. The first focuses on the entanglement of energy production, distribution, and use with social, political, and economic dynamics (Miller et al. 2013; Sovacool and Dworkin 2014; Heffron et al. 2014; Jenkins et al. 2016). Often, this tenet includes research focusing on household energy *consumption*, relating to the field’s position that energy access is a key aspect of human wellbeing (Sovacool and Dworkin 2014). Such studies focus frequently on ‘energy vulnerability’ or “problems of access to sufficient and affordable energy” (Walker and Day 2013:15) among marginalized populations.

The second tenet criticizes technocratic ‘Transition Management’ renewable energy policies (see Bickerstaff et al. 2013; Eames and Hunt 2013) for ignoring the confrontational, political nature of energy transitions (Sovacool et al. 2016: 311). These works question the extent to which renewable energy transitions can occur simply through

competent ‘management’ of public policy and market dynamics, preferring more explicit policy criteria that emphasize justice rather than ‘efficiency’ alone (e.g. Heffron et al. 2015). This criticism relates to the third tenet, that there are “normative and instrumental” reasons for justice in energy transitions (Williams and Doyon 2019). The ‘normative’ reasons stem from both energy justice’s attention to energy and wellbeing, along with an understanding of environmental sustainability in which social equality plays a core role (Agyeman 2013). The ‘instrumental’ reasons stem from the idea that injustices weaken political support for or provoke backlash against transitions. Prime examples are the French Yellow Vest protests relating to regressive fuel taxes (Nature Energy Editorial Board 2019) and protests across Ecuador in 2019 in response to the removal of fuel subsidies (BBC News 2019).

## **2.2 Anti-resilience**

The energy justice field splits, however, on whether to reform or revolutionize energy systems. Accordingly, proposals for justice in transitions vary. While numerous scholars propose principles, guidelines, or metrics for policymakers (Heffron et al. 2015; Sovacool et al. 2017; Jenkins et al. 2018), others reject energy systems themselves—not simply the policies under which they operate—as unjust (Lennon 2017). Baker’s (2019) ‘anti-resilience’ framework bridges the two positions. Baker argues that energy systems should be analyzed with the assumption that they fundamentally harm low-income communities and communities of color by creating relationships of dependence between these communities and for-profit energy providers, by turning these communities into sacrifice zones for energy extraction or production, through exploitative energy workforce

practices and many others. Baker's anti-resilience framework avoids a dichotomy of energy system reform versus revolution. Instead, an anti-resilience framework distinguishes between resilient policies that address unjust *outcomes* in the energy system and transformative policies that disrupt the *processes* which produce such outcomes. This approach assumes the former will "freeze [injustices] in place" (Baker 2019:36), while *anti-resilient*, transformative policies will "yiel[d] new possibilities of ownership structures and relationships to power" (2019:46).

Baker provides four guidelines for creating transformative policies and seizing opportunities for justice in energy transition: 1) place "people of color and the poor at the front of the line to benefit" (2019:39), 2) create official processes for energy policy that "specifically include under represented communities" (2019:43), 3) "redistribute the economic benefits of the energy system" (2019:44) and 4) reconceptualize energy "as a commons" (2019:46) rather than a commodity. As an example, Baker cites the state of Hawai'i's renewable portfolio standard as resilient, operating such that that "low-income communities home to large Native Hawaiian populations and people of color...will once again be home to new, largescale clean energy plants owned by corporate interests" (2019:19). In contrast, policies like net metering (an electric utility arrangement allowing the owners of small-scale electricity generators, frequently solar arrays, to sell electricity produced to the utility for bill credits) when targeted explicitly to benefit low-income communities and communities of color, could be anti-resilient by disrupting dependence on for-profit utilities for energy production and energy access. Overall, Baker's framework

is well-suited to analyzing energy transition policy in Vermont because the state has both net metering and a renewable portfolio standard program.

### **2.3 Renewable Energy Policy in Vermont**

Vermont is a small, sparsely populated state in the northeastern U.S. Though it has low levels of energy consumption overall (U.S. Energy Information Association 2020), its cold-weather climate makes thermal heating with biomass and/or fossil fuels highly important (Mittlefehldt and Tedford 2014; Teller-Elsberg et al. 2016). Vermont generates 99% of its electricity from renewable sources (U.S. EIA 2020), but only 45% of electricity consumed comes from renewable generation (Energy Action Network 2019). 48% of the electricity it consumes comes from nuclear generation and 7% from fossil fuels (Energy Action Network 2019). The success of renewables in the electricity generation sector stems largely from the Vermont state government's pursuit of renewable energy policy, stretching back over twenty years (Clement 2016). Because of our use of the anti-resilience framework, this paper we focus on policies with household-level benefits, a core building block of which is the net metering program. Starting in 1998, the program mandated that electric utilities pay owners of 'Certificates of Public Good' —awarded to small-scale renewable electricity producers—for electricity generated and distributed back to the grid (Vermont Department of Public Service 2020). In 2005, the Vermont Legislature incentivized electric utilities to enter long-term purchasing contracts with renewable energy producers (DSIRE 2015). More consequential renewable energy policies emerged in the 2010s when the state adopted two Comprehensive Energy Plans (CEP), which aimed to reduce all non-renewable energy consumption by 90% by 2050 Vermont Department of

Public Service 2016), with smaller benchmark goals every 5 years. The Legislature also enacted a Renewable Energy Standard (RES) in 2015, compelling electric utilities to sell increasing quotas of renewably-produced electricity, to source increasing amounts of electricity from ‘distributed’ (i.e. small scale, Vermont-based) generators, and to invest in “energy transformation” infrastructure (e.g. electric vehicle chargers) (Vermont Public Utility Commission 2020).

The CEPs also implicate the government’s longstanding thermal efficiency policies in their overall emissions reduction plans, calling for 33% reduction in energy consumption per capita by 2050 (Clement 2016; VDPS 2016:2). A total of 45% of Vermont’s total energy use is thermal, of which 76% is non-renewable Energy Action Network 2019) Thermal efficiency policy mechanisms play a significant role in meeting CEP goals. With oversight from the Public Utilities Commission, “energy efficiency utilities” (EEUs) provide loans and rebates to consumers for electric and thermal efficiency upgrades (PUC 2020). The Department of Public Service also sponsors loan programs for low-income households to pursue thermal efficiency upgrades (VDPS 2016:74-75). The Department for Children and Families (DCF) also implements the Weatherization Assistance Program (WAP), which combines funding from the Federal Low Income Weatherization Assistance Program and a tax on heating fuel to provide free weatherization services to low income households (DCF 2020).

The Vermont government’s energy decision-making and planning processes have received praise as open and participatory (Sovacool et al. 2014; Stephens et al. 2018). Central institutions for these tasks include the Public Utilities Commission, a quasi-judicial

body that “supervises the rates, quality of service, and overall financial management of Vermont's utilities” (PUC 2020), and local Town Energy Committees, which provide “democratic space for local conversations about energy planning and energy innovations...[and] provide input on the state-level conversation about Vermont’s energy future” (Stephens et al. 2018:7). The Energy Generation Siting Policy Commission also provided space for public engagement in determining siting procedure (Sovacool et al. 2014:52), which eventually influenced the Vermont Legislature to allow municipal governments to create town-level ‘energy plans’ with local input (Vermont State Legislature 2016). The 2016 CEP also claims “substantial” public involvement in designing it (VDPS 2016:8), including focus groups and public feedback solicitation processes.

Many of these policies address the Vermont energy system at the level of utilities and large-scale renewable generators. Similarly, the CEPs focus on business and industrial energy use, which constitute large portions Vermont’s total energy footprint. Policy goals for per capita reductions, however, implicate households as well. Since households are frequently the level at which energy justice studies address impacts, this research is most concerned with Vermont’s household-level transition policies regarding incentives for small-scale net metering projects as well as energy efficiency upgrades. These incentives provide significant benefits for households that can access them: 1) lower energy costs (or in the case of net metering, negative costs), 2) Renewable Energy Certificates, which households can use to secure higher net metering rates or sell in external markets, and 3) potential property value increases from efficiency upgrades. These policies also indirectly

facilitate access to U.S.-Federal property tax credits by ‘sweetening the deal’ with additional incentives (DSIRE 2020). Following Baker (2019:27), they could also provide “opportunities” for anti-resilient energy policies.

Despite these hopeful possibilities, few studies have addressed energy justice issues in Vermont. In general, scholars have found high energy costs in the state (Mittlefehldt and Tedford 2014:11) and disproportionate concentration of energy poverty (spending greater than 10% of monthly income on energy costs) among low-income residents (Teller-Elsberg et al. 2016:83-87). Studies thus far relate to energy use writ large, rather than the impacts of energy transition policies. In examining what and how injustices arise as a part of Vermont’s energy transition, this paper analyzes Vermont’s transition policies with original survey, interview data, and supplementary public data about HTBs against the principles laid out in the anti-resilience framework. Our analysis centers Baker’s assumption that the energy system *inherently* creates injustice, supported by the few energy justice studies that have looked at Vermont’s energy system and transition.

### **3. Methods**

Energy justice, rooted in "human centered" research methods (Sovacool 2014:11), as well as the distributive, procedural, and recognition-based justice paradigms (Jenkins et al. 2016) implies a mixed methods approach. Studies frequently combine quantitative data (e.g. distributive inequities) with interpretive qualitative explanations (see Lennon 2016). This study uses mixed methods for convergent design (Creswell and Plano Clark 2018:192) for the purposes of comparing results from interviews, surveys, and public data. It aims to produce facts through simple statistical analysis (for identifying larger trends in survey

data) and heavy reliance on interpretative methods for providing details and constructing causal processes from coding interview transcripts. The convergences across these datasets are described by the headings in section 4. All study protocols in this study were approved by the University of Vermont Institutional Review Board.

Surveys and interviews were gathered between 2019 and 2020 as a part of the Rural Environmental Justice Opportunities Informed by Community Expertise (REJOICE) Partnership. REJOICE is a Vermont-based collaboration between the Center for Whole Communities, Community Action Works, scholars from the University of Vermont (including ourselves), and members of the Environmental Justice Clinic at Vermont Law School. The primary goal of the partnership is to address the question: what does environmental justice look like in Vermont? Although the findings and analysis of this paper stem from this dataset, they represent the work and opinions of the paper authors, not official positions of the REJOICE Partnership. While surveys and interviews examined environmental justice issues in general, questions on energy and energy transitions were one of the core topics.

### **3.1 Survey Design, Sampling/Recruitment and Analysis**

This study utilizes interviews, surveys, and supplementary public data to explore energy vulnerability and energy transition policies. Surveys and interviews were conducted between 2019 and 2020 as a part of a coalition between academic and community organization partners. While surveys and interviews examined environmental justice issues in general, questions on energy and energy transitions were also core topics. The research team developed an in-person survey (with an online option) consisting of 58 questions

broken into the following categories: place connections (including local environmental risks and social concerns); water and climate change; housing (including indoor environmental risks); energy supply; food security; transportation; health; Vermont lakes and forests (outdoor recreation); safety (including sense of place); agriculture concerns; and demographic questions. All questions were optional and not all questions were relevant to all respondents. Agricultural questions, for instance, were only asked if the respondent indicated they worked in agriculture, as these questions pertained mainly to on-the-job environmental health risks. The survey included questions about race, gender, and income. Questions about race and gender were open-ended (e.g. “what is the best description of your gender?”). Because of speculation that respondents would not want to indicate their exact income categories, the survey asked whether a respondent’s household income was greater than or less than \$25,750 per year, based on the Department of Health and Human Services’ 2019 poverty guidelines for a four-person household (HHS, 2020). Following data collection, the research team analyzed relationships between variables using chi square association tests and binary logistic regression tests.

The research team recruited survey participants by going door-to-door in selected sites (n=463). This process also included an online version of the survey, distributed through a flyer posted at unanswered doors, as well as at local message boards (n=108). The research team selected study sites using publicly available data, the full details of which are discussed in Panikkar and colleagues (forthcoming). Using ArcGIS Pro (ESRI), researchers overlaid data on social, environmental, and health risks by town boundaries in

Vermont.<sup>2</sup> Z scores were used to normalize these data and compare them across towns. The study team awarded each town one point for each variable of which the z score was above or below a rough cutoff point. While these datasets and ranking criteria are imperfect, they were intended to identify areas for further investigation (i.e. surveys and interviews), rather than to develop a robust statistical scoring model. Following this process, selected towns included Bennington, Barre, Burlington, Rutland, Winooski, and those in Northeast Kingdom area in the northeastern part of the state.

### **3.2 Interviews and Analysis**

In each of these places, researchers conducted semi-structured interviews with local social, environmental, and health experts (n=50). This paper draws from 18 transcripts in which energy was a focus. Interviewees were recruited using internet searches for organizations in the area, REJOICE partners' professional networks, and from snowball sampling (Heckathorn 1997). Identities have been kept confidential, but respondents included state officials, community association members, homeowners association members, and policy advocates.

This research uses methods from grounded theory (Strauss 1987) – an inductive research process in which the “flow of work” is circular (Strauss and Corbin 1998, 29), and data is revisited iteratively. This approach allowed authors to build on previous work and apply new questions to pre-existing data. It also lent itself to this dataset's mixed methods,

---

<sup>2</sup> These included the percent of the population which is people of color, the average per capita income, the National Air Toxics Assessment Respiratory Hazards Index Percentile, the percent of the state's brownfield sites contained, the percent of the state's High Priority Hazardous Sites contained, the percent of the state's conventional farms contained, the 'energy burden' (defined as percentage of total expenditure spent on energy household energy costs), whether town boundaries overlapped with United States Department of Agriculture-defined Food Deserts, and whether town boundaries overlapped with Federal Emergency Management Agency Special Flood Hazard Areas.

focusing on the “interplay” (Strauss and Corbin 1998, 31) between qualitative coding and quantitative data.

The research team analyzed interview transcripts using thematic analysis (Braun and Clarke 2006) and Nvivo 12 software (QSR International). *A priori* codes were developed from the basic REJOICE research areas (e.g. Agriculture/Farming, Climate, Definition of Environmental Justice, Economy, Energy, Food, Health, Housing, Nature Access, Place, Pollution, Transportation, Water, etc.) to divide interview contents by topic. Following categorization, we developed inductive subcodes (Maguire and Delahunt 2017) for texts relating to energy transitions. We then compared separate discussions of energy vulnerability and energy policy across transcripts, seeking to identify patterns. These themes and patterns were then compared to quantitative findings from REJOICE, ACS, and VCED analysis.

### **3.3 Limits and Supplementary data**

These datasets posed two main challenges. First, they treat energy vulnerability and renewable energy concerns as one issue area among many, and do not provide as in-depth of a perspective as a more specific study might. The authors maintain that its energy questions provide useful starting points for analyzing energy injustices in Vermont, for which there is little previous data. Moreover, it presents a large sample size. Second, the energy-related research questions were included as only one of many topics under analysis, due to the priorities and needs of the coalition of academics and community organizations supporting this work. We therefore use convergent design (Creswell and Plano Clark 2018), identifying convergences between interview themes and codes with associations

between survey and supplementary variables. In terms of supplementary data, we examined energy vulnerability and renewable energy policies in greater depth using publicly-available American Community Survey (ACS) datasets (2017) showing median home value and average household income by Census Block Group and by town boundary. We also analyzed Vermont Community Energy Dashboard (VCED) data on the locations of solar electricity sites with Certificates of Public Good authorizing residential net metering. From the VCED Community Progress Maps, we constructed a dataset using the ‘number of housing units comprehensively weatherized’ metric by town.

These additional pieces of data provided insight into the distribution of HTBs along demographic lines for comparison with interview and survey claims. They provided more specific information about the distribution of benefits and burdens in the energy transition, questions of which arose after the design of survey and interview materials. ArcGIS Pro (ESRI) was used to join VCED location data to ACS Census Block Group boundaries. Pearson’s correlation tests were conducted in SPSS 12 (IBM) between numerical variables in ACS17 and VCED data. We then compared these insights with the energy justice and just transition literatures, especially Baker’s normative claim that those experiencing vulnerability or injustice should be ‘at the front of the line to benefit’ from policy.

### **3.4 Author Positionalities and Interpretation**

We hold that our positionalities are influential components of research design and interpretation (Haraway 1988). The authors have a range of positionalities in terms of race, gender, and wealth, but we share a position as academic researchers. This position, and its similarity to other issue experts in the REJOICE Partnership, steered topics of

investigation, research questions, and recruitment scripts towards environmental justice issues which we assumed, based on our familiarity with the field, may occur in Vermont. These assumptions may have unintentionally pulled our attention away from atypical concerns, leaving them undetected by our research tools. Similarly, the materials and manners used to recruit participants may have biased responses towards people comfortable with our positionalities and marginalized others. This question is explored further under section 4.1, however, we did not ask respondents about motivations for participation, preventing more detailed analysis.

As the first author conducted bulk of data interpretation his positionality deserves specific attention. Salient positions include his gender, his two-year residency in Vermont, his whiteness, and his position of financial security. These contrast with traditional positionalities in which people experience environmental and energy injustices, distancing this author from topics at hand. Perhaps this contributed to the emergence of broad, economic categories as key variables in analysis, as opposed to variables which would be more specifically intersectional. For this reason, we maintain that selected variables are important but incomplete, areas of consideration for energy justice in Vermont (see Section 4.1).

#### **4. Results and Discussion**

This section moves through Baker's four guidelines for anti-resilient energy policy: place energy vulnerable people "at the front of the line to benefit" (2019:39); create official processes for energy policy that "specifically include under represented communities" (2019:43); "redistribute the economic benefits of the energy system" (2019:44) and

reconceptualize energy “as a commons” (2019:46). Results show that energy vulnerability in Vermont is characterized (partially) by income and housing tenure, and that the benefits of the energy transition appear to accrue to wealthy homeowners over low-income renters. Results also show that official processes privilege the same groups, marginalizing energy vulnerable households. In discussing these issues, this paper proposes an alternative approach to energy “as a commons” – energy as a public good.

