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The Transition is Out of Joint: On Petro-Racial Capitalism and Renewable Energy Transition in Austin, Texas

DISSERTATION

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for the degree of

DOCTOR OF PHILOSOPHY

in Anthropology

by

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DEDICATION

To my sister,
for the tenacity of her courage.

To my mother,
for the strength of her conviction.

To my father,
for the humility of his open heart.

To my partner,
for the depth of her compassion.

Each of you have taught me more than I could ever know.

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FIELD OF STUDY

Scales and Systems of Activity Involved in Just Transitions to Renewable Energy

PUBLICATIONS

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ABSTRACT OF THE DISSERTATION

The Transition is Out of Joint: On Petro-Racial Capitalism and Renewable Energy Transition in Austin, Texas

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Professor Kim Fortun, Chair

This dissertation examines the sociotechnical dynamics of renewable energy transition in Austin, Texas and considers their implications for developing more just and effective modes of environmental governance. While considerable advancements have been made in terms of reducing the City's carbon emissions, their basis in the techniques and practices of petro-capitalism continues to reproduce many of the social and environmental injustices of the city's former fossil-fueled energy system. Accordingly, I suggest, Austin's renewable energy transition can be seen as "out of joint," as sedimented histories of racial exclusion and petro-capitalist development continue to haunt Austin's renewable energy transition. By studying and contrasting the various thought styles of Austin's diverse environmental communities, I argue that Austin's out-of-jointness and associated injustices are rooted in a misguided reification of energy systems as a distinct and taken-for-granted domain for intervention. Alternatively, I suggest an approach to "energy systems" as always entangled with other interdependent systems (social, cultural, and epistemic as well as technical and ecological). As such, I argue that part of the governance challenge of just energy transition lies in developing new modes of coordination and collaboration across systems, jurisdictions, and domains of expertise – well beyond energy systems per se.

Theoretically, we need to better account for the full ecology of entangled systems involved in sociotechnical change.

Drawing on twelve months of fieldwork and archival research, funded by the Wenner Gren Foundation, this dissertation brings the specificities of Austin's energy transition to bear on current anthropological understandings of environmental governance and sociotechnical change. The energy systems entrenched in most places today both articulate with and produce different kinds of temporalities (the grid's 60hz, the 9-5pm work week, energy assistance schedules, our expectations for the future, etc.), many of which have resulted from and continue to be imbued with the dynamics of petro-capital. These temporalities undergird the social rhythms and patterned behaviors through which we reproduce ourselves and our environments, ensuring that change is never straightforward because of the many cross-system, ecological ways that the past haunts the present. In sum: fossil fuel energy locks us in in multiple ways – beyond what can be addressed in narrow approaches to sociotechnical change. To account for this, I develop the concept of "petro-ghosts" to think about the way petro-capitalist logics, desires, and practices have and continue to shape Austin's emergent renewable energy system, and its discontents. I also characterize the practices by which certain communities (especially those focused on energy justice) attempt to recognize and exorcize these specters by developing alternative scales and frames of analysis.

Focusing on these divergences in data practices and infrastructures, thought styles, and rhetorical modes of expression among energy transition advocates, I identify how these influence the scales and systems that different communities deem relevant to energy transition and appropriate for organized interventions. Inversely, I also take note of the systems different communities sideline as irrelevant, invaluable, risky, or simply too inveterate to warrant their attention. I draw on this data to demonstrate how Austin's current model of environmental

governance is linked to deep seated investments in technocratic ideologies and expertise, ideologies that have attained a sense of inevitability and "realism" in the city, in part, through their sedimented influence on daily life in Austin. As a result, resistance involves a widening of the range of knowledge and expertise considered relevant to just energy transitions, and to the development of new public data capacities to uncover, recognize, and excise remnants of Austin's petro-racial capitalist pasts. Drawing upon these knowledge production and ethical practices, I suggest the potential to bolster these efforts by adapting collaborative, community-engaged ethnographic methods towards the development of just transition strategies, for Austin and elsewhere.