#### **4.1 Systemic energy vulnerability among low-income and non-owning households**

In identifying energy vulnerabilities and injustices present already in the state, interview transcripts revealed a clear pattern describing how low-income households cannot sufficiently access heating or electricity due to costs:

[F]ield directors [in Department of Health offices] get a small sum of [emergency support] money...for people who have used all the resources out there but are still having the [monetary] gap with fuel, with electric... and we went through that money this year...by December [three months before the end of winter]...do I see that there is a gap? Yes, totally.  
(Interview 1)

[D]efinitely people go cold. Turn the thermostat down as low as you possibly turn the thermostat down and try to conserve when you're responsible for paying that bill. Electric costs in the state of Vermont are horrifying. When I moved here...I was shocked by my electric bill.  
(Interview 3)

Survey data show similar results: more respondents below the poverty cutoff reported general trouble accessing sufficient heating, electricity, and temperature control than those above. Binary logistic regression showed respondents below the poverty cutoff were approximately three times as likely to report trouble accessing each of these compared with respondents above (see Table 1). More respondents that did not own their homes also reported general trouble accessing sufficient heating, electricity, and temperature control than owning respondents. While binary logistic regression showed non-owning respondents were three times as likely to report going without heating, these respondents were only slightly more likely to report trouble heating or cooling homes or trouble meeting electric expenses. Notably, chi square tests showed insignificant relationships between each of these demographic variables and trouble meeting heating expenses, however, Teller-Elsberg and colleagues' (2016) findings as well as interview transcripts contradict this lack of association.

Grounded in this data, lack of household income and lack of property ownership arise as critical social positions through which people experience energy vulnerability – and thus injustice-- in Vermont's energy system. These echo tenets from the broader energy justice literature. Electricity and thermal energy have become fundamental to wellbeing (Sovacool and Dworkin 2014), requiring a baseline of consumption by practically every household in the state. Since they are sold as commodities, however, access to these baseline resources is partially a function of income. Complicating this access is a lack of control over household environments. Renting property denies tenants significant control over the environments in which they live, as the property is not theirs to change. This

control dynamic may significantly impact decisions about insulation, for instance, resulting in “split incentives” between landlords and tenants (Bird and Hernandez 2012).

While this paper focuses on these two categories, they are necessarily incomplete, particularly with respect to vulnerability based on race and gender. Survey results did show additional energy vulnerability based on race -- 35% of non-white participants indicated they had gone without heat in the past year, compared to 7% of white respondents ( $p=0.000$ ). While this association is statistically significant and consistent with energy justice literature about the United States in general, (Finely-Brook and Holloman 2016; Lennon 2017; Baker 2019), the research team determined it is based on too low a sample size (17 respondents) to draw larger conclusions. By contrast, crosstabulation showed insignificant relationships between gender and energy vulnerability, breaking with general energy justice literature (see Sovacool and Dworkin 2014; Day et al. 2016; Teller-Elsberg et al. 2016; Allen et al. 2020). Interview excerpts similarly did not address race or gender with reference to energy vulnerability. Yet the significance of race and gender in the energy justice literature leads us to believe that these findings are products research design, rather than confirmations of either category being insignificant.

Low sample sizes and insignificant associations in particular could be products of survey recruitment. While researchers conducted surveys intentionally where Census data showed higher-than-average numbers of people of color, the team did not use more intensive approaches to recruiting racially diverse respondents. Researchers also failed to use gender-disaggregated research methods (e.g. Vijaya et al. 2014) that could better capture varied experiences by gender. This dataset thus captures certain aspects of energy

vulnerability, but may misrepresent or obscure “the interests of women and other ‘invisible’ groups” (Rocheleau 1995:461). More intensive research focusing on race and gender is needed to evaluate these dimensions of energy injustice in Vermont as well as to conduct a more complete analysis grounded in anti-resilience. Such an analysis would also be important because race and gender may have significant relationships themselves with household income and property ownership, adding complexity to understanding energy vulnerability overall.

**Table 1: Energy Transition Questions by Household Income Responses**

	<b>Above \$25,750 n (rounded %)</b>	<b>Below \$25,750 n (rounded %)</b>	<b>OR (CI)</b>
<b>Gone without heat in the past year</b>	5 (5%)	12 (19%)	3.621 (1.211-10.831)
	<i>Chi square association p= 0.016</i>		
<b>Trouble heating or cooling home</b>	39 (22%)	52 (45%)	2.937 (1.765-4.890)
	<i>Chi square association p= 0.000</i>		
<b>Trouble meeting expenses for electricity</b>	15 (7%)	28 (21%)	3.461 (1.769 – 6.774)
	<i>Chi square association p= 0.000</i>		
<b>Have Solar panels</b>	11(6%)	7 (5.83)	1.031 (0.388-2.736)
	<i>Chi square association p= 0.952 (insig)</i>		
<b>Home has been weatherized</b>	116 (59%)	55 (48%)	0.648 (0.408-1.029)
	<i>Chi square association p= 0.065 (insig)</i>		
<b>Know how household fits into local, regional, or statewide energy plans</b>	21 (11%)	8 (7%)	0.646 (0.276-1.515)
	<i>Chi square association p=0.312 (insig)</i>		
<b>Want to change energy source(s) for home</b>	91 (48%)	40 (37%)	1.540 (0.949-2.498)
	<i>Chi square association p=0.080 (insig)</i>		

**Table 2: Energy Transition Questions by Home Ownership Responses**

	<b>Own n (rounded %)</b>	<b>Don't own n (rounded %)</b>	<b>OR (CI)</b>
<b>Gone without heat in the past year</b>	5 (5%)	11 (16%)	3.431 (1.134-10.373)
	<i>Chi square association p= 0.022</i>		
<b>Trouble heating or cooling home</b>	50 (26%)	59 (38%)	0.577 (0.365-0.912)
	<i>Chi square association p= 0.018</i>		
<b>Trouble meeting expenses for electricity</b>	19 (9%)	26 (15%)	0.548 (0.292-1.028)
	<i>Chi square association p=0.058 (insig)</i>		
<b>Have solar panels</b>	26 (13%)	7 (4%)	3.255 (1.375-7.707)
	<i>Chi square association p= 0.005</i>		
<b>Home has been weatherized</b>	125 (61%) (0.002)	72 (45%) (0.002)	1.931 (1.271-2.936)
	<i>Chi square association p= 0.002</i>		
<b>Know how household fits into local, regional, or statewide energy plans</b>	28 (14%)	11 (7%)	0.464 (.223-.964)
	<i>Chi square association p=0.036</i>		
<b>Want to change energy source(s) for home</b>	104 (51%)	53 (36%)	0.520 (.337-.803)
	<i>Chi square association p=0.003</i>		

#### **4.2 Exclusion from transition benefits**

After characterization of vulnerability, the anti-resilience framework calls for groups facing energy injustices to be ‘at the front of the line to benefit.’ Following Baker (2019:27-33), this paper treats ownership of solar panels or participation in community solar arrangements (for the purposes of net metering, tax credits, and generating RECs) as a core transition benefits for their potential to lower bills and reduce dependence on unjust systems for energy provision. In Vermont, comprehensive weatherization fits in the same category by decreasing emissions, lowering bills and reducing dependence on fuel markets (VDPS 2016:49; VDCF 2020). For ease of analysis, the discussion groups solar net-metering, community solar, and comprehensive weatherization into one category: ‘household-level transition benefits’ (HTBs).

Interview quotes describe the distribution of HTBs going in the opposite direction Baker demands, citing cost and ownership concerns as significant barriers to weatherization and solar access:

“[I]f you own, solar might be an option. But as a renter, solar’s not....solar installation is extremely expensive. Personally, I looked into having solar installed in our home and the cost was very high. And based on our usage, which isn’t astronomical, with the amount of panels they could get on my roof, I would still not eliminate my electric bill.” (Interview 3)

“There’s great weatherization programs if you’re low income and you’re able to own your house, but if you are low income and you live in a rental unit and your landlord doesn’t want to and your stuck with the utility bill, there’s not much that can happen for you...If you’re moderate income and you maybe don’t have enough to invest in your house, even though it will save you money down the road...maybe you have a ding in your credit report so you can’t get a low interest loan to do some of these improvements, you’re stuck, and you can’t get any access.” (Interview 5)

Survey questions addressed HTBs in more general terms (i.e. “solar” as opposed to “net-metered” “weatherized” as opposed to “comprehensively weatherized”), but the data paint a similar picture. Associations between respondents indicating they owned their homes and those claiming access to ‘solar’ and ‘weatherization’ were both statistically significant. Binary logistic regression showed owning respondents were approximately

three times as likely to have solar panels and two times as likely to report their home had been weatherized.

Comparative data from ACS 17 and VCED also suggest income is a significant factor for accessing solar net-metering. Pearson's correlation tests show a strong positive correlation between Census Block Groups' median household income and the number of residential net-metering Certificates of Public Good issued (Pearson's correlation coefficient: 0.588). Pearson's correlation tests on VCED data showed insignificant associations between town household income, housing value, and the number of comprehensive weatherizations performed (excluding no-cost weatherizations performed as a part of the Weatherization Assistance Program). These tests did not compare VCED data against homeownership statistics because this information was not available by Census Block Group.

The interplay between qualitative and quantitative data is contradictory in this instance, as interview responses strongly suggest income plays a significant role in accessing HTBs, alongside ownership. While statistical tests seem to only confirm the importance of ownership for both net metering access and weatherization, testing on VCED data only confirms the role of income in accessing residential net metering. Either way, the data suggest that policies fail to *prioritize* low-income and non-owning households in distributing HTBs, which the anti-resilience framework would require. Results rather indicate that Vermont's transition policies have largely ignored HTBs as opportunities for mitigating energy vulnerability, and there is initial evidence that HTBs have largely benefited high-income property owners instead.

### 4.3 Exclusion from transition knowledge and energy governance

Recent environmental justice literature, from which energy justice literature draws heavily (Jenkins et al. 2016) has cast doubt on the “distributive paradigm”— emphasis on the distribution of benefits and burdens that ignores “the power structures and social systems that give rise to...inequalities to begin with as a way to examine such structures and systems” (Pellow 2017:21). Instead, scholars call for procedural justice as a lens through which to see these ‘structures and systems’, which Baker’s prerequisite for “democratic participation in energy project decision-making” (2019:19) echoes. This analysis therefore turns to what sorts of procedural conflicts emerged from interview transcripts.

In general, respondents described energy decision-making (e.g. Public Utilities Commission or Town Energy Committee meetings) as unfair. They described, usually with respect to wind or solar siting, a procedural bias in which another participant or group of participants’ wealth outweighed their own concerns or those they were sympathetic to:

“one of the most controversial projects here...was a small community solar project...there were a couple of really nice houses from people that have lived there for a really long time [opposing the solar] that felt like...they would see the solar. ...everyone's always afraid that it's going to ruin their view, and it's going to be insurmountably ruining their property values”

(Interview 7)

This dynamic extended beyond HTBs like community solar and into larger scale renewable infrastructure development:

“[solar developers] bought a piece of land next to [our homeowner’s association] to build the solar fields...and would expose us to the wind and to the noise and it would make poor visibility...We’re not against solar...we’re against where they’re wanting to put it. There are places to put it where it’s not an eyesore...[but] I mean they got the big bucks, they’re Manhattan lawyers, you know...they gave the town \$200,000 to try to put it there...” (Interview 6)

At first blush, each of these participants reported classic procedural justice issues in which government bodies fail to be neutral fora for environmental decision-making (Ventriss and Kuentzel 2006; Pulido et al. 2016; Pellow 2017). While these dynamics are cause for concern, survey data describing knowledge of the energy transition and willingness to participate in it reveal a larger procedural concern: general lack of engagement.

Out of all survey respondents, 90% reported they did not know how their household “fit into local, regional or statewide energy plans,” including 93% of non-owners. This finding is striking considering the Comprehensive Energy Plan calls for per-capita reduction in energy use, as well as “substantial” public involvement in designing the most recent plan itself (VDPS 2016:8). In percentages, twice as many property owners reported knowledge of how their household fit into the energy transition, and a majority claimed to want to change at least one energy source for their homes as opposed to approximately a third of non-owning respondents. However, associations between these survey questions and household income were statistically insignificant.

#### **4.4 Investment Inequality and Resilient Energy Injustice**

That few people have in-depth knowledge of Vermont's energy transition policy suggests few people meaningfully participate. Despite the importance of procedural justice analysis, these low numbers weaken the potential for revealing more complicated structural or systemic injustices through attention to procedure alone. Questions arise as to why few people participate in public processes in the first place as opposed to what injustices arise in the participation process. The quotes in section 3.3 illustrate that concerns over enjoyment of place and aesthetics ('eyesores') were central reasons for participating in energy decision-making. Ostensibly non-owners and owners alike could share these concerns, but owners alone have the concern of enjoyment and aesthetics' effects on property value. The desire to maintain or increase this value gives owners special reason to participate in energy decision-making and may also provide them greater standing through legal appeals to these rights. Viewed in this light, property owner interests and debates over property value concerns dominate energy governance discussion. Energy vulnerable households (including renters, the poor), many of which my findings suggest have no such property value to maintain and no such standing to which to appeal, are therefore marginalized.

The importance of holding investments (i.e. property) in participation can also explain unequal distribution of HTBs. As mentioned in section 1.2, to the extent that they address energy at the household level, Vermont's transition policies focus on creating 'yields' (e.g. tax credits; electricity price guarantees; access to markets for RECs; increased home value from efficiency upgrades). Rather than tools for remedying energy

vulnerability as proposed by Baker, this approach turns HTBs into investments. In this form HTBs become available only to those with appropriate investment capital – both disposable income and property—which my findings show many energy vulnerable households lack. Incentives-based policies appear to have ignored energy vulnerability while benefiting property owners and those with large disposable incomes instead. Having low household income, as well as not owning property, are thus simultaneously positions through which Vermonters experience energy vulnerability as well as structural barriers to participating in the renewable energy transition which could mitigate it. In general, investment-focused policies make the unjust energy system more resilient by failing to use “energy policy as an equity based tool of empowerment and system transformation” (2019:24).

This analysis, and Baker’s framework, amount to normative critiques about who is most deserving of transition benefits. But policymakers, including one interviewee, question the importance of increasing HTB access on instrumental grounds:

Should [we] just make it so low-income people can put solar on their homes?... [t]hat's a very expensive way to get more renewable energy. And what is your goal? To lower their costs of energy or...to put solar on their homes? Because if the goal is to lower their cost of electricity, there's [sic] better ways of doing that. I think in Vermont where we have some utilities that are at a hundred percent renewable...you're not like offsetting coal power [through net metering], you're potentially just slowing the progress

to a hundred percent renewables because of the cost is so much higher  
(Interview 4)

Though this perspective may further strengthen the normative critique (household net metering is perhaps an unnecessary approach to meeting emissions targets, one that policy has deployed to benefit primarily wealthy property owners), it casts significant doubt on whether widespread access to solar is instrumental. Modeling to determine the validity of this claim is beyond the scope of this paper, but in terms of emissions targets alone, perhaps universal net metering is not.

Yet universal, or at least widespread, home weatherization may still prove critical. It is especially unclear how to achieve per-capita energy reductions (EAN 2018; VDPS 2016:8) without such widespread thermal efficiency measures. Currently, the necessary weatherization for emissions reduction comes from either out-of-pocket payments, subsidized loan or rebate programs (Efficiency Vermont 2020) or the state's Weatherization Assistance Program. The first two reproduce the HTB-as-investment model, while the funding model of the third would take "more than 50 years to completely weatherize the homes of its targeted low-income population [alone]" (VDPS 2016:95). Interview respondents also confirm it has insufficient capacity compared to need:

"There's [sic] more people that apply each year than we have funding to serve...it's purely funding" (Interview 2)

For both normative and instrumental reasons, then, there appear to be deficiencies of energy justice measures in Vermont's renewable energy policy. Baker gives two

proposals for anti-resilience policy which could address these shortcomings: centralization of concerns of people of color and the poor in energy planning and policy; and equitable redirection of transition benefits towards these communities (2019:38,47). As a start, energy governance could require representation of (and ideally compensation for) low-income and non-owning residents in bodies such as Town Energy Committees, (see Stephens et al. 2018). Similarly, the Department of Public Service could consider changes to its net metering incentives to favor or require community solar development with group net-metering in low-income communities.

## **5. Conclusions and Policy Implications**

This study has made initial investigations into the relationships between Vermont's renewable energy policies and energy vulnerability in Vermont. Seen through survey and interview data, it finds that current policy mechanisms primarily benefit wealthy property owners and ignore the opportunity provided by household transition benefits to mitigate household energy injustice. The incentives-based policies which provision HTBs also impact public energy governance processes, marginalizing energy vulnerable households and prioritizing the wealthy beneficiaries.

Energy analysts in Vermont have previously identified uneven distribution of HTB access but without attention to these structural roots (VDPS 2016; Schute et al. 2018; Levin et al. 2019). Similar to the criticism of the 'distributive paradigm,' (Pellow 2017:21) these works argue the problem lies in HTB distribution mechanisms (e.g. market failure), rather than in the structures in which distribution occurs. Common policy responses are 'creative' finance options, such as subsidized loans for weatherization; 'on-bill financing' in which

utilities provide loans for efficiency upgrades to service accounts (as opposed to individuals); and community solar or group net metering, which allow multiple households to own shares of net metered solar systems and split the benefits (VDPS 2016; Schute et al. 2018; see also EAN 2019).

Yet interview transcripts cast doubt on ‘creative’ loans, for instance, questioning whether they meaningfully overcome upfront costs:

“most of those programs are...sort of enhanced loan programs, and [especially] for people who are already fully leveraged, a loan -- even if it's a 0% loan, even if it pays itself back from heating costs eventually -- it's all late gratification and it's just not tempting enough for a lot of people.”

(Interview 7)

Property ownership more severely constrains loan programs. On its face, on-bill financing can lessen ‘split’ incentives for weatherization, in which renters would benefit directly but landlords, responsible for such a property investment, would not. Even when on-bill financing can provide funds without charging landlords and without forcing renters to take on debt, the terms require cooperation between tenants and landlords (Bird and Hernandez 2012) leaving the final decision with the property owner. Community solar and group net metering are also frequent proposals for arrangements which allow non-owning households to access the solar (Fuller 2008; Schute et al. 2018; Stephens et al. 2018). But as described in the interview excerpt above, these projects face constraints from to nearby property owners’ claims to nearby property value, even if they are incentivized by policy.

Similar issues may hamper attempts to increase public participation in energy decision-making. As motivation to participate is associated with concerns over property value, efforts to increase public energy participation (hearings, participatory planning, etc.) may simply attract previously unaware wealthy property owners without motivating energy vulnerable households. Should people facing energy vulnerability nonetheless participate, they may still face marginalization by not having equal stake as participants with claims on property and property value.

This analysis therefore suggests that unequal distribution of HTBs appears to have roots not in the effectiveness of market mechanisms or access to finance but in the unequal distribution of property and income, placing firm ceilings on the potential for equitable distribution. The same distributions of property and income appear to also condition meaningful participation in energy governance. It follows that absent their complete removal, disparities in property and income will shape not only energy vulnerability but inequality in HTB access and uneven participation in energy governance.

To overcome these structures, policy frameworks could provision HTBs and energy more generally as public goods – those to which all citizens have access or are entitled – rather than as commodities or investments. One such approach would be for the state government to take public ownership of electric utilities. While public ownership would give “no guarantees” of more just outcomes (Burke and Stephens 2017:41), carefully designed ownership could still provide all ratepaying households – as partial owners– with official stake in energy decision-making, countering the dominance of property owners. Public ownership could also remove the profit motive from electricity provision (see Bird

and Hernandez 2012), creating opportunities to provide electricity cheaply (or freely) to each household, or greater incentives for the utilities to invest in electric efficiency (Bozuwa 2018; Koeppel et al. 2019). Extending a public goods approach to weatherization also holds promise. Recharacterizing weatherization as a public good to which all households have a right could work to universalize the Weatherization Assistance Program, thereby providing weatherization freely to all households and overcoming split incentives in the process.

At a conceptual level, using “public power” (Fraser 2014:58) to reconceptualize energy and transition benefits into public goods provides at least nominal common ownership of energy systems. Accordingly, it may provide greater procedural standing for energy justice advocates to address the structural energy processes at root in energy injustice. It also may assist in aggregating and coordinating private consumption patterns in a more egalitarian manner than incentives-based approaches. Taking the statewide jurisdiction of Vermont policy as a given, we would recommend a statewide (as opposed to local) institutions govern these public goods. While this structure may diminish some of the relational strengths of small-scale energy cooperatives (Burke and Stephens 2017), it could mitigate inequitable sourcing and allocation of funding which might arise from localized management systems and perhaps still accommodate localized decision-making.

Of course, the political feasibility of such proposals is questionable. Bird and Hernandez (2012) characterizes such efforts as “expensive and unrealistic.” Snell (2020:214) argues such proposals would depend on “an [economically] interventionist

state committed to social partnership,” by no means a guarantee, particularly in a small US-state like Vermont.

In instrumental terms, however, particularly with respect to household weatherization, policy must overcome, not simply lower, structural barriers to universal or near universal access to meet its goals. The question of how to build political support and power for such proposals is therefore key. New contributions to the just transition framework, a close relative to energy justice (Healy and Barry 2017) call for justice as a process, not as a singular policy. Stevis et al. (2020:22-23) describe a need for “environmental debate,” building popular support for things like ‘renewable energy transitions’ through imagining a “broader and deeper egalitarian and ecological vision” of society. Similarly, White (2019:17) argues these visions must be “imagine[d] and built, fabricated and realized, institutionalized and sustained by public support and ongoing engagement.” In turn, they suppose more just and ecologically sustainable political, social, and economic structures will emerge. Baker’s own reconceptualization of energy as a ‘New Energy Commons’ echoes these approaches, seeking to embed energy production inside communities, used for collaboratively decided ends (Baker 2017).

Several authors, including Baker, have cited Vermont’s solar policies as models for more just energy systems (Jones and James 2017; Baker 2017; Stephens et al. 2018), in line with the ‘prefiguring and prototyping’ approach to just transition. Our findings on structural barriers in Vermont’s transition indicate the success of such policies may be overstated. Just as ‘model’ policies like community solar arrangements face structural, political economic constraints, so too might just transition ‘prototypes and prefigurations.’

This is not to say justice advocates should abandon them. Instead, policy advocacy should turn to Wichterich's (2015:94) notion of "enabling spaces" for such transformative practices. Here, government power and (thus public policy) works toward "fair distribution [of wealth and resources]...protection of nature, social reproduction and the public good..." Yet rather than depending on the state to enact these benefits 'from above,' Wichterich's emphasis is on using the state to neutralize structural constraints which would otherwise stifle 'bottom up' change.

However, Vermont is a small state with a small population. Vermont also imports most of its energy, thereby implicating it with energy injustice across global supply chains (Healy et al. 2019). How generalizable, then, are these findings? Rather than evaluate the 'scalability' of these Vermont-specific recommendations, which would minimize the particular, interdeterminate relationships which construct the energy system and political economy of the case in question (Tsing 2019), we propose the following questions for energy justice activists and/or policymakers to consider in evaluating other transition policies: 1) how do systems of provision for transition resources (the confluence of political economic factors which link consumer choice with the characteristics of production [Bayliss et al. 2013; Mattioli et al. 2020]) interact with distributive, procedural, and recognitional justice issues? 2) How do these systems therefore constrain consumer choices? 3) What political alternatives overcome these constraints and provide enabling space for collective change? Future research into Vermont's energy transition should consider how these questions relate to Vermont's relationship to international energy policy, and research into transition policy should consider these questions writ large.

## **6. Acknowledgements:**

Walter Keady would like to express gratitude to Dr. Bindu Panikkar, Dr. Ingrid Nelson, and Dr. Asim Zia for guidance on the direction and scope of this research, as well as in developing analysis and proof reading. Both authors would also like to thank the REJOICE partnership for its work. Both are also grateful to research assistants with whom we worked to clean, collate, and enter survey and interview data as a part of the REJOICE project: Mary-Kate Barrett, Kelly Hamshaw, Corinne Hill-James, Ellery Mahlum, Qing Ren, Samantha Salamone, Julia Selle, and Dennis Wrest. We are especially grateful to Qing Ren, Julia Selle, and Nora Burdick for their work collecting survey and interview responses with me.

## 7. References:

- Agyeman, Julian. *Introducing Just Sustainabilities: Policy, Planning, and Practice*. 1st ed. London ; New York: Zed Books, 2013.
- Allen, Elizabeth, Hannah Lyons, and Jennie C. Stephens. “Women’s Leadership in Renewable Transformation, Energy Justice and Energy Democracy: Redistributing Power.” *Energy Research & Social Science* 57 (November 1, 2019): 101233. <https://doi.org/10.1016/j.erss.2019.101233>.
- Baker, Shalanda. “Unlocking the Energy Commons: Expanding Community Energy Generation.” In *Law and Policy for a New Economy: Sustainable, Just, and Democratic*, 1st ed., 211–34. Cheltenham and Camberley, UK: Edward Elgar Publishing, 2017.
- Baker, Shalanda H. “Anti-Resilience: A Roadmap for Transformational Justice within the Energy System.” *Harvard Civil Rights Civil Liberties Law Review* 54 (2019): 48.
- Baker, Shalanda H. “Fighting for a Just Transition: Climate Change Mitigation Does Not Guarantee Social Justice. To Avoid Deepening Inequalities, Clean Energy Transitions Must Prioritize Communities over Profit.” *NACLA Report on the Americas* 52, no. 2 (April 2, 2020): 144–51. <https://doi.org/10.1080/10714839.2020.1768732>.
- Bayliss, Kate, Ben Fine, and Mary Robertson. “From Financialisation to Consumption: The Systems of Provision Approach Applied to Housing and Water.” Financialisation, Economy, Society and Sustainable Development (FESSUD) Project, Working Paper Series, 2013, 48.
- BBC news. “Ecuador President Backs down over Fuel Protests.” *BBC News*, October 14, 2019, sec. Latin America & Caribbean. <https://www.bbc.com/news/world-latin-america-50038126>.
- Bickerstaff, Karen, Gordon Walker, and Harriet Bulkeley, eds. *Energy Justice in a Changing Climate: Social Equity and Low-Carbon Energy*. Just Sustainabilities: Policy, Planning, and Practice. London ; New York: Zed Books, 2013.
- Bird, Stephen, and Diana Hernández. “Policy Options for the Split Incentive: Increasing Energy Efficiency for Low-Income Renters.” *Energy Policy* 48 (September 1, 2012): 506–14. <https://doi.org/10.1016/j.enpol.2012.05.053>.
- Bozuwa, Johanna. “Public Ownership for Energy Democracy.” *TheNextSystem.Org* (blog), September 2018. <https://thenextsystem.org/learn/stories/public-ownership-energy-democracy>.
- Braun, Virginia, and Victoria Clarke. “Using Thematic Analysis in Psychology.” *Qualitative Research in Psychology; London* 3, no. 2 (April 2006): 77–101. <http://dx.doi.org/10.1191/1478088706qp063oa>.
- Burke, Matthew J., and Jennie C. Stephens. “Energy Democracy: Goals and Policy Instruments for Sociotechnical Transitions.” *Energy Research & Social Science*, Policy mixes for energy transitions, 33 (November 1, 2017): 35–48. <https://doi.org/10.1016/j.erss.2017.09.024>.

- Clement, Christopher Ernest. “Renewable Energy Transition: Dynamic Systems Analysis, Policy Scenarios, and Trade-Offs for the State of Vermont.” University of Vermont, 2015.
- Creswell, John, and Vicki Plano Clark. *Designing and Conducting Mixed Methods Research*. 3rd ed. Thousand Oaks, California: SAGE Publications Inc, 2018.
- Day, Rosie, Gordon Walker, and Neil Simcock. “Conceptualising Energy Use and Energy Poverty Using a Capabilities Framework.” *Energy Policy* 93 (June 1, 2016): 255–64. <https://doi.org/10.1016/j.enpol.2016.03.019>.
- DSIRE. “Residential Renewable Energy Tax Credit,” February 13, 2020. <https://programs.dsireusa.org/system/program/detail/1235>.
- DSIRE. “Sustainably Priced Energy Enterprise Developmet (SPEED) Goals,” July 1, 2015. <https://programs.dsireusa.org/system/program/detail/1141>.
- Efficiency Vermont. “Home Energy Loan.” Accessed May 27, 2020. <https://www.encyvermont.com/services/financing/homes/home-energy-loan>.
- Energy Action Network. “2018 Annual Progress Report for Vermont.” March 4, 2019. <https://www.eanvt.org/2018-progress-report/>.
- Energy Action Network. “2019 Annual Progress Report for Vermont.” March 11, 2020. <https://www.eanvt.org/wp-content/uploads/2020/03/EAN-report-2020-final.pdf>.
- Finley-Brook, Mary, and Erica L. Holloman. “Empowering Energy Justice.” *International Journal of Environmental Research and Public Health* 13, no. 9 (September 2016). <https://doi.org/10.3390/ijerph13090926>.
- Fraser, Nancy. “Behind Marx’s Hidden Abode.” *New Left Review*, no. March/April (2014): 18.
- Fuller, Merrian. “Enabling Investments in Energy Efficiency.” Efficiency Vermont, 2008.
- Geels, F. W. “Processes and Patterns in Transitions and System Innovations: Refining the Co-Evolutionary Multi-Level Perspective.” *Technological Forecasting and Social Change*, Transitions towards Sustainability through System Innovation, 72, no. 6 (July 1, 2005): 681–96. <https://doi.org/10.1016/j.techfore.2004.08.014>.
- Geels, Frank W., Benjamin K. Sovacool, Tim Schwanen, and Steve Sorrell. “Sociotechnical Transitions for Deep Decarbonization.” *Science* 357, no. 6357 (September 22, 2017): 1242–44. <https://doi.org/10.1126/science.aao3760>.
- Glitman, Karen. “Clean Energy Goals: It’s up to Us.” *Efficiency Vermont* (blog), July 7, 2018. <https://www.encyvermont.com/news-blog/blog/clean-energy-goals-it-s-up-to-us>.
- Haraway, Donna. “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” *Feminist Studies* 14, no. 3 (1988): 575–99. <https://doi.org/10.2307/3178066>.
- Healy, Noel, and John Barry. “Politicizing Energy Justice and Energy System Transitions: Fossil Fuel Divestment and a ‘Just Transition.’” *Energy Policy* 108 (September 1, 2017): 451–59. <https://doi.org/10.1016/j.enpol.2017.06.014>.
- Healy, Noel, Jennie C. Stephens, and Stephanie A. Malin. “Embodied Energy Injustices: Unveiling and Politicizing the Transboundary Harms of Fossil Fuel Extractivism and Fossil Fuel Supply Chains.” *Energy Research & Social Science* 48 (February 1, 2019): 219–34. <https://doi.org/10.1016/j.erss.2018.09.016>.

- Heckathorn, Douglas. “Respondent-Driven Sampling: A New Approach to the Study of Hidden Populations.” *Social Problems* 44, no. 2 (1997). <http://www.respondentdrivensampling.org/reports/RDS1.pdf>.
- Heffron, Raphael J., Darren McCauley, and Benjamin K. Sovacool. “Resolving Society’s Energy Trilemma through the Energy Justice Metric.” *Energy Policy* 87 (December 1, 2015): 168–76. <https://doi.org/10.1016/j.enpol.2015.08.033>.
- Jenkins, Kirsten. “Setting Energy Justice Apart from the Crowd: Lessons from Environmental and Climate Justice.” *Energy Research & Social Science* 39 (May 2018): 117–21. <https://doi.org/10.1016/j.erss.2017.11.015>.
- Jenkins, Kirsten, Darren McCauley, Raphael Heffron, Hannes Stephan, and Robert Rehner. “Energy Justice: A Conceptual Review.” *Energy Research & Social Science* 11 (January 1, 2016): 174–82. <https://doi.org/10.1016/j.erss.2015.10.004>.
- Jones, Kevin, and Mark James. “Distributed Renewables in the New Economy: Lessons from Community Solar Development in Vermont.” In *Law and Policy for a New Economy: Sustainable, Just, and Democratic*, 1st ed., 189–210. Cheltenham and Camberley, UK: Edward Elgar Publishing, 2017.
- Koepfel, Jackson, Johanna Bozuwa, and Liz Veazey. “Community Ownership of Power Administration: Putting Utilities under Public Control.” *TheNextSystem.Org* (blog). Accessed May 7, 2020. <https://thenextsystem.org/copa>.
- Koliba, Christopher, Mercy DeMenno, Nancy Brune, and Asim Zia. “The Salience and Complexity of Building, Regulating, and Governing the Smart Grid: Lessons from a Statewide Public–Private Partnership.” *Energy Policy* 74 (November 1, 2014): 243–52. <https://doi.org/10.1016/j.enpol.2014.09.013>.
- Lennon, Myles. “Decolonizing Energy: Black Lives Matter and Technoscientific Expertise amid Solar Transitions.” *Energy Research & Social Science*, Exploring the Anthropology of Energy: Ethnography, Energy and Ethics, 30 (August 1, 2017): 18–27. <https://doi.org/10.1016/j.erss.2017.06.002>.
- Levin, Emily, Elizabeth Palchak, and Robert Stephenson. “The State of Equity Measurement: A Review of Practices in the Clean Energy Industry.” Burlington, Vermont: VEIC, September 1, 2019.
- Levine, Sandra. “Clean Energy Powerhouse.” *VTDigger*, June 16, 2016. <https://vtdigger.org/2016/06/16/sandra-levine-clean-energy-powerhouse/>.
- Malcom Eames, and Miriam Hunt. “Energy Justice in Sustainability Transitions Research.” In *Energy Justice in a Changing Climate: Social Equity and Low-Carbon Energy*, 179. Just Sustainabilities: Policy, Planning, and Practice. Zed Books, 2013.
- Mattioli, Giulio, Cameron Roberts, Julia K. Steinberger, and Andrew Brown. “The Political Economy of Car Dependence: A Systems of Provision Approach.” *Energy Research & Social Science* 66 (August 1, 2020): 101486. <https://doi.org/10.1016/j.erss.2020.101486>.
- Miller, Clark A., Alastair Iles, and Christopher F. Jones. “The Social Dimensions of Energy Transitions.” *Science as Culture* 22, no. 2 (June 1, 2013): 135–48. <https://doi.org/10.1080/09505431.2013.786989>.