INTRODUCTION

1. THE FIELDWORK

The contingent way that I came to research Austin's energy ecology exemplifies the value of persistence and flexibility in the conduct of ethnography. Or, to put it bluntly, my early fieldwork experience forced me to learn to interpret failures, rejections, and closed doors as mere turning points (rather than endpoints) of qualitative research. Before locating my research in Austin, I had planned on an ethnographic study of space, power, and fossil fuels at the US/Mexico borderlands. During the summer of 2017, I spent a month in El Paso trying to gain access to the Borderplex Alliance, an economic development organization seeking to consolidate the borderland's power and resources under a new regional development agenda that crossed state and national borders. Mexico had just recently opened its oil and gas industry to foreign investment, and local economic developers were capitalizing on this fact to promote the energy industries of the Paso del Norte region of Texas, New Mexico, and Chihuahua, Mexico. However, while the Alliance promoted the region's shared histories, hybrid culture, and deep economic ties, Trump's xenophobic rhetoric of the "crisis at the border," combined with ominous promises for the border wall and other forms of intensified border militarization made the dreams of the borderplex seem far fetched. Tensions were high, and the affiliates of the Borderplex Alliance that I managed to encounter seemed rather suspicious of me and my intentions, as both an outsider and an academic.

While still struggling to break into that scene, I caught wind of a controversy that had been erupting in Austin, Texas around proposed changes to the City's energy transition planning. Austin's Electric Utility Commission had just completed its Resource Generation Planning

Working Group and released a set of recommendations that, according to some, would effectively set the pace of Austin's renewable energy transition back by 20 years. This, to me, seemed counterintuitive. Having grown up just a few hours north of Austin in Fort Worth, I had long thought of Austin as a progressive city, especially when it comes to the environment. And climate studies had only continued to demonstrate the increasingly pressing need to curb carbon emissions as fast as possible. Thus, I was perplexed and fascinated at this decision to retreat from or at least temper the City's commitments to renewable energy transition. What sort of information, factors, pressures, or even questionable vested interests could have led to such a decision? Furthermore, how was Austin able to set such specific transition agendas in the first place?

Though I didn't know much about electric utilities at the time, I did know that Austin, unlike El Paso, was located in the ERCOT region of Texas, which was supposedly "deregulated." This, I assumed, meant that both the price and resource mix of the electricity produced or procured and sold in Austin should be subject to the market. So how was it that Austin's resource planning seemed to be more centralized, even democratic? So much so that the City Council was able to set a date at which the utility would achieve carbon neutrality? How were these transition goals being determined? Who had a seat at this table, and how was their participation structured and facilitated? And, if this planning process was indeed democratic, why were the working group's recommendations spurring such controversy?

After a few phone calls and emails, I managed to schedule a couple of interviews in Austin and, given that a few days of work on Austin was already more productive than my two weeks in El Paso, I decided to take the plunge and shift my topic to energy transition. I packed

up my things, made new housing arrangements, and jumped on an overnight train to Austin, Texas with these questions and nascent project ideas in mind.

Luckily, Austin was bustling with fervor over these topics, and my first month of fieldwork was loaded with participant observations at local public hearings, rallies, and the regular meetings of groups and organizations invested in Austin's resource generation mix. On top of numerous conversations with diverse locals at these events, I also conducted initial interviews with staff from the emergent technologies departments of ERCOT and Austin Energy, along with energy consultants, solar energy retailers, and local energy technology entrepreneurs. And through these early discussions and observations, I discovered that, despite a remarkable consensus around the need to change Austin's energy resource mix, there was appreciable controversy over the appropriate rate and the technological and financial means by which this transition should transpire. And much of this controversy centered around the leadership of Austin Energy, and the production and approval of the public utility's Resource Generation Plan.