- Miller, Clark A., and Jennifer Richter. "Social Planning for Energy Transitions." *Current Sustainable/Renewable Energy Reports* 1, no. 3 (September 1, 2014): 77–84. <https://doi.org/10.1007/s40518-014-0010-9>.
- Mittlefehldt, Sarah, and Codie Tedford. "Benefit or Burden? Environmental Justice and Community-Scale Biomass Energy Systems in Vermont." *Environmental Justice* 7, no. 4 (August 2014): 110–14. <https://doi.org/10.1089/env.2014.0019>.
- Nature Energy Editorial Board. "Fuelling Dissent." *Nature Energy* 4 (February 2019): 85.
- Newell, Peter, and Dustin Mulvaney. "The Political Economy of the 'Just Transition.'" *The Geographical Journal* 179, no. 2 (June 1, 2013): 132–40. <https://doi.org/10.1111/geoj.12008>.
- Nossiter, Adam. "France Suspends Fuel Tax Increase That Spurred Violent Protests." *The New York Times*, December 4, 2018, sec. World. <https://www.nytimes.com/2018/12/04/world/europe/france-fuel-tax-yellow-vests.html>.
- Pellow, David Naguib. *What Is Critical Environmental Justice?* 1st ed. Cambridge, UK; Medford, MA: Polity Press, 2018.
- Pulido, Laura, Ellen Kohl, and Nicole-Marie Cotton. "State Regulation and Environmental Justice: The Need for Strategy Reassessment." *Capitalism Nature Socialism* 27, no. 2 (April 2, 2016): 12–31. <https://doi.org/10.1080/10455752.2016.1146782>.
- Rocheleau, Dianne. "Maps, Numbers, Text, and Context: Mixing Methods in Feminist Political Ecology." *Professional Geographer* 47, no. 4 (November 1995): 458. <https://doi.org/10.1111/j.0033-0124.1995.00458.x>.
- Schute, Krista, Laura Schieb, Kevin Jones, Casey Mckee, Lyanne Sierra Mendez, Brandon Oldham, and Maxwell Krieger. "Low Income Solar in Vermont: Overcoming Barriers to Equitable Access." South Royalton, Vermont: Vermont Law School, Vermont Low Income Trust for Electricity, 2018.
- Silverman, Adam. "Vermont Ranks No. 2 in US for Renewable Energy." *Burlington Free Press*. April 30, 2017. <https://www.burlingtonfreepress.com/story/news/2017/04/30/vermont-ranks-high-for-renewable-energy/100955606/>.
- Snell, Darryn. "Just Transition Solutions and Challenges in a Neoliberal and Carbon Intensive Economy." In *Just Transitions: Social Justice in a Shift Towards a Low-Carbon World*, 199–215. London, UK: Pluto Press, 2020.
- Sovacool, Benjamin, Marilyn Brown, and Scott Valentine. "Energy Security and Energy Transitions." In *Fact and Fiction in Global Energy Policy: Fifteen Contentious Questions*, 249–330. Baltimore, Maryland: Johns Hopkins University Press, 2016.
- Sovacool, Benjamin, Alex Gilbert, and Brian Thomson. "Innovations in Energy and Climate Policy: Lessons from Vermont." *Pace Environmental Law Review* 31, no. 3 (2014): 651–705. <https://digitalcommons.pace.edu/pelr/vol31/iss3/2/>.
- Sovacool, Benjamin K. "What Are We Doing Here? Analyzing Fifteen Years of Energy Scholarship and Proposing a Social Science Research Agenda." *Energy Research & Social Science* 1 (March 2014): 1–29. <https://doi.org/10.1016/j.erss.2014.02.003>.
- Sovacool, Benjamin K., Matthew Burke, Lucy Baker, Chaitanya Kumar Kotikalapudi, and Holle Wlokas. "New Frontiers and Conceptual Frameworks for Energy Justice."

- Energy Policy* 105 (June 1, 2017): 677–91.  
<https://doi.org/10.1016/j.enpol.2017.03.005>.
- Sovacool, Benjamin K, and Michael Dworkin. *Global Energy Justice: Problems, Principles, and Practices*, 2014.
- Stephens, Jennie C., Matthew J. Burke, Brock Gibian, Elie Jordi, and Richard Watts. “Operationalizing Energy Democracy: Challenges and Opportunities in Vermont’s Renewable Energy Transformation.” *Frontiers in Communication* 3 (2018).  
<https://doi.org/10.3389/fcomm.2018.00043>.
- Strauss, Anselm. *Qualitative Analysis for Social Scientists*. Press Syndicate of the University of Cambridge, 1987.
- Strauss, Anselm, and Juliet Corbin. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Second. Thousand Oaks, California: SAGE Publications Inc, 1998.
- Teller-Elsberg, Jonathan, Benjamin Sovacool, Taylor Smith, and Emily Laine. “Fuel Poverty, Excess Winter Deaths, and Energy Costs in Vermont: Burdensome for Whom?” *Energy Policy* 90 (March 2016): 81–91.  
<https://doi.org/10.1016/j.enpol.2015.12.009>.
- Tsing, Anna Lowenhaupt. “On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales.” *Common Knowledge* 25, no. 1 (June 21, 2019): 143–62.  
<http://muse.jhu.edu/article/727131>.
- U.S. Department of Health & Human Services Office of the Assistant Secretary for Planning and Evaluation. “2019 Poverty Guidelines,” January 11, 2019.  
<https://aspe.hhs.gov/2019-poverty-guidelines>.
- U.S. Census Bureau. “About Race.” Accessed July 14, 2020.  
<https://www.census.gov/topics/population/race/about.html>.
- Ventriss, Curtis, and Walter Kuentzel. “Critical Theory and the Role of Citizen Involvement in Environmental Decision Making: A Re-Examination.” *International Journal of Organization Theory and Behavior; Boca Raton* 8, no. 4 (Winter 2005): 520–40. <http://dx.doi.org.ezproxy.uvm.edu/10.1108/IJOTB-08-04-2005-B004>.
- Vermont Department of Children and Families. “The Weatherization Program.” Accessed December 6, 2019. <https://dcf.vermont.gov/benefits/weatherization>.
- Vermont Department of Public Service. “2016 Vermont Comprehensive Energy Plan.” Montpelier, Vermont.: <https://legislature.vermont.gov/assets/Legislative-Reports/Executive-summary-for-web.pdf>.
- Vermont Department of Public Service. “Energy Efficiency Utilities.” Accessed May 12, 2020. [https://publicservice.vermont.gov/energy\\_efficiency](https://publicservice.vermont.gov/energy_efficiency)
- Vermont Department of Public Service. “Net Metering.” Accessed May 12, 2020. [https://publicservice.vermont.gov/renewable\\_energy/net\\_metering](https://publicservice.vermont.gov/renewable_energy/net_metering).
- Vermont Official State Website: State of Vermont Public Utilities Commission. “About Us.” Accessed June 30, 2020. <https://puc.vermont.gov/about-us>.
- Vermont State Legislature. An Act Relating to Improving the Siting of Energy Projects, Act No. 174 (S.260) § (2016).

- Vijaya, Ramya M., Rahul Lahoti, and Hema Swaminathan. “Moving from the Household to the Individual: Multidimensional Poverty Analysis.” *World Development* 59 (July 1, 2014): 70–81. <https://doi.org/10.1016/j.worlddev.2014.01.029>.
- Walker, Gordon, and Rosie Day. “Fuel Poverty as Injustice: Integrating Distribution, Recognition and Procedure in the Struggle for Affordable Warmth.” *Energy Policy*, Special Section: Fuel Poverty Comes of Age: Commemorating 21 Years of Research and Policy, 49 (October 1, 2012): 69–75. <https://doi.org/10.1016/j.enpol.2012.01.044>.
- White, Damian. “Just Transitions/Design for Transitions: Preliminary Notes on a Design Politics for a Green New Deal.” *Capitalism Nature Socialism* 0, no. 0 (2019): 1–20. <https://doi.org/10.1080/10455752.2019.1583762>.
- Wichterich, Christa. “Contesting Green Growth, Connecting Care, Commons and Enough.” In *Practicing Feminist Political Ecologies: Moving Beyond the “Green Economy,”* 1st ed., 67–100. London, UK: Zed Books, 2015.
- Williams, Stephen, and Andréanne Doyon. “Justice in Energy Transitions.” *Environmental Innovation and Societal Transitions* 31 (June 1, 2019): 144–53. <https://doi.org/10.1016/j.eist.2018.12.001>.

## 7. Funding

Data collection for this work, as a part of the REJOICE partnership, was supported by the Lintilhac Foundation as part of its contribution to the University of Vermont Foundation, 2019.

## 8. Data Availability

Survey and interview data are not publicly available due to Institutional Review Board Protocols. VCED data are available under ‘Community Progress Maps’ on the Vermont Community Energy Dashboard Website (<https://www.vtenergydashboard.org/statistics>). American Community Survey 2017 Estimates data are available at (<https://data.census.gov/cedsci/>)

### CHAPTER 3: MARGINALLY JUST: NEOCLASSICAL VISIONS IN VERMONT'S 'ENERGY FUTURE'

**Journal format:** *Environmental Politics*

**Title:** Marginally Just: Neoclassical Visions in Vermont's 'Energy Future'

**Author affiliation**

Walter Keady, University of Vermont, Rubenstein School for Environment and Natural Resources, George D. Aiken Center, Burlington, Vermont 05401

Bindu Panikkar, University of Vermont, Rubenstein School for Environment and Natural Resources, George D. Aiken Center, Burlington, Vermont 05401

**Corresponding author:** Walter Keady [walter.keady@uvm.edu](mailto:walter.keady@uvm.edu)

**Word count inclusive of the abstract, references, footnotes:** 7,944

**Key Words:** Discourse analysis, Just transition, Vermont

## **Abstract:**

Vermont is considered as a leader in renewable energy policy. This paper examines the ideological and political visions in Vermont energy policy discourses, alongside semi-structured interviews with key informants (n = 18) to explore how these policies encourage and/or prevent just transition politics. We first review Vermont's energy transition policies and political and ideological assumptions in just transition politics. We then categorize discourses in policies and interviews to understand ideological and political visions present in Vermont. This study finds that while there is a marginal overlap with just transition ideologies, Vermont energy transition discourses largely prevent just transition by assuming a neoclassical political economic vision. We suggest just transition advocates could use marginal overlap between their politics and existing policy to advance rhetorical, socio-ecological claims in official politics. However, further research into what fosters the small number of existing just transition discourses in Vermont is needed.

## **1. Introduction**

Energy system transitions are core pieces of climate change mitigation and adaptation. While some countries have national frameworks for transition away from greenhouse gas (GHG) emitting fuels (e.g. Germany's *Energiewende*), the United States (U.S.) does not. In this absence, a range of its sub-national state governments have developed energy transition policies, and increasingly these state-level governments look to one another for policy models (Rabe 2019). Analysis of renewable energy policies in individual states is therefore a useful way to evaluate energy transitions in the U.S., one of the highest GHG emitters, overall.

Yet renewable energy transitions are confrontational and politically charged: transitions require “alter[ing] technologies, political will, legal regulations, market dynamics, and social attitudes and values” (Sovacool et al. 2016:311). These changes often have regressive impacts. Price-based mechanisms, for instance, may disproportionately harm poor and rural populations. Popular backlash to such mechanisms in France (Nature Energy Editorial Board 2019) and in Ecuador (BBC News 2019) provide two examples. Similarly, energy transitions imply the elimination of fossil-fuel industries on which the livelihoods of energy workers and often the areas in which they live depend. ‘Just transition’ is a framework for preventing, or at least mitigating, both of these negative impacts.

Exactly what just transition consists of is contested (Stavis et al. 2020). In the narrow model, the just transition framework reconciles the ‘jobs-versus-environment’ dilemma (Evans and Phelan 2016) by managing the distributive conflict: who ‘wins’ and who ‘loses,’ for instance, in phasing out coal (Newell and Mulvaney 2013). Such policy proposals often provide recompense to workers fired in response to environmental regulations (e.g. Tcherneva 2018, Eisenberg 2019). But the more comprehensive just transition model relates not just to particular economic sectors but to political economy and its entanglements with social injustice (e.g. “Just Transition” accessed 2019; White 2019; Akuno 2020; Stevis et al. 2020). Proponents of this model argue not just or recompense but “profound changes in the organization of and relations at work” (Stavis et al. 2020:22).

The extent to which either of these just transition models appears in energy transition in the U.S. varies, however (Eisenberg 2019). This absence raises “normative

and instrumental” concerns about the success of its energy transition (Williams and Doyon 2019:144). As an initial contribution to studying just transition in individual state policies, this research examines in-depth renewable energy policy discourses in Vermont, considered a leader in the U.S. (Silverman 2017; Stephens et al. 2018). Scholars have commended Vermont’s energy transition policies for their progress in developing renewable electricity infrastructure, participatory siting processes (Sovacool et al 2014), as well as use of group net metering which helps to distribute benefits like electric rate reductions to non-homeowners (Jones and James 2017; Stephens et al. 2018). Still, little academic literature exists on just transition politics in Vermont, with implications for policy success.

We analyze discourses, understood as “representations, construals, conceptualizations, or theories” of reality (Fairclough 2013:178), to understand the extent the just transition frame arises in Vermont policy. We focus especially on policy documents, the discourses in which cast light on both the problems to which policies respond and the ideological assumptions authors make in their proposals for solving them. But these realities are of course complex, and policymakers rely on simplified ideological assumptions to define problems (problematization) and propose solutions (imaginaries) to ‘solve’ them. Discourse analysis therefore provides a window into these imaginaries, or what we call “visions,” based on how policy ‘solutions’ define (represent, construe, conceptualize or theorize) social problems.

Here, we analyze Vermont energy transition’s guiding policies to see how their visions align with just transition principles. We conduct a discourse analysis of formal

planning documents, as well semi-structured interviews with key informants about energy policy, asking: how do Vermont’s transition policy discourses encourage or prevent just transition? Below we provide a theoretical background on just transition and the renewable energy transition policies initiated in Vermont followed by methods and results of the study.

## **2. Background**

### **2.1 Discourses, Problematizations, and Visions**

In researching the relationship between Vermont energy policy and just transition, we draw heavily from the Fairclough’s discourse analysis framework (2013). This approach first assumes that policies are simultaneously attempts to define problems and propose solutions (Fairclough 2013:192). Yet because “social reality” (Fairclough 2013:178) is so complex, defining any such problem, or “problematization” (Fairclough 2013:185), is a subjective process. Policymakers therefore rely on “political judgement” (Rittel and Weber 1976:161) in the process. Fairclough argues that this political judgement consists of ideological “imaginaries” (2013:192), i.e. policymakers’ subjective understandings of “social reality,” its problems, and what they would like to do about them. Thus, in this framework, discourses construe both policymakers’ subjective problematizations and accordingly, the ideological imaginaries, or what we call visions, on which those problematizations are based.

Fairclough also argues that the discourse from “social actors” of all sorts – from policymakers in power to “lay” people (Fairclough 2013:186) – also includes problematizations and visions. Fairclough argues that because discourse is reflexive (it

simultaneously shapes and is shaped by social reality) both discourses within policies and ordinary discourses from people responding to these policies are important. With regard to non-policy discourses, discourse analysis is especially useful for evaluating how individuals “problematize problematizations” which originally appear in policy, and how they propose alternative visions in response (Fairclough 2013:193).

## **2.2 Just Transition Problematization and Vision**

Just transition discourses vary between a narrow vision focused on individual industries and a broad vision focused on political economy. For example, Heffron and colleagues’ (narrow) definition requires “the benefits and disbenefits of the transition are distributed through a fair and equitable process among all members of society” (2020:8) while Stevis and colleagues’ broad vision claims that “without profound changes in the organization of and relations at work a just, inclusive, and transformative socioenvironmental transition is impossible.” (2020:22). While the narrow field’s attention to distributional justice for workers and nearby communities (Jenkins et al. 2020) is critical, we believe they depend on an inappropriate separation between politics, economics, and environmental concerns. The broader just transition field focuses on the interdependence of these factors, drawing from frameworks in which social structures and economics are embedded in non-human nature (e.g. Brown 2016) and environmental problems originate from social inequalities (Bookchin 1980; Salleh 2009).

We use “just transition” to refer to the broader field, defined by its problematization of the energy transition as a need to remake the size, purposes, and power relationships of economic production. It holds the tenets that 1) political economies have uneven

distributions of power (e.g. Newell and Mulvaney 2013); 2) the dominant modes of economic production are unsustainable and require “proactive transformation” (White 2019); and 3) energy and energy systems are core components of these modes of economic production and changing them disproportionately harms disadvantaged people within political economic systems (Sovacool et al. 2017; Lennon 2017).

Importantly, this understanding does not reduce political and social relationships to economics alone. It aligns instead with Fraser’s Marxian definition of capitalism as an “institutionalized social order” (Fraser and Jaeggi 2018:166). By this, Fraser means that economic production depends on not only on labor exploitation but also upon “axes of injustice” (Fraser and Jaeggi 2018:177). These include social and natural exploitation (e.g. gender inequality and social reproduction, racial oppression and expropriation, and the need to pollute and disrupt land for fueling growth and depositing waste) (Fraser 2014). Fraser’s point is not that these relationships are purely functional to capitalism or originated with it, but that they are all interconnected (“imbricated”) (Fraser and Jaeggi 2018:19). Accordingly, action towards ‘economic’ justice in energy transitions must necessarily overlap with and work for justice in other social relationships – gender, racial, and environmental. Just transition discourses often refer to ‘workers and frontline communities’ as a shorthand for the disadvantaged people and groups. The term “does not mean essentializing workers by overstating their role, or placing them above other[s]” (Stavis et al. 2020:21). Instead, support for ‘workers and frontline communities’ implies support for a broad view of environmental justice which is multiscalar (Pellow 2017; Sze 2020), ranging from the sites of energy extraction to individual energy uses.

The vision this problematization construes aligns with Wichterich's (2015:83) There Are Many Alternatives (TAMA) framework in which people resist and unmake injustices "with multiple strategies" starting from where they are with the conditions in front of them (Harcourt and Nelson 2015:10). For instance, Cooperation Jackson, an organization in Jackson, Mississippi in the U.S. working for sustainability, economic democracy, and community ownership, employs a "build and fight" strategy for achieving just transition. The organization works to 'build' (prefigure) a just transition through construction of a 'solidarity economy' of worker-owned cooperatives focused on environmental sustainability (Akuno 2020). Their efforts extend into official politics too, 'fighting' for policies which support their efforts (Akuno 2020:106). The organization's Just Transition plan, for instance, calls for "expanded and sustainable public transportation" (Cooperation Jackson 2015) strengthening the flow of people and goods throughout the solidarity economy (and beyond) and decreasing fossil fueled transportation emissions. These actions stem from a desire to "work within [official] political space, not to be a part of it, but rather to create the conditions...we need" (Akuno 2020:108). The vision of the just transition discourse is thus one of strengthening political conditions to create "enabling spaces" (Wichterich 2015:92) in which 'many alternatives' can thrive and in which 'workers and frontline communities' unmake axes of injustice by their own initiative.

The end goal might be thought of as a democratized political economy in which people can pose and answer normative questions about the purpose of their energy and economies: "energy for what? And to sustain what kinds of modes of life?" (White

2019:14). The upshot should not be that just transition is unrealistic or unwieldy, but that a neat, packaged just transition policy will be insufficient and overly simplistic. Better approaches would be policies which target specific conditions preventing worker and frontline community initiatives – including the narrow just transition’s proposals– but understanding these as enabling, not *causing*, larger changes in political economic conditions. We propose that just transition themes in policy discourse relate to 1) mitigating distributive conflict in energy transitions and recognizing power imbalances; 2) recognition of political economy’s connection to “axes of injustice” in the creation of these power imbalances; and 3) support for efforts of “workers and frontline communities” to prefigure just and sustainable “modes of life”.

### **2.3 Overview of Vermont Energy Systems and Transition Policy**

Although the Vermont government has had renewable energy policies since the late 20<sup>th</sup> century, the Department of Public Service’s 2011 and 2016 Comprehensive Energy Plans (CEPs) provide the overarching vision, goals, and plans for the transition. In broadest terms, these goals amount to the reduction of greenhouse gas emissions across all sectors by 90% by the year 2050 (VDPS 2016). These plans built off previous pricing incentives encouraging the development of in-state renewable electricity generators (DSIRE 2015; VDPS 2020d). The two CEPs culminated in legislation establishing a Renewable Energy Standard, which requires electricity utilities to provide increasing quotas of renewably generated electricity, as well as investments in “energy transformation” in other sectors, e.g. electric transportation infrastructure, annually (VDPS 2020c).

Vermont residents consume more energy than is produced in the state, nearly all of which is electricity (U.S. Energy Information Association 2020). The state imports largely petroleum, oil, and natural gas for automotive transport (40% of energy consumed) and building heating (46% of energy consumed) (Energy Action Network 2019). The remaining 14% of energy consumed relates to electricity. Although 99% of electricity generated in Vermont is from renewable sources (USEIA 2020), producers sell much of it to be consumed out-of-state (VDPS 2016). In terms of electricity consumed in-state, 62% is renewable, but half of this stems from generators located in the neighboring Canadian province of Quebec (EAN 2019:13; VDPS 2016:235). In total only 24% of energy consumed across all sectors is renewable (EAN 2019).

These gains come largely from changes in electricity procurement, a core focus of both CEPs. As transportation and building heating make up 86% of Vermont's energy footprint, however, the 2016 CEP increased attention on these sectors. The latter depends on efficiency gains (e.g. weatherization) and depends heavily on the state's pre-existing "energy efficiency utilities" (EEUs) for loans and rebates to consumers (VDPS 2020a). Transportation, however, depends largely on technological upgrades, particularly the proliferation of electric vehicles (EAN 2018; EAN 2019). Various state programs, including from utilities complying with the RES, incentivize consumer purchases of electric or hybrid vehicles, much the same as they incentivize efficiency upgrades (Drive Electric VT 2020). Yet few studies have addressed questions of justice and energy policy in Vermont, except for in terms of energy pricing (Mittlefehlt and Tedford 2014; Teller-Elsberg et al. 2016). Below, we analyze discourses in the 2011 and 2016 CEPs to evaluate

how their problematizations and visions relate to those of just transitions, alongside discourses from interviews with key informants.

### **3. Methods and Materials:**

To examine energy policy discourse's connections to just transition politics, this paper uses discourse analysis. We compare discourses in the most recent State of Vermont Comprehensive Energy Plans and those present in discourses from interviews discussing these policies. We then compare the problematizations and visions in these discourses against the just transition's, asking: how do Vermont's renewable energy policies encourage and/or prevent just transition? All study protocols were approved by the University of Vermont Institutional Review Board.

#### **3.1 Datasets**

The principle policy documents were the 2011 and 2016 Comprehensive Energy Plans published by the Vermont Department of Public Service. As the 2016 plan is an update of the 2011 version, the former constituted the bulk of our attention. We also examined other public discourses among key informants by conducting semi-structured interviews conducted as a part of the REJOICE (Rural Environmental Justice Opportunities Informed by Community Expertise) project (Panikkar et al. forthcoming). REJOICE is a Vermont-based partnership between the Center for Whole Communities, Community Action Works, and practitioners from Vermont Law School and the University of Vermont (including myself). The partnership has a mission to explore and address environmental justice issues – broadly defined– in Vermont through research, community organizing, and policy development. Although the findings and analysis of

this paper stem from this dataset, they do not represent official positions of the REJOICE Partnership, nor complete portrayals of its work.

### **3.2 Interview Design and Recruitment:**

The authors with three other researchers traveled across Vermont and conducted semi-structured interviews with local social, environmental, and health experts (n=50) between July and August of 2019. Interviewees were recruited using internet searches for organizations in the area, REJOICE partners' professional networks, and from snowball sampling (Heckathorn 1997). Our interview approach was semi-structured and respondent driven, so questions varied. This paper draws from 18 of these interviews in which energy was a core topic. The key informants included state officials, community association members, social workers, labor advocates, and policy advocates.

### **3.3 Coding and Discourse Identification:**

We employed a qualitative coding approach to this dataset. With a team of research assistants, we conducted a thematic analysis (Braun and Clarke 2006) of the interview transcripts, using *a priori* codes developed from the basic REJOICE research areas (e.g. Climate, Energy, Housing, Pollution, Transportation, etc.) The team used the qualitative software NVivo v.12 (QSR International) for analysis. Following categorization, we developed inductive subcodes (Maguire and Delahunt 2017) relating to energy politics. For instance, when interviewees discussed low-income households' difficulties purchasing heating fuel, we marked this as "flaws of current energy system." Simultaneously, we began coding the Comprehensive Energy Plan policy documents, again using inductive coding. For instance, when the 2016 Comprehensive Energy Plan discussed "modernizing"

Vermont's electrical grid, we coded this text as "technology-based change". Once texts were organized, we searched for discursive statements with ideological or political implications. For instance, when the 2016 CEP described renewable energy as a set of "opportunities" we coded this as "win-win-win" discourse in which policymakers framed the energy transition as shared prosperity rather than politicized, confrontational change in political economy.

### **3.4 Author Positionalities**

We hold that our positionalities are influential components of research design and interpretation (Haraway 1988). The study authors share a position as academic researchers at University of Vermont, which, alongside other issue experts in the REJOICE Partnership, steered topics of investigation and recruitment scripts towards environmental justice issues we assumed may prevail in Vermont. These assumptions may have unintentionally pulled our attention away from atypical or uncommon environmental justice concerns. Similarly, the materials used to recruit participants may have unintentionally favored people comfortable with our positionalities and marginalized others.

These limitations may have interacted with the first author's positionalities (as a white man of financial security with a limited residency in Vermont) to establish distance between this author's analysis and the positionalities of people usually subjected to environmental injustice. This analysis may therefore diminish the needs of "women and other invisible groups" (Rocheleau 1995) notably people of color, in Vermont. As discussed in Keady et al. (Forthcoming), we therefore consider the issues in this analysis

important but incomplete, unable to fully encompass Fraser’s axes of injustice in political economy.

#### **4. Results and Discussion**

Below, we analyze discourses in the Comprehensive Energy Plan to identify the dominant policy ‘vision’ of Vermont’s energy transition. We then categorize three sets of discourses present in interviews, elucidating their problematizations and visions as well. Finally, we compare each of these visions against one another to understand how policy discourse and interview discourse create a general ideological vision of the energy transition in Vermont. We then compare this against the vision of the just transition framework to determine areas of overlap.

##### **4.1 Comprehensive Energy Plan Problematization and Vision**

The 2011 Comprehensive Energy Plan provides four objectives: “[f]oster economic security and independence; [s]afeguard our environment; [d]rive in-state innovation and jobs creation; and [i]ncrease community involvement and investment. (VDPS 2011:3). By 2016, these objectives evolved into a “moral and economic” imperative (VDPS 2016:4) for pursuing “energy security and environmental benefit” (VDPS 2016:1). The purpose of both documents appears as economic development, thought to create growth in a “triple bottom line” of “people, planet, and profits” (Slaper and Hall 2011). In the CEP’s terms, the triple bottom line is described as energy policy “not for its own sake but as a tool to advance economic, environmental, and health objectives” (VDPS 2016:2).

The plans respond to a three-part problematization: 1) unsatisfactory economic growth and independence (e.g. “Vermont’s dependence on oil” imported from abroad [VDPS 2011:3]); a moral desire to connect the environment writ large with economic opportunity (“we will help not only our environment but also the Vermont brand – which underpins our tourism and agricultural industries and attracts businesses” [VDPS 2011:4]); a need for shared and holistic prosperity which comes from realizing “societal values in our energy decisions” (VDPS 2016:59).

This problematization construes an ideological vision of the ‘Energy Future,’ in which the energy transition as a grandiose force capable of achieving a variety of social ‘goods’: economic security, environmental sustainability, and public health. As a response to “moral imperative,” the plans imply that environmental threats are ethical failings in which people are uniformly responsible, vulnerable, and likely to benefit from mitigation. In need of safeguarding, for instance, are the “[f]lat, sunny, open lands...that may serve as important habitats for...the biodiversity that *supports us all*” (VDPS 2016:59). This narrative contrasts with environmental justice concerns, for instance, ignoring any particular place-based concerns which may be unequally distributed across social groups (e.g. Agyeman et al. 2016).

Similarly, conflict over environmental decision-making is conveyed as a difficult but dignified process of respectful exchange. Mutual agreement emerges in this arena through moral commitment to the greater good: “The uses and values we impart to our lands and waters may seem to be in stark competition with each other... [but] we can find...acceptable compromises *if we are up to the challenge*” (VDPS 2016:59). This vision

of a cohesive society with universal values relating to the environment may stem from the assumptions that economic production and consumption occur without conflict, and occur as exchanges between individuals that are equally powerful. In other words, the Energy Future makes neoclassical economic assumptions in which “the exchange of a fixed collection of goods among individuals bargaining directly with one another [and] no further trading will make one person better off without making someone else worse off” (Gowdy 2010:2). This commitment appears most strongly in the quote:

“Individual decisions — about where to live, what car to buy (or whether to buy a car at all), what appliances to buy, whether and how to weatherize your home or invest in renewable energy — will have a significant impact... While public policy has affected and will continue to affect these choices...*they are fundamentally private decisions.*” (VDPS 2016:8)

This understanding presents a neoliberal approach climate mitigation: careful, ethical behavior by individuals, rather than collective action (Parr 2015). Rather than recognizing workers and frontline communities as agents of change based on axes of injustice, this vision assumes individuals are already equal. The CEPs therefore echo Multi-Level-Perspective (MLP) frameworks (Geels 2005; Eames and Hunt 2013; Sengers et al. 2019). According to these fields, energy systems are complex, socio-technical arrangements made up on one level of individual interactions, another by rules, policies, and technologies which shape those interactions, and a third by overall system ‘paradigms,’ which are the prevailing character of the systems themselves (e.g. a ‘fossil fuel’ paradigm vs a ‘renewable energy’ one). MLP policy’s primary purpose is to tweak rules and policies

on the second level, often using technocratic measures like economic and behavioral modeling, to change individual behaviors. These individual changes are meant to aggregate into systemic shifts into new paradigms (Eames and Hunt 2013). Although this approach depends on some policy ‘management’ of the marketplace, the emphasis on the changing the contexts of individual decisions directly echoes the neoclassical economic theory of individual exchange that leads to societally ‘optimal’ ends.

The CEP policy vision is primarily focused establishing new, private, economic decisions in which economic and environmental ‘benefits’ arise as byproducts. For instance, with respect to thermal energy emissions reduction, the CEPs point heavily to “build[ing] the industry” (VDPS 2016:107) for provisioning thermal energy efficiency services. The industry is thought to create “a vibrant and equitable economy” (VDPS 2016:3) by providing money-making opportunities for “heating service companies, building performance contractors, and renewable energy installers” (VDPS 2016:7), and “creating well-paying jobs in [these] industries” (VDPS 2016:3). As aftereffects, this industry reduces the amount of fossil fuel energy consumed in thermal heating and contributes to societal health by “yielding better respiratory, psychological, and overall health” to customers receiving thermal efficiency services (VDPS 2016:27). The solution to any “real world shortcomings” of such market-based policies (e.g. split incentives between landlords and tenants) is to double-down on markets, pursuing policies that “enhance markets by providing information, technical assistance, or access to capital” (VDPS 2016:53) instead.

Discourses thus construe the Energy Future as a win-win-win vision in which what is good for business is good for human and environmental health. While this approach to energy policy is common, Moussu (2020:70) indicates that “conflicts and trade-offs between objectives are hidden... key political economy questions...are avoided [and] difficult questions such as who will finance and bear the costs of the transition towards a low-carbon economy remain unanswered”. In such a vision, the defining feature of the Energy Future is the *energy itself*. Political, social, and economic arrangements remain largely untouched, except to the extent that they must change to accept different energy sources (e.g. the ‘new utility model’). That which ushers in the grandiose vision is a change in the fuel alone, not the social systems it powers. Accordingly, the explicit goals and benchmarks which the CEPs hope to achieve have to do largely with emissions as the end results of political economic activity. In this way, the vision preserves the character of the activities producing them.

## **4.2 Interview discourses**

### ***4.2.1 Land Use Discourses***

Overwhelmingly, interview discourses related to renewable energy siting and land use. Three separate themes emerged within these discourses: aesthetic and proprietary concerns, environmental efficiency concerns, and eco-centric concerns.

Aesthetic and proprietary discourses claimed renewable infrastructure (usually solar or wind farms) were non-aesthetic or anomalies within the landscape. They expressed disapproval of infrastructure because of its impacts on property investments: “everyone's always afraid that it's going to ruin their view, and it's going to be insurmountably ruining

their property values” (Interview 11). The chief concern appeared to be the proximity of infrastructure, not the infrastructure itself: “we’re not against solar, we’re against where they’re wanting to put it. There are places to put it where it’s not an eyesore” (Interview 1). The problematization and vision are both narrow: renewable energy infrastructure is non-aesthetic, and should therefore be sited away from residences or scenic landscapes.

Environmental efficiency discourses lamented that siting criteria (or lack thereof) developed energy infrastructure away from more environmentally beneficial places:

“The one place we really should be putting [solar panels] up...is over every parking lot, that it shades your cars...and that’s thoroughly disturbed land already” (Interview 3).

“we’re producing massive amounts of power right on our roof top. Which is an ideal situation, because we’re not cutting down trees, we’re not taking up green” (Interview 5).

Like the aesthetic or proprietary vision, these discourses problematize the CEPs siting decisions. However, their concern was not proximity but environmental and planning criteria used to make decisions. They envisioned siting decisions made based on the reconciliation of GHG mitigation with other environmental concerns such as wildlife corridor preservation or stormwater runoff reduction.

Eco-centric discourses construed a vision of the natural world as “untouched, edenic locales” preserved “as sacred” (Hultgren 2018:56), in which renewable energy infrastructure was immoral and unacceptable. Advocates posited such locales (“a pristine mountain in the middle of nowhere” [Interview 7]) as immorally targeted for unmitigated

destruction “you get...close to 500ft [wind] towers up there [on mountain ridgelines], *tremendous desecration* up there” (Interview 9). They conveyed a vision of non-human nature as imperiled and intrinsically valuable, imagined as entirely distinct from human society and important to keep that way. The eco-centric vision appeared in which society and nature are neatly separated and the ‘value’ of nature is intrinsic, incomparable to the benefits of any social, economic, or political project.

#### ***4.2.2 Egalitarian Discourses:***

A second set of discourses problematized policy’s social impacts, arguing that the benefits and burdens were unequally distributed. For instance, access to solar net metering, and the reduced electricity rates accompanying it, was repeatedly described as available only to wealthy homeowners:

“getting solar installed is expensive...if you own, solar might be an option.

But as a renter, solar’s not an option” (Interview 5).

There were also concerns over uneven regressive impacts from a hypothetical state-based ‘carbon tax,’ mentioned as a potential policy in the 2016 CEP (VDPS 2016:53).

“If we go forward with the carbon tax, we’ll [northeastern Vermont] be disproportionately impacted because we’re rural and spread out” (Interview

7).

Relatedly, interviewees doubted that policies generated shared prosperity, claiming renewable energy developers and non-residents were policy’s primary beneficiaries. Asked who benefited from solar energy infrastructure construction, one interviewee reported

“well I’m sure their [utility companies’] shareholders are seeing a benefit”  
(Interview 5).

“because of our poverty levels...we’ve had some of the biggest wind programs in the state. We have really poor towns that, if you’re going to guarantee an income stream [for the town] you have people that are like ‘Yes! Bring it’” (Interview 7).

Unlike land-use problematizations, however, egalitarian discourses, appealed to universal, rather personal or environmental concerns in discussing siting. These discourses primarily problematize the CEPs’ assumptions that their policies will establish equally optimal outcomes. Still, they convey a range of ideological visions. By focusing on distribution of benefits, burdens, and opportunities, they overlap some with the Energy Future vision and its concern with the inputs or outcomes of economic processes (regressive taxes, uneven access to benefits) rather than the processes themselves. Presumably, egalitarian visions could entail the same MLP framework as the Energy Future, simply with altered management decisions. In general, the visions appealed to procedure, calling for “consolidation of who gets to decide what our land use patterns are and who benefits from our land use patterns” (Interview 8).

#### ***4.2.3 Socio-ecological Discourses***

A third set of discourses criticized the energy policy as a “green veneer” (Interview 6) or “marketing scheme” (Interview 4). Interviewees drew these conclusions based on a socio-ecological problematization, that is “a politics that recognizes the intense interconnections between the natural and social realms” (Hultgren 2018:71). In this

perspective, the vision of the Energy Future cannot meaningfully address ‘environmental problems’ because of a failure to understand their origins in intertwined political, social, and economic relationships: “I think the main environmental problem is capitalism and imperialism, [which] looks like settler colonialism here...also patriarchy...propped up through white supremacy” (Interview 2).

As with just transition, socio-ecological discourses problematized the need for energy transition as “a symptom of a way of organizing society” (Interview 2). From this lens, energy transition policies focusing on emerging technologies or increasing alternative energy sources ignore root problems. A central example was transition policy’s reliance on “imported [renewable energy] resources (particularly from Hydro-Quebec)” (VDPS 2016:235). Interviewees problematized this reliance as bringing in solutions from outside, rather than addressing the means and ends of energy use within Vermont:

“The state [is] kind of in a quandary because the whole system is based on extraction” (Interview 2).