Every two to four years, Austin's Electric Utility Commission, along with Austin Energy, the City's municipally owned utility, form a Resource Generation Working Group to recommend updates for its Resource Generation Plan. These recommendations are then presented to Austin City Council for their assessment and approval. According to Austin Energy and the Electric Utility Commission, members of the working group are selected to represent the diverse interests of the community. The Working Group Charter describes one of the primary objectives as establishing a consensus amongst the group as a whole. According to five working group members, the 2017 iteration of these efforts yielded "a balance of community viewpoints." One rather vocal dissident, Kaiba White, however, attested that the final agreements were achieved

through disavowals and "ad hoc analysis," enabling Austin Energy staff to "convince a majority of the working group" that most of the transition goal increases were overly idealistic.[1]

While I arrived in Austin after these meetings had taken place, it was clear that the conflicts that emerged within the working group's discussions persisted beyond its supposed "consensus" had been determined, with numerous organizations coming together to organize a public hearing on the matter. On August 10th, 2017, I attended this hearing, where nearly 300 residents gathered to speak or register their views on the recent suggestions made by the working group. Amongst the most controversial recommendations was a goal for net-carbon neutrality by 2050. Those supporting the new Resource Generation Plan often reiterated the working group's careful considerations of the affordability risks posed by overly aggressive energy transition policies. The majority, however, disagreed with this rhetoric of pitting affordability against climate protection, emphasizing the human and economic costs incurred by unprecedented rates of local flooding, wildfires, heatwaves, and carbon-emission-related illnesses. Interpreting climate protection as a race against time, many voiced their opinion that more aggressive goals were necessary. As a precedent and justification, they often cited Resolution 157, passed in 2014, which included the ambitious goal of complete carbon neutrality by 2030, a full 20 years ahead of the working group's recommendations. Nevertheless, the 2017 recommendations were approved by the City Council the following week.

Through this preliminary research into Austin and the Texas grid, I discovered a dynamic that would occupy my attention for years to come: given Austin's clear, long-established, and widely shared commitment to environmentalism and renewable energy, why hadn't the city already managed to transition to renewables? Why had they begun tempering their earlier, more

[1] City of Austin Electric Utility Commission, "Electric Utility Commission Resource Planning Working Group 2016-17 Recommendations for Resource Planning Update," 2017.

aggressive transition plans? What sorts of arrangements of factors were causing them to hold back?

My conversations and observations in Austin largely reflected a shared desire for a safe, responsible, and equitable energy transition, but also evidenced a slew of very different ideas about what that looks like in practice. Thus, on top of the need to understand the political challenges posed by the entrenched power of the fossil fuel industry in Texas, the technological challenges that renewables pose to grid stability, and the financial challenge posed by the significant cost of retiring and replacing all extant fossil fuel energy production facilities, I left wanting to know more about these divergences in how these challenges were understood and experienced. How had these divergences come about, to what effect, and how might they be rendered productive?

In preparing for the field, I designed my research around these divergences, identifying four unique-yet-overlapping collectives of clean energy actors with whom I would conduct my interviews and participant observations: Austin city bureaucrats, data scientists and engineers, clean energy entrepreneurs and industry advocates, and climate and social justice activists. While I continued to use these social categories to guide my fieldwork throughout the research process, I was always quite aware and also wary of the fact that these constructions were more convenient contrivances than rigorous analytical divisions. They were helpful devices for organizing my time and attention, but not as useful for analyzing the roots of divergence, as I had originally hoped. As my fieldwork progressed, I learned the extent to which many of these collectives blended together, or at the very least, became quite porous at the edges. And indeed, some of Austin's more diversely committed and widespread actors became hard to place. On the other

hand, there often proved to be as many notable differences in ethos, ideology, and organizational structure between organizations in the same "collective" as between the collectives themselves.

I returned to Austin in late September of 2019, just in time to make the student march on the Texas capital on September 20th. This was one of the largest climate action events that I witnessed throughout my year of fieldwork, providing a great opportunity to connect with a multitude of energy and environment-focused nonprofits and activist organizations tabling the event. I spent the month of October following up on these leads and re-establishing contact with various environmental organizations in Austin.