In this view, the CEP wrongly imports energy as opposed to “changing the *way* we use energy” (Interview 4) to meet supply. Interviewees claimed the import of energy, in turn, implicates Vermont in injustices associated with extraction of natural gas and hydroelectricity from First Nations territories in Canada (Massell 2016; LeQuesne 2019).

These discourses construe a vision that integrates energy concerns with other matters of human livelihood. Interviewees claimed their intention was “to build a mass movement around issues that relate to an energy transition it needs to be sort of woven into

a broader vision for a better society” (Interview 2). Their preferred target of energy policy in other words would be social structures and processes, not individuals within them.

### **4.3 Comparison of Energy Policy, Interview, and Just Transition Visions**

Though each set of discourses challenged the Energy Future vision, we argue that none except the eco-centrist and socio-ecological visions breaks with the Energy Future entirely. Largely, the aesthetic/proprietary, environmental efficiency, and egalitarian visions can be understood simply as advocating for changes in the model parameters or management criteria used in the Energy Future’s Multi-Level Perspective framework. Aesthetic and proprietary visions for instance may be satisfied by new energy siting criteria which relocate infrastructure away from real estate. The same would be true for environmental efficiency visions, focusing instead on the inclusion of ecological factors like carbon sequestration in land-use decisions. Egalitarian visions could be satisfied with parameters that promote equal opportunity and distributive justice, for instance, increasing government subsidies for loans for home weatherization.

Thus the Energy Future vision, and the majority of interview discourses, align only marginally with the just transition vision. The just transition problematization (the need to remake or unmake the size, purposes, and power relationships of economic production) breaks radically from that of the CEP (economic development bent towards a “triple bottom line.”) Similarly, the Energy Future vision replaces just transition’s agents of change (‘workers and frontline communities’) with energy itself. It ignores the just transition’s vision of democratization and remaking of the purposes and ends of energy itself. The Energy Future discourses also fail to align with just transition by ignoring “axes of

injustice” and “ways of ordering society,” instead making the neoclassical economic assumption that individuals acting in their own best interests will achieve shared economic and environmental benefit. In short, rather than a vision of *reorganization* of and relations at work (Stavis et al. 2020) the Energy Future envisions a *repurposing* of them based on a moral commitment to environmental protection. Rather than fostering “enabling spaces” for “worker and frontline community” political or economic projects, the Energy Future vision assumes there is space enough already within the current political economy.

By contrast, the socio-ecological discourses overlap neatly with just transition discourses. The overlap starts with rejecting the problematization that energy decisions are “fundamentally private,” and between equals in the marketplace, a perspective which cannot reconcile with socio-ecological vision’s criticism of systemic social injustices. Instead, the socio-ecological vision understands “safeguarding the environment” as a political problem requiring collective action toward new ways of “ordering society.” In this way, the socio-ecological transition is nearly identical to just transition discourses, imagining the unmaking of prevailing systems (e.g. capitalism, patriarchy, racism, settler colonialism) as part of this new ordering.

Lastly, the eco-centric vision breaks with both Energy Future and just transition discourses. As eco-centric discourses rest on an idea of nature as fundamentally distinct from society (Bookchin 1996; Hultgren 2018), they cannot accept the incorporation of wilderness into *sociotechnical* energy systems in the first place, regardless of whether this incorporation is for low-carbon energy. Further, any resulting conflict is not a matter for public deliberation as in the Energy Future (VDPS 2016) nor is it a matter of “build[ing]

and fight[ing]” (Akuno 2020) as in the just transition. Instead, eco-centric discourses describe it as a *cultural* concern: “I don't care if you could put wind turbines and solar farms everywhere, ...we have a culture that is dependent on consumption and destruction” (Interview 9). This call for cultural changes overlaps slightly with the “moral imperative” in the CEPs, but the eco-centric moral vision would be better characterized as societal retreat ‘from nature’ as opposed to integrating natural well-being into economic development. They also break with the just transition vision, which would find ‘consumption’ conditioned more by axes of injustice in which people operate rather than cultural choices.

Altogether, these comparisons suggest that Vermont energy policies and individuals discussing them largely ignore just transition political ideas, and the dominance of the Energy Future discursive frame constrains their emergence. This disconnect places severe constraints on the potential for just transition politics to emerge. While unsurprising for a formal policy document, the CEPs’ repeated references to “what *we* do” to protect “*our* environment” ignore longstanding findings from the environmental and energy justice fields showing disproportionate access to environmental and energy benefits and exposure to hazards along racial, gender, and class lines (e.g. Agyeman et al. 2016; Lennon 2016; Pellow 2017; Sze 2020). In doing so, CEP discourses gloss over social conflicts and political economic questions, hiding potential motives for collective action towards enacting or envisioning alternative “modes of life” (White 2019:14).

Still, by framing interview questions in terms of ‘Vermont energy policy,’ this research may have unintentionally conditioned interviewees to speak only within CEP’s

discursive frame. Moreover, because interview recruitment methods drew heavily from environmental justice, they prioritized ‘frontline community’ members over typical ‘workers’ such as labor union members. With low participation from a core constituency of just transition politics (Snell 2020), these interviews may thus have misrepresented the overall character of energy discourse in the state.

#### **4. Conclusion**

The just transition vision we have characterized requires an unmaking of structural social inequalities along various lines, and involves the ability to realize societal values not through the marketplace but through purposeful, democratic changes in the “organization of and relations at work,” broadly understood as an “imbricated” institutionalized social order. Since the conclusion of interviews, new legislative proposals emerged in this vein. These include H.868 (Cina 2020), calling for “a just transition from an extractive economy” and S.311 (Pollina 2020) proposing progressive taxation to fund “weatherization, thermal efficiency, public transportation, renewable heating systems, and the use of electric vehicles.” The presence of these principles in formal policymaking will perhaps influence the overall discourse and politics in Vermont. But as policies for climate mitigation and adaption become increasingly urgent, just transition policy advocates may find Vermont’s model as cause for concern. Our analysis has interpreted a general lack of engagement with just transition discourses or visions in the guiding documents for its energy transition. Interpretation suggests that Vermont’s transition policies make neoclassical economic assumptions of behavior, arguing decisions about energy are “fundamentally private.” In

turn, they downplay social, political, and economic conflicts which are by contrast central to the just transition framework.

Future research should examine the political and economic conditions which have led the Energy Future discourse and vision to prevail in Vermont. Such research may benefit from attention to political boundaries in energy extraction and use. Unlike other localities where ‘just transition’ discourses are more prevalent e.g. the Latrobe Valley in Australia (Evans and Phelan 2016; Snell 2020), there is little energy production or extraction within Vermont (EIA 2020), perhaps explaining the heavy attention on *new* infrastructure. Yet socio-ecological visions extended beyond Vermont’s borders to sites of extraction in their visions of justice (Healy et al. 2019). An examination of how and why such multiscalar perspectives emerges, and whether this perspective is linked to furthering just transition politics, may be fruitful. This sort of analysis would be particularly useful in translating lessons from Vermont to other localities where energy transition policies are under consideration.

Future research should also consider the areas of rhetorical overlap between the Energy Future, egalitarian, and just transition visions. In a shallow sense the Energy Future’s joining of environmental, economic, and health concerns together relates to an interrelationship between society and environment, squaring with a ‘socio-ecological’ visions. So too does the vision of the egalitarian discourse with its emphasis on fairness. Indeed, the presence of socio-ecological discourses are proof of the potential for proliferation of just transition discourses despite discursive constraints. Engaging at this rhetorical level may provide space for just transition discourses in formal political contexts.

Though a far cry from “enabling spaces” for full on just transition politics, exploiting and extending the existing rhetorical overlap in discourses may still be a useful political strategy from which to create these conditions.

## 5. References

- Akuno, Kali. “Building a People-Led Just Transition in Jackson, Mississippi.” In *Just Transitions: Social Justice in the Shift Towards a Low-Carbon World*, edited by Edouard Morena, Dunja Krause, and Dimitris Stevis, 1st ed. London, UK: Pluto Press, 2019.
- Bookchin, Murray. “Energy, ‘Ecotechnocracy’ and Ecology.” In *Towards an Ecological Society*. Montreal: Black Rose Books, 1980.
- . *Which Way For The Ecology Movement? Essays by Murray Bookchin*. 1st ed. Chico, CA, United States: AK Press, 1996.
- BBC News. “Ecuador President Backs down over Fuel Protests.” *BBC News*, October 14, 2019, sec. Latin America & Caribbean. <https://www.bbc.com/news/world-latin-america-50038126>.
- Braun, Virginia, and Victoria Clarke. “Using Thematic Analysis in Psychology.” *Qualitative Research in Psychology* 3, no. 2 (2006): 77–101. <https://doi.org/10.1191/1478088706qp063oa>.
- Brown, Peter. “The Foundations for an Ecological Economy: An Overview.” In *Beyond Uneconomic Growth*, by Joshua Farley and Deepak Malghan, 3–21. Edward Elgar Publishing, 2016. <https://doi.org/10.4337/9781783472499.00008>.
- Cina, Brian. An act relating to a regenerative economy, Pub. L. No. H.868 (2020). <https://legislature.vermont.gov/bill/status/2020/H.868>.
- Cooperation Jackson. “The Jackson Just Transition Plan.” Cooperation Jackson, November 10, 2015. <https://cooperationjackson.org/blog/2015/11/10/the-jackson-just-transition-plan>.
- Drive Electric VT. “Purchase Incentives.” Accessed June 26, 2020. <https://www.driveelectricvt.com/why-go-electric/purchase-incentives>.
- DSIRE. “Sustainably Priced Energy Enterprise Developmet (SPEED) Goals,” July 1, 2015. <https://programs.dsireusa.org/system/program/detail/1141>.
- Eisenberg, Ann. “Just Transitions.” *Southern California Law Review*, January 4, 2019. <https://southerncalifornialawreview.com/2019/01/04/just-transitions-article-by-ann-m-eisenberg/>.
- Energy Action Network. “2018 Annual Progress Report for Vermont.” Montpelier, Vermont. March 4, 2019. <https://www.eanvt.org/2018-progress-report/>.
- Energy Action Network. “2019 Annual Progress Report for Vermont.” Montpelier, Vermont. March 11, 2020. <https://www.eanvt.org/wp-content/uploads/2020/03/EAN-report-2020-final.pdf>.

- Evans, Geoff, and Liam Phelan. "Transition to a Post-Carbon Society: Linking Environmental Justice and Just Transition Discourses." *Energy Policy* 99, no. C (2016): 329–39. <https://ideas.repec.org/a/eee/enepol/v99y2016icp329-339.html>.
- Fairclough, Norman. "Critical Discourse Analysis and Critical Policy Studies." *Critical Policy Studies* 7, no. 2 (July 1, 2013): 177–97. <https://doi.org/10.1080/19460171.2013.798239>.
- Farrell, Caroline. "A Just Transition: Lessons Learned from the Environmental Justice Movement" 4 (2012): 19.
- Fraser, Nancy. "Behind Marx's Hidden Abode." *New Left Review*, no. March/April (2014): 18.
- Fraser, Nancy, and Rahel Jaeggi. *Capitalism: A Conversation In Critical Theory*. 1st ed. Cambridge, UK; Medford, MA: Polity Press, 2018.
- Geels, F. W. "Processes and Patterns in Transitions and System Innovations: Refining the Co-Evolutionary Multi-Level Perspective." *Technological Forecasting and Social Change*, Transitions towards Sustainability through System Innovation, 72, no. 6 (July 1, 2005): 681–96. <https://doi.org/10.1016/j.techfore.2004.08.014>.
- Gowdy, John. *Microeconomic Theory: Old and New*. Redwood City, CA, United States: Stanford University Press, 2010.
- Harcourt, Wendy, and Ingrid L Nelson. "Are We Green Yet? And the Violence of Asking Such a Question." In *Practising Feminist Political Ecologies: Moving Beyond the "Green Economy,"* 1st ed., 27. London, UK: Zed Books, 2015.
- Healy, Noel, Jennie C. Stephens, and Stephanie A. Malin. "Embodied Energy Injustices: Unveiling and Politicizing the Transboundary Harms of Fossil Fuel Extractivism and Fossil Fuel Supply Chains." *Energy Research & Social Science* 48 (February 1, 2019): 219–34. <https://doi.org/10.1016/j.erss.2018.09.016>.
- Heckathorn, Douglas. "Respondent-Driven Sampling: A New Approach to the Study of Hidden Populations." *Social Problems* 44, no. 2 (1997). <http://www.respondentdrivensampling.org/reports/RDS1.pdf>.
- Heffron, Raphael, Marc-Fabian Körner, Jonathan Wagner, Martin Weibelzahl, and Gilbert Fridgen. "Industrial Demand-Side Flexibility: A Key Element of a Just Energy Transition and Industrial Development." *Applied Energy* 269 (July 1, 2020): 115026. <https://doi.org/10.1016/j.apenergy.2020.115026>.
- Hultgren, John. "21st Century American Environmental Ideologies: A Re-Evaluation." *Journal of Political Ideologies* 23, no. 1 (February 2018): 54–79. <https://doi.org/10.1080/13569317.2017.1397916>.
- Indigenous Environmental Network. "Just Transition." Accessed July 3, 2019. <https://www.ienearth.org/justtransition/>.
- Jenkins, Kirsten E. H., Benjamin K. Sovacool, Andrzej Błachowicz, and Adrián Lauer. "Politicising the Just Transition: Linking Global Climate Policy, Nationally Determined Contributions and Targeted Research Agendas." *Geoforum*, May 25, 2020. <https://doi.org/10.1016/j.geoforum.2020.05.012>.
- Jones, Kevin, and Mark James. "Distributed Renewables in the New Economy: Lessons from Community Solar Development in Vermont." In *Law and Policy for a New*

- Economy: Sustainable, Just, and Democratic*, 1st ed., 189–210. Cheltenham and Camberley, UK: Edward Elgar Publishing, 2017.
- Lennon, Myles. “Decolonizing Energy: Black Lives Matter and Technoscientific Expertise amid Solar Transitions.” *Energy Research & Social Science*, Exploring the Anthropology of Energy: Ethnography, Energy and Ethics, 30 (August 1, 2017): 18–27. <https://doi.org/10.1016/j.erss.2017.06.002>.
- LeQuesne, Theo. “From Carbon Democracy to Carbon Rebellion: Countering Petro-Hegemony on the Frontlines of Climate Justice.” *Journal of World - Systems Research; Pittsburgh* 25, no. 1 (2019): 15–27. <http://dx.doi.org.ezproxy.uvm.edu/10.5195/JWSR.2019.905>.
- Littig, Beate. “Good Work? Sustainable Work and Sustainable Development: A Critical Gender Perspective from the Global North.” *Globalizations* 15, no. 4 (June 7, 2018): 565–79. <https://doi.org/10.1080/14747731.2018.1454676>.
- Maguire, Moira S., and Brid Delahunt. “Doing a Thematic Analysis: A Practical, Step-by-Step Guide for Learning and Teaching Scholars.” *AISHE-J* 8, no. 3 (2017): 3351–33514.
- Malcom Eames, and Miriam Hunt. “Energy Justice in Sustainability Transitions Research.” In *Energy Justice in a Changing Climate: Social Equity and Low-Carbon Energy*, 179. Just Sustainabilities: Policy, Planning, and Practice. Zed Books, 2013.
- Massell, David. “A Question of Power: A Brief History of Hydroelectricity in Quebec.” In *Quebec Questions: Quebec Studies for the 21st Century*, edited by Stephan Gervais, Christopher Kirkey, and Jarrett Rudy, 2nd ed., 576. Jericho, United Kingdom: Oxford University Press, 2016.
- Mittlefehldt, Sarah, and Codie Tedford. “Benefit or Burden? Environmental Justice and Community-Scale Biomass Energy Systems in Vermont.” *Environmental Justice* 7, no. 4 (August 2014): 110–14. <https://doi.org/10.1089/env.2014.0019>.
- Moussu, Nils. “Business in Just Transition: The Never-Ending Story of Corporate Sustainability.” In *Just Transitions: Social Justice in a Shift Towards a Low-Carbon World*, 57–75. London, UK: Pluto Press, 2020.
- Nature Energy Editorial Board. “Fuelling Dissent.” *Nature Energy* 4 (February 2019): 85.
- Newell, Peter, and Dustin Mulvaney. “The Political Economy of the ‘Just Transition.’” *The Geographical Journal* 179, no. 2 (June 1, 2013): 132–40. <https://doi.org/10.1111/geoj.12008>.
- Parr, Adrian. “The Wrath of Capital: Neoliberalism and Climate Change Politics – Reflections.” *Geoforum* 62 (June 1, 2015): 70–72. <https://doi.org/10.1016/j.geoforum.2015.03.012>.
- Pearl-Martinez, Rebecca, and Jennie C. Stephens. “Toward a Gender Diverse Workforce in the Renewable Energy Transition.” *Sustainability: Science, Practice and Policy* 12, no. 1 (April 1, 2016): 8–15. <https://doi.org/10.1080/15487733.2016.11908149>.
- Pellow, David Naguib. *What Is Critical Environmental Justice?* 1st ed. Cambridge, UK; Medford, MA: Polity Press, 2018.
- Pollina, Anthony. An act relating to creating a Vermont Green New Deal Fund, Pub. L. No. S.311 (2020). <https://legislature.vermont.gov/bill/status/2020/S.311>.