One of my first important field sites became the Resource Planning Working Group meetings. As Austin Energy proved to be less than interested in having an ethnographer around, this group provided my closest access to the inner workings of the city's energy transition planning. Working group meetings were also great for getting a sense of who the powerful players were in Austin's energy scene, as well as how they understood the risks and affordances of energy transition in Austin. All members were invited by the chair of the Electric Utility Commission, Cary Ferchill, whose responsibility it was to organize and oversee the working group. The intention of the working group, according to the working group charter, was to advise on the technical and market issues of energy resource planning in order to balance the environmental, affordability, and efficiency goals established by the City Council.

Accordingly, working group members were intended to provide a representative sample of the diverse stakeholders in Austin, including commerce and industry, Austin's elderly and low-income residents, and Austin's environmentalists. Notably, Austin's communities of color were not represented in this process. This drew the attention of critics both within and outside the working group that resulted in an addendum being added to their recommendations, requiring

that the Electric Utility Commission work with the Austin Equity Office when planning the composition of the following working groups.

As the public was allowed to observe but not participate in these conversations, I spent each meeting fervently typing, as close to word for word as I could, a detailed transcription of the presentations, discussions, and deliberations held during these meetings. Doing so helped me document and understand how the technopolitics of the Texas grid and electricity market shaped the way Austin Energy's engineers, economists, and various other experts understood energy transition in political, economic, and technological terms. I also witnessed the way these logics were differentially taken up and disputed by other working group appointees.

As having a working understanding of these meetings was obviously invaluable to anyone interested in Austin's resource planning, they drew regular attention from diverse groups of outsiders. On occasion, I would share or exchange notes and perspectives with these other non-working group attendees, as well as report back to other local environmental groups who were not able to attend. In particular, the Austin branches of Sierra Club, Democratic Socialists of America, and Sunrise were regularly represented at these meetings, and we often used our observations to inform our local enviro-political campaigns and strategies.

Lastly, every other week, the first 15 minutes of these meetings were devoted to public comment. This offered insight into the data ideologies and rhetorical strategies of the public and also insight into the kinds of information and arguments that Austin's elite found persuasive. In all, through these meetings, I gained an appreciation for the complexity of these dynamics while also observing how this sort of technical expertise was strategically deployed to justify limited public oversight and participation. I also appreciated the level of distrust and disconnect between these experts and the relatively excluded public. As was commonly remarked, racial minorities

and limited-income communities were particularly marginalized throughout this planning process.

In marked contrast to the Resource Planning Working Group, the Office of Sustainability showed a consistent commitment to inclusion and transparency, especially regarding racial diversity and equity. In late November of 2019, I joined the Transportation Electrification Advisory Group of the Austin Sustainability Office's Climate Equity Planning Committee. My involvement continued throughout the rest of the research period, where I observed the planning committee's regular meetings and discussions, training sessions, research presentations, and community input workshops. I also participated in the collaborative development of a climate equity planning tool and in collaborative assessments of the affordances of various sustainability measures concerning sustainable buildings, transportation and land use, transportation electrification, food and product consumption, and natural systems. These field notes showed how diverse groups of community members were incorporated into this planning process. Here, public participants were regularly able to request information and offer considerable critique, enabling proportionately considerable influence over the kind of data being gathered or produced and how it was assessed, valued, mobilized, and incorporated into the plan. As the year progressed, and with the onset of the pandemic, our meetings shifted to a virtual platform and became less frequent. I was able to witness the way that certain staff responsibilities shifted as in-person project priorities changed, and email and other online forms of communication became more regular and important.

Given this group's deep and ongoing commitment to racial equity, some of the most important insights from this group came into view in the wake of George Floyd's murder, when opportunities for self-reflection exposed lingering influences of racial capitalist structures and

ideologies. What was remarkable, though, was the way critique and critical self-reflection were received by the group as a whole. Even life-long activists who, for decades, struggled against the City's structural and environmental racism were optimistic about the way the Office of Sustainability and the Climate Planning Steering Committee responded to these equity challenges.

During the community climate planning process, I took field notes of my observations of how Pecan Street's data scientists, administrators, and industry experts collaborated with Austin's community members, Austin Energy