- Rabe, Barry. "Racing to the Top, the Bottom, or the Middle of the Pack? The Evolving State Government Role in Environmental Protection." In *Environmental Policy: New Directions for the Twenty-First Century*, 10th ed., 37–65. SAGE/CQ Press, 2019.
- Rittel, Horst W. J., and Melvin M. Webber. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4, no. 2 (1973): 155–69. [www.jstor.org/stable/4531523](http://www.jstor.org/stable/4531523).
- Rosemberg, Anabella. "Strengthening Just Transition Policies in International Climate Governance." Policy Analysis Brief. Stanley Foundation, April 2017.
- Salleh, Ariel. "Ecological Debt: Embodied Debt." In *Eco-Sufficiency and Global Justice: Women Write Political Ecology*, 1–14. London, UK; North Melbourne, Australia: Pluto Press, Spinifex Press, 2009.
- Sengers, Frans, Anna J. Wiecek, and Rob Raven. "Experimenting for Sustainability Transitions: A Systematic Literature Review." *Technological Forecasting and Social Change* 145 (August 1, 2019): 153–64. <https://doi.org/10.1016/j.techfore.2016.08.031>.
- Silverman, Adam. "Vermont Ranks No. 2 in US for Renewable Energy." *Burlington Free Press*. April 30, 2017. <https://www.burlingtonfreepress.com/story/news/2017/04/30/vermont-ranks-high-for-renewable-energy/100955606/>.
- Slaper, Timothy, and Tanya Hall. "The Triple Bottom Line: What Is It and How Does It Work?" *Indiana Business Review*, Spring 2011. <http://www.ibrc.indiana.edu/ibr/2011/spring/article2.html>.
- Snell, Darryn. "Just Transition Solutions and Challenges in a Neoliberal and Carbon Intensive Economy." In *Just Transitions: Social Justice in a Shift Towards a Low-Carbon World*, 199–215. London, UK: Pluto Press, 2020.
- Sovacool, Benjamin, Marilyn Brown, and Scott Valentine. "Energy Security and Energy Transitions." In *Fact and Fiction in Global Energy Policy: Fifteen Contentious Questions*, 249–330. Baltimore, Maryland: Johns Hopkins University Press, 2016.
- Sovacool, Benjamin, Alex Gilbert, and Brian Thomson. "Innovations in Energy and Climate Policy: Lessons from Vermont." *Pace Environmental Law Review* 31, no. 3 (2014): 651–705. <https://digitalcommons.pace.edu/pelr/vol31/iss3/2/>.
- Sovacool, Benjamin K., Matthew Burke, Lucy Baker, Chaitanya Kumar Kotikalapudi, and Holle Wlokas. "New Frontiers and Conceptual Frameworks for Energy Justice." *Energy Policy* 105 (June 1, 2017): 677–91. <https://doi.org/10.1016/j.enpol.2017.03.005>.
- Stephens, Jennie C., Matthew J. Burke, Brock Gibian, Elie Jordi, and Richard Watts. "Operationalizing Energy Democracy: Challenges and Opportunities in Vermont's Renewable Energy Transformation." *Frontiers in Communication* 3 (2018). <https://doi.org/10.3389/fcomm.2018.00043>.
- Stavis, Dimitris, Dunja Krause, and Edouard Morena, eds. *Just Transitions: Social Justice in the Shift Towards a Low-Carbon World*. 1st ed. London, UK: Pluto Press, 2020.
- Strauss, Anselm, and Juliet Corbin. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Second. Thousand Oaks, California: SAGE Publications Inc, 1998.

- Tcherneva, Pavlina R. “The Job Guarantee: Design, Jobs, and Implementation.” *SSRN Electronic Journal*, 2018. <https://doi.org/10.2139/ssrn.3155289>.
- Teller-Elsberg, Jonathan, Benjamin Sovacool, Taylor Smith, and Emily Laine. “Fuel Poverty, Excess Winter Deaths, and Energy Costs in Vermont: Burdensome for Whom?” *Energy Policy* 90 (March 2016): 81–91. <https://doi.org/10.1016/j.enpol.2015.12.009>.
- Vermont Department of Public Service. “Comprehensive Energy Plan 2011, Vermont’s Energy Future, Volume 1.” [https://publicservice.vermont.gov/sites/dps/files/documents/Pubs\\_Plans\\_Reports/State\\_Plans/Comp\\_Energy\\_Plan/2011/2011%20CEP\\_Volume%201%5B1%5D.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/Pubs_Plans_Reports/State_Plans/Comp_Energy_Plan/2011/2011%20CEP_Volume%201%5B1%5D.pdf).
- . “2016 Vermont Comprehensive Energy Plan.” 2016. <https://legislature.vermont.gov/assets/Legislative-Reports/Executive-summary-for-web.pdf>.
- (a). “Energy Efficiency Utilities.” Accessed May 12, 2020. [https://publicservice.vermont.gov/energy\\_efficiency](https://publicservice.vermont.gov/energy_efficiency).
- (b). “Net Metering.” Accessed May 12, 2020. [https://publicservice.vermont.gov/renewable\\_energy/net\\_metering](https://publicservice.vermont.gov/renewable_energy/net_metering).
- (c). “Renewable Energy Standard.” Accessed May 12, 2020. [https://publicservice.vermont.gov/renewable\\_energy/state\\_goals](https://publicservice.vermont.gov/renewable_energy/state_goals).
- (d). “Standard Offer.” Accessed June 26, 2020. [https://publicservice.vermont.gov/renewable\\_energy/standardoffer](https://publicservice.vermont.gov/renewable_energy/standardoffer).
- Vermont Official State Website, Agency of Human Services, Department for Children and Families. “The Weatherization Program.” Accessed May 12, 2020. <https://dcf.vermont.gov/benefits/weatherization>.
- U.S. Energy Information Administration (EIA). “Vermont - State Energy Profile Analysis.” Accessed May 12, 2020. <https://www.eia.gov/state/analysis.php?sid=VT>.
- White, Damian. “Just Transitions/Design for Transitions.” *Capitalism Nature Socialism* 0, no. 0 (March 21, 2019): 1–20. <https://doi.org/10.1080/10455752.2019.1583762>.
- Wichterich, Christa. “Contesting Green Growth, Connecting Care, Commons and Enough.” In *Practicing Feminist Political Ecologies: Moving Beyond the “Green Economy,”* 1st ed., 67–100. London, UK: Zed Books, 2015.
- Williams, Stephen, and Andréanne Doyon. 2019. “Justice in Energy Transitions.” *Environmental Innovation and Societal Transitions* 31 (June): 144–53. <https://doi.org/10.1016/j.eist.2018.12.001>.

## **6. Funder information:**

Data collection for this work, as a part of the REJOICE partnership, was supported by the Lintilhac Foundation as part of its contribution to the University of Vermont Foundation, 2019.

## **7. Disclosure:**

I report no potential competing interests

## **8. Acknowledgements**

I would like to express gratitude to Dr. Bindu Panikkar, Dr. Ingrid Nelson, and Dr. Asim Zia for guidance on the direction and scope of this research, as well as in developing analysis and proof reading. I would also like to thank the REJOICE partnership for its work. Both are also grateful to research assistants with whom we worked to clean, collate, and enter survey and interview data as a part of the REJOICE project: Mary-Kate Barrett, Kelly Hamshaw, Corinne Hill-James, Ellery Mahlum, Qing Ren, Samantha Salamone, Julia Selle, and Dennis Wrest.

## COMPREHENSIVE BIBLIOGRAPHY

- Agyeman, Julian. *Introducing Just Sustainabilities: Policy, Planning, and Practice*. 1st ed. London ; New York: Zed Books, 2013.
- Agyeman, Julian, David Schlosberg, Luke Craven, and Caitlin Matthews. 2016. "Trends and Directions in Environmental Justice: From Inequity to Everyday Life, Community, and Just Sustainabilities." *Annual Review of Environment and Resources* 41 (1): 321–40. <https://doi.org/10.1146/annurev-environ-110615-090052>.
- Akuno, Kali. "Building a People-Led Just Transition in Jackson, Mississippi." In *Just Transitions: Social Justice in the Shift Towards a Low-Carbon World*, edited by Edouard Morena, Dunja Krause, and Dimitris Stevis, 1st ed. London, UK: Pluto Press, 2019.
- Allen, Elizabeth, Hannah Lyons, and Jennie C. Stephens. "Women's Leadership in Renewable Transformation, Energy Justice and Energy Democracy: Redistributing Power." *Energy Research & Social Science* 57 (November 1, 2019): 101233. <https://doi.org/10.1016/j.erss.2019.101233>.
- Baker, Shalanda. "Unlocking the Energy Commons: Expanding Community Energy Generation." In *Law and Policy for a New Economy: Sustainable, Just, and Democratic*, 1st ed., 211–34. Cheltenham and Camberley, UK: Edward Elgar Publishing, 2017.
- Baker, Shalanda H. "Anti-Resilience: A Roadmap for Transformational Justice within the Energy System." *Harvard Civil Rights Civil Liberties Law Review* 54 (2019): 48.
- Baker, Shalanda H. "Fighting for a Just Transition: Climate Change Mitigation Does Not Guarantee Social Justice. To Avoid Deepening Inequalities, Clean Energy Transitions Must Prioritize Communities over Profit." *NACLA Report on the Americas* 52, no. 2 (April 2, 2020): 144–51. <https://doi.org/10.1080/10714839.2020.1768732>.
- Bayliss, Kate, Ben Fine, and Mary Robertson. "From Financialisation to Consumption: The Systems of Provision Approach Applied to Housing and Water." Financialisation, Economy, Society and Sustainable Development (FESSUD) Project, Working Paper Series, 2013, 48.
- BBC news. "Ecuador President Backs down over Fuel Protests." *BBC News*, October 14, 2019, sec. Latin America & Caribbean. <https://www.bbc.com/news/world-latin-america-50038126>.
- Bickerstaff, Karen, Gordon Walker, and Harriet Bulkeley, eds. *Energy Justice in a Changing Climate: Social Equity and Low-Carbon Energy*. Just Sustainabilities: Policy, Planning, and Practice. London ; New York: Zed Books, 2013.
- Bird, Stephen, and Diana Hernández. "Policy Options for the Split Incentive: Increasing Energy Efficiency for Low-Income Renters." *Energy Policy* 48 (September 1, 2012): 506–14. <https://doi.org/10.1016/j.enpol.2012.05.053>.
- Bookchin, Murray. "Energy, 'Ecotechnocracy' and Ecology." In *Towards an Ecological Society*. Montreal: Black Rose Books, 1980.

- . *Which Way For The Ecology Movement? Essays by Murray Bookchin*. 1st ed. Chico, CA, United States: AK Press, 1996.
- Bozuwa, Johanna. “Public Ownership for Energy Democracy.” *TheNextSystem.Org* (blog), September 2018. <https://thenextsystem.org/learn/stories/public-ownership-energy-democracy>.
- Braun, Virginia, and Victoria Clarke. “Using Thematic Analysis in Psychology.” *Qualitative Research in Psychology; London* 3, no. 2 (April 2006): 77–101. <http://dx.doi.org/10.1191/1478088706qp063oa>.
- Brown, Peter. “The Foundations for an Ecological Economy: An Overview.” In *Beyond Uneconomic Growth*, by Joshua Farley and Deepak Malghan, 3–21. Edward Elgar Publishing, 2016. <https://doi.org/10.4337/9781783472499.00008>.
- Burke, Matthew J., and Jennie C. Stephens. “Energy Democracy: Goals and Policy Instruments for Sociotechnical Transitions.” *Energy Research & Social Science*, Policy mixes for energy transitions, 33 (November 1, 2017): 35–48. <https://doi.org/10.1016/j.erss.2017.09.024>.
- Cina, Brian. An act relating to a regenerative economy, Pub. L. No. H.868 (2020). <https://legislature.vermont.gov/bill/status/2020/H.868>.
- Clement, Christopher Ernest. “Renewable Energy Transition: Dynamic Systems Analysis, Policy Scenarios, and Trade-Offs for the State of Vermont.” University of Vermont, 2015.
- Climate Justice Alliance. “Just Transition: A Framework for Change.” Accessed July 8, 2020. <https://climatejusticealliance.org/just-transition/>.
- Cooperation Jackson. “The Jackson Just Transition Plan.” Cooperation Jackson, November 10, 2015. <https://cooperationjackson.org/blog/2015/11/10/the-jackson-just-transition-plan>.
- Creswell, John, and Vicki Plano Clark. *Designing and Conducting Mixed Methods Research*. 3rd ed. Thousand Oaks, California: SAGE Publications Inc, 2018.
- Cumbers, Andrew. 2015. “Constructing a Global Commons in, against and beyond the State.” *Space & Polity* 19 (1): 62–75. <https://doi.org/10.1080/13562576.2014.995465>.
- Day, Rosie, and Gordon Walker. 2013. “Household Energy Vulnerability as ‘Assemblage.’” In . London ; New York: Zed Books.
- Day, Rosie, Gordon Walker, and Neil Simcock. “Conceptualising Energy Use and Energy Poverty Using a Capabilities Framework.” *Energy Policy* 93 (June 1, 2016): 255–64. <https://doi.org/10.1016/j.enpol.2016.03.019>.
- Drive Electric VT. “Purchase Incentives.” Accessed June 26, 2020. <https://www.driveelectricvt.com/why-go-electric/purchase-incentives>.
- DSIRE. “Residential Renewable Energy Tax Credit,” February 13, 2020. <https://programs.dsireusa.org/system/program/detail/1235>.
- DSIRE. “Sustainably Priced Energy Enterprise Developmet (SPEED) Goals,” July 1, 2015. <https://programs.dsireusa.org/system/program/detail/1141>.
- Eames, Malcom and Miriam Hunt. “Energy Justice in Sustainability Transitions Research.” In *Energy Justice in a Changing Climate: Social Equity and Low-*

- Carbon Energy*, 179. Just Sustainabilities: Policy, Planning, and Practice. Zed Books, 2013.
- Eisenberg, Ann. “Just Transitions.” *Southern California Law Review*, January 4, 2019. <https://southern.californialawreview.com/2019/01/04/just-transitions-article-by-ann-m-eisenberg/>.
- Efficiency Vermont. “Home Energy Loan.” Accessed May 27, 2020. <https://www.encyvermont.com/services/financing/homes/home-energy-loan>.
- Energy Action Network. “2018 Annual Progress Report for Vermont.” March 4, 2019. <https://www.eanvt.org/2018-progress-report/>.
- Energy Action Network. “2019 Annual Progress Report for Vermont.” March 11, 2020. <https://www.eanvt.org/wp-content/uploads/2020/03/EAN-report-2020-final.pdf>.
- Evans, Geoff, and Liam Phelan. “Transition to a Post-Carbon Society: Linking Environmental Justice and Just Transition Discourses.” *Energy Policy* 99, no. C (2016): 329–39. <https://ideas.repec.org/a/eee/enepol/v99y2016icp329-339.html>.
- Fairclough, Norman. “Critical Discourse Analysis and Critical Policy Studies.” *Critical Policy Studies* 7, no. 2 (July 1, 2013): 177–97. <https://doi.org/10.1080/19460171.2013.798239>.
- Farrell, Caroline. “A Just Transition: Lessons Learned from the Environmental Justice Movement” 4 (2012): 19.
- Finley-Brook, Mary, and Erica L. Holloman. “Empowering Energy Justice.” *International Journal of Environmental Research and Public Health* 13, no. 9 (September 2016). <https://doi.org/10.3390/ijerph13090926>.
- Fraser, Nancy. “Behind Marx’s Hidden Abode.” *New Left Review*, no. March/April (2014): 18.
- Fraser, Nancy, and Rahel Jaeggi. *Capitalism: A Conversation In Critical Theory*. 1st ed. Cambridge, UK; Medford, MA: Polity Press, 2018.
- Fuller, Merrian. “Enabling Investments in Energy Efficiency.” Efficiency Vermont, 2008.
- Geels, F. W. “Processes and Patterns in Transitions and System Innovations: Refining the Co-Evolutionary Multi-Level Perspective.” *Technological Forecasting and Social Change*, Transitions towards Sustainability through System Innovation, 72, no. 6 (July 1, 2005): 681–96. <https://doi.org/10.1016/j.techfore.2004.08.014>.
- Geels, Frank W., Benjamin K. Sovacool, Tim Schwanen, and Steve Sorrell. “Sociotechnical Transitions for Deep Decarbonization.” *Science* 357, no. 6357 (September 22, 2017): 1242–44. <https://doi.org/10.1126/science.aao3760>.
- Giacomini, Terran. 2020. “An Ecofeminist Perspective on the Just Transition from Capitalism to Commons.” In *Climate Justice and Community Renewal: Resistance and Grassroots Solutions*, 1st ed., 194–205. Earthscan. Abingdon, Oxon: Routledge.
- Glitman, Karen. “Clean Energy Goals: It’s up to Us.” *Efficiency Vermont* (blog), July 7, 2018. <https://www.encyvermont.com/news-blog/blog/clean-energy-goals-it-s-up-to-us>.

- Goldtooth, Tom. 2020. "Indigenous Just Transition: Reflections from the Field." In *Climate Justice and Community Renewal: Resistance and Grassroots Solutions*, 1st ed., 179–93. Earthscan. Abingdon, Oxon: Routledge.
- Gowdy, John. *Microeconomic Theory: Old and New*. Redwood City, CA, United States: Stanford University Press, 2010.
- Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14, no. 3 (1988): 575–99. <https://doi.org/10.2307/3178066>.
- Harcourt, Wendy, and Ingrid L Nelson. "Are We Green Yet? And the Violence of Asking Such a Question." In *Practising Feminist Political Ecologies: Moving Beyond the "Green Economy"*, 1st ed., 27. London, UK: Zed Books, 2015.
- Healy, Noel, Jennie C. Stephens, and Stephanie A. Malin. "Embodied Energy Injustices: Unveiling and Politicizing the Transboundary Harms of Fossil Fuel Extractivism and Fossil Fuel Supply Chains." *Energy Research & Social Science* 48 (February 1, 2019): 219–34. <https://doi.org/10.1016/j.erss.2018.09.016>.
- Healy, Noel, and John Barry. "Politicizing Energy Justice and Energy System Transitions: Fossil Fuel Divestment and a 'Just Transition.'" *Energy Policy* 108 (September 1, 2017): 451–59. <https://doi.org/10.1016/j.enpol.2017.06.014>.
- Heckathorn, Douglas. "Respondent-Driven Sampling: A New Approach to the Study of Hidden Populations." *Social Problems* 44, no. 2 (1997). <http://www.respondentdrivensampling.org/reports/RDS1.pdf>.
- Heffron, Raphael J., Darren McCauley, and Benjamin K. Sovacool. "Resolving Society's Energy Trilemma through the Energy Justice Metric." *Energy Policy* 87 (December 1, 2015): 168–76. <https://doi.org/10.1016/j.enpol.2015.08.033>.
- Heffron, Raphael, Marc-Fabian Körner, Jonathan Wagner, Martin Weibelzahl, and Gilbert Fridgen. "Industrial Demand-Side Flexibility: A Key Element of a Just Energy Transition and Industrial Development." *Applied Energy* 269 (July 1, 2020): 115026. <https://doi.org/10.1016/j.apenergy.2020.115026>
- Hultgren, John. "21st Century American Environmental Ideologies: A Re-Evaluation." *Journal of Political Ideologies* 23, no. 1 (February 2018): 54–79. <https://doi.org/10.1080/13569317.2017.1397916>.
- Jenkins, Kirsten. "Setting Energy Justice Apart from the Crowd: Lessons from Environmental and Climate Justice." *Energy Research & Social Science* 39 (May 2018): 117–21. <https://doi.org/10.1016/j.erss.2017.11.015>.
- Jenkins, Kirsten, Darren McCauley, Raphael Heffron, Hannes Stephan, and Robert Rehner. "Energy Justice: A Conceptual Review." *Energy Research & Social Science* 11 (January 1, 2016): 174–82. <https://doi.org/10.1016/j.erss.2015.10.004>.
- Indigenous Environmental Network. "Just Transition." Accessed July 3, 2019. <https://www.ienearth.org/justtransition/>.
- Jenkins, Kirsten E. H., Benjamin K. Sovacool, Andrzej Błachowicz, and Adrián Lauer. "Politicising the Just Transition: Linking Global Climate Policy, Nationally Determined Contributions and Targeted Research Agendas." *Geoforum*, May 25, 2020. <https://doi.org/10.1016/j.geoforum.2020.05.012>.

- Jones, Kevin, and Mark James. "Distributed Renewables in the New Economy: Lessons from Community Solar Development in Vermont." In *Law and Policy for a New Economy: Sustainable, Just, and Democratic*, 1st ed., 189–210. Cheltenham and Camberley, UK: Edward Elgar Publishing, 2017.
- Koeppel, Jackson, Johanna Bozuwa, and Liz Veazey. "Community Ownership of Power Administration: Putting Utilities under Public Control." *TheNextSystem.Org* (blog). Accessed May 7, 2020. <https://thenextsystem.org/copa>.
- Koliba, Christopher, Mercy DeMenno, Nancy Brune, and Asim Zia. "The Saliency and Complexity of Building, Regulating, and Governing the Smart Grid: Lessons from a Statewide Public–Private Partnership." *Energy Policy* 74 (November 1, 2014): 243–52. <https://doi.org/10.1016/j.enpol.2014.09.013>.
- Lennon, Myles. "Decolonizing Energy: Black Lives Matter and Technoscientific Expertise amid Solar Transitions." *Energy Research & Social Science*, Exploring the Anthropology of Energy: Ethnography, Energy and Ethics, 30 (August 1, 2017): 18–27. <https://doi.org/10.1016/j.erss.2017.06.002>.
- Levin, Emily, Elizabeth Palchak, and Robert Stephenson. "The State of Equity Measurement: A Review of Practices in the Clean Energy Industry." Burlington, Vermont: VEIC, September 1, 2019.
- Levine, Sandra. "Clean Energy Powerhouse." *VTDigger*, June 16, 2016. <https://vtdigger.org/2016/06/16/sandra-levine-clean-energy-powerhouse/>.
- LeQuesne, Theo. "From Carbon Democracy to Carbon Rebellion: Countering Petro-Hegemony on the Frontlines of Climate Justice." *Journal of World - Systems Research; Pittsburgh* 25, no. 1 (2019): 15–27. <http://dx.doi.org.ezproxy.uvm.edu/10.5195/JWSR.2019.905>.
- Littig, Beate. "Good Work? Sustainable Work and Sustainable Development: A Critical Gender Perspective from the Global North." *Globalizations* 15, no. 4 (June 7, 2018): 565–79. <https://doi.org/10.1080/14747731.2018.1454676>.
- Maguire, Moira S., and Brid Delahunt. "Doing a Thematic Analysis: A Practical, Step-by-Step Guide for Learning and Teaching Scholars." *AISHE-J* 8, no. 3 (2017): 3351–33514.
- Massell, David. "A Question of Power: A Brief History of Hydroelectricity in Quebec." In *Quebec Questions: Quebec Studies for the 21st Century*, edited by Stephan Gervais, Christopher Kirkey, and Jarrett Rudy, 2nd ed., 576. Jericho, United Kingdom: Oxford University Press, 2016.
- Mattioli, Giulio, Cameron Roberts, Julia K. Steinberger, and Andrew Brown. "The Political Economy of Car Dependence: A Systems of Provision Approach." *Energy Research & Social Science* 66 (August 1, 2020): 101486. <https://doi.org/10.1016/j.erss.2020.101486>.
- Miller, Clark A., Alastair Iles, and Christopher F. Jones. "The Social Dimensions of Energy Transitions." *Science as Culture* 22, no. 2 (June 1, 2013): 135–48. <https://doi.org/10.1080/09505431.2013.786989>.
- Miller, Clark A., and Jennifer Richter. "Social Planning for Energy Transitions." *Current Sustainable/Renewable Energy Reports* 1, no. 3 (September 1, 2014): 77–84. <https://doi.org/10.1007/s40518-014-0010-9>.

- Mittlefehldt, Sarah, and Codie Tedford. "Benefit or Burden? Environmental Justice and Community-Scale Biomass Energy Systems in Vermont." *Environmental Justice* 7, no. 4 (August 2014): 110–14. <https://doi.org/10.1089/env.2014.0019>.
- Moussu, Nils. "Business in Just Transition: The Never-Ending Story of Corporate Sustainability." In *Just Transitions: Social Justice in a Shift Towards a Low-Carbon World*, 57–75. London, UK: Pluto Press, 2020.
- Mulvaney, Dustin. 2019. *Solar Power: Innovation, Sustainability, and Environmental Justice*. Oakland, California: University of California Press.
- Nature Energy Editorial Board. "Fuelling Dissent." *Nature Energy* 4 (February 2019): 85.
- Newell, Peter, and Dustin Mulvaney. "The Political Economy of the 'Just Transition.'" *The Geographical Journal* 179, no. 2 (June 1, 2013): 132–40. <https://doi.org/10.1111/geoj.12008>.
- Nossiter, Adam. "France Suspends Fuel Tax Increase That Spurred Violent Protests." *The New York Times*, December 4, 2018, sec. World. <https://www.nytimes.com/2018/12/04/world/europe/france-fuel-tax-yellow-vests.html>.
- Ottinger, Gwen. "Environmentally Just Technology." *Environmental Justice* 4, no. 1 (March 2011): 81–85. <https://doi.org/10.1089/env.2010.0039>.
- Parr, Adrian. "The Wrath of Capital: Neoliberalism and Climate Change Politics – Reflections." *Geoforum* 62 (June 1, 2015): 70–72. <https://doi.org/10.1016/j.geoforum.2015.03.012>.
- Pearl-Martinez, Rebecca, and Jennie C. Stephens. "Toward a Gender Diverse Workforce in the Renewable Energy Transition." *Sustainability: Science, Practice and Policy* 12, no. 1 (April 1, 2016): 8–15. <https://doi.org/10.1080/15487733.2016.11908149>.
- Pellow, David Naguib. *What Is Critical Environmental Justice?* 1st ed. Cambridge, UK; Medford, MA: Polity Press, 2018.
- Pollina, Anthony. An act relating to creating a Vermont Green New Deal Fund, Pub. L. No. S.311 (2020). <https://legislature.vermont.gov/bill/status/2020/S.311>.
- Pulido, Laura, Ellen Kohl, and Nicole-Marie Cotton. "State Regulation and Environmental Justice: The Need for Strategy Reassessment." *Capitalism Nature Socialism* 27, no. 2 (April 2, 2016): 12–31. <https://doi.org/10.1080/10455752.2016.1146782>.
- Rabe, Barry. "Racing to the Top, the Bottom, or the Middle of the Pack? The Evolving State Government Role in Environmental Protection." In *Environmental Policy: New Directions for the Twenty-First Century*, 10th ed., 37–65. SAGE/CQ Press, 2019.
- Reames, Tony Gerard. 2016. "Targeting Energy Justice: Exploring Spatial, Racial/Ethnic and Socioeconomic Disparities in Urban Residential Heating Energy Efficiency." *Energy Policy* 97 (October): 549–58. <https://doi.org/10.1016/j.enpol.2016.07.048>.
- Rittel, Horst W. J., and Melvin M. Webber. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4, no. 2 (1973): 155–69. [www.jstor.org/stable/4531523](http://www.jstor.org/stable/4531523).
- Rocheleau, Dianne. "Maps, Numbers, Text, and Context: Mixing Methods in Feminist Political Ecology." *Professional Geographer* 47, no. 4 (November 1995): 458. <https://doi.org/10.1111/j.0033-0124.1995.00458.x>.

- Rosemberg, Anabella. “Strengthening Just Transition Policies in International Climate Governance.” Policy Analysis Brief. Stanley Foundation, April 2017.
- . 2019. “‘No Jobs on a Dead Planet’: The International Trade Union Movement and the Just Transition.” In *Just Transitions: Social Justice in a Shift Towards a Low-Carbon World*, 30–56. London, UK: Pluto Press.
- Routledge, Paul, Andrew Cumbers, and Kate Driscoll Derickson. 2018. “States of Just Transition: Realising Climate Justice through and against the State.” *Geoforum* 88 (January): 78–86. <https://doi.org/10.1016/j.geoforum.2017.11.015>.
- Salleh, Ariel. “Ecological Debt: Embodied Debt.” In *Eco-Sufficiency and Global Justice: Women Write Political Ecology*, 1–14. London, UK; North Melbourne, Australia: Pluto Press, Spinifex Press, 2009.
- Schute, Krista, Laura Schieb, Kevin Jones, Casey Mckee, Lyanne Sierra Mendez, Brandon Oldham, and Maxwell Krieger. “Low Income Solar in Vermont: Overcoming Barriers to Equitable Access.” South Royalton, Vermont: Vermont Law School, Vermont Low Income Trust for Electricity, 2018.
- Sengers, Frans, Anna J. Wiczorek, and Rob Raven. “Experimenting for Sustainability Transitions: A Systematic Literature Review.” *Technological Forecasting and Social Change* 145 (August 1, 2019): 153–64. <https://doi.org/10.1016/j.techfore.2016.08.031>.
- Silverman, Adam. “Vermont Ranks No. 2 in US for Renewable Energy.” *Burlington Free Press*. April 30, 2017. <https://www.burlingtonfreepress.com/story/news/2017/04/30/vermont-ranks-high-for-renewable-energy/100955606/>.
- Slaper, Timothy, and Tanya Hall. “The Triple Bottom Line: What Is It and How Does It Work?” *Indiana Business Review*, Spring 2011. <http://www.ibrc.indiana.edu/ibr/2011/spring/article2.html>.
- Snell, Darryn. “Just Transition Solutions and Challenges in a Neoliberal and Carbon Intensive Economy.” In *Just Transitions: Social Justice in a Shift Towards a Low-Carbon World*, 199–215. London, UK: Pluto Press, 2020.
- Sovacool, Benjamin, Marilyn Brown, and Scott Valentine. “Energy Security and Energy Transitions.” In *Fact and Fiction in Global Energy Policy: Fifteen Contentious Questions*, 249–330. Baltimore, Maryland: Johns Hopkins University Press, 2016.
- Sovacool, Benjamin, Alex Gilbert, and Brian Thomson. “Innovations in Energy and Climate Policy: Lessons from Vermont.” *Pace Environmental Law Review* 31, no. 3 (2014): 651–705. <https://digitalcommons.pace.edu/pelr/vol31/iss3/2/>.
- Sovacool, Benjamin K. “What Are We Doing Here? Analyzing Fifteen Years of Energy Scholarship and Proposing a Social Science Research Agenda.” *Energy Research & Social Science* 1 (March 2014): 1–29. <https://doi.org/10.1016/j.erss.2014.02.003>.
- Sovacool, Benjamin K., Matthew Burke, Lucy Baker, Chaitanya Kumar Kotikalapudi, and Holle Wlokas. “New Frontiers and Conceptual Frameworks for Energy Justice.” *Energy Policy* 105 (June 1, 2017): 677–91. <https://doi.org/10.1016/j.enpol.2017.03.005>.
- Sovacool, Benjamin K, and Michael Dworkin. *Global Energy Justice: Problems, Principles, and Practices*, 2014.

- Stephens, Jennie C., Matthew J. Burke, Brock Gibian, Elie Jordi, and Richard Watts. "Operationalizing Energy Democracy: Challenges and Opportunities in Vermont's Renewable Energy Transformation." *Frontiers in Communication* 3 (2018). <https://doi.org/10.3389/fcomm.2018.00043>.
- Stavis, Dimitris, Dunja Krause, and Edouard Morena, eds. *Just Transitions: Social Justice in the Shift Towards a Low-Carbon World*. 1st ed. London, UK: Pluto Press, 2020.
- Strauss, Anselm. *Qualitative Analysis for Social Scientists*. Press Syndicate of the University of Cambridge, 1987.
- Strauss, Anselm, and Juliet Corbin. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Second. Thousand Oaks, California: SAGE Publications Inc, 1998.
- Sze, Julia. 2020. *Environmental Justice in a Moment of Danger*. Oakland, California: University of California Press.
- Tcherneva, Pavlina R. "The Job Guarantee: Design, Jobs, and Implementation." *SSRN Electronic Journal*, 2018. <https://doi.org/10.2139/ssrn.3155289>.
- Teller-Elsberg, Jonathan, Benjamin Sovacool, Taylor Smith, and Emily Laine. "Fuel Poverty, Excess Winter Deaths, and Energy Costs in Vermont: Burdensome for Whom?" *Energy Policy* 90 (March 2016): 81–91. <https://doi.org/10.1016/j.enpol.2015.12.009>.
- Tsing, Anna Lowenhaupt. "On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales." *Common Knowledge* 25, no. 1 (June 21, 2019): 143–62. <http://muse.jhu.edu/article/727131>.
- Urge-Vorsatz, Diana, Ksenia Petrichenko, Maja Staniec, and Jiyong Eom. 2013. "Energy Use in Buildings in a Long-Term Perspective." *Current Opinion in Environmental Sustainability, Energy systems*, 5 (2): 141–51. <https://doi.org/10.1016/j.cosust.2013.05.004>.
- U.S. Department of Health & Human Services Office of the Assistant Secretary for Planning and Evaluation. "2019 Poverty Guidelines," January 11, 2019. <https://aspe.hhs.gov/2019-poverty-guidelines>.
- U.S. Census Bureau. "About Race." Accessed July 14, 2020. <https://www.census.gov/topics/population/race/about.html>.
- U.S. Energy Information Administration (EIA). "Vermont - State Energy Profile Analysis." Accessed May 12, 2020. <https://www.eia.gov/state/analysis.php?sid=VT>.
- Ventriss, Curtis, and Walter Kuentzel. "Critical Theory and the Role of Citizen Involvement in Environmental Decision Making: A Re-Examination." *International Journal of Organization Theory and Behavior; Boca Raton* 8, no. 4 (Winter 2005): 520–40. <http://dx.doi.org.ezproxy.uvm.edu/10.1108/IJOTB-08-04-2005-B004>.
- Vermont Department of Children and Families. "The Weatherization Program." Accessed December 6, 2019. <https://dcf.vermont.gov/benefits/weatherization>.
- Vermont Department of Public Service. "2016 Vermont Comprehensive Energy Plan." Montpelier, Vermont. <https://legislature.vermont.gov/assets/Legislative-Reports/Executive-summary-for-web.pdf>.

- Vermont Department of Public Service. “Energy Efficiency Utilities.” Accessed May 12, 2020. [https://publicservice.vermont.gov/energy\\_efficiency](https://publicservice.vermont.gov/energy_efficiency)
- Vermont Department of Public Service. “Net Metering.” Accessed May 12, 2020. [https://publicservice.vermont.gov/renewable\\_energy/net\\_metering](https://publicservice.vermont.gov/renewable_energy/net_metering).
- Vermont Official State Website: State of Vermont Public Utilities Commission. “About Us.” Accessed June 30, 2020. <https://puc.vermont.gov/about-us>.
- Vermont State Legislature. An Act Relating to Improving the Siting of Energy Projects, Act No. 174 (S.260) § (2016).
- Vijaya, Ramya M., Rahul Lahoti, and Hema Swaminathan. “Moving from the Household to the Individual: Multidimensional Poverty Analysis.” *World Development* 59 (July 1, 2014): 70–81. <https://doi.org/10.1016/j.worlddev.2014.01.029>.
- Walker, Gordon, and Rosie Day. “Fuel Poverty as Injustice: Integrating Distribution, Recognition and Procedure in the Struggle for Affordable Warmth.” *Energy Policy*, Special Section: Fuel Poverty Comes of Age: Commemorating 21 Years of Research and Policy, 49 (October 1, 2012): 69–75. <https://doi.org/10.1016/j.enpol.2012.01.044>.
- White, Damian. “Just Transitions/Design for Transitions: Preliminary Notes on a Design Politics for a Green New Deal.” *Capitalism Nature Socialism* 0, no. 0 (2019): 1–20. <https://doi.org/10.1080/10455752.2019.1583762>.
- Wichterich, Christa. “Contesting Green Growth, Connecting Care, Commons and Enough.” In *Practicing Feminist Political Ecologies: Moving Beyond the “Green Economy,”* 1st ed., 67–100. London, UK: Zed Books, 2015.
- Williams, Stephen, and Andréanne Doyon. “Justice in Energy Transitions.” *Environmental Innovation and Societal Transitions* 31 (June 1, 2019): 144–53. <https://doi.org/10.1016/j.eist.2018.12.001>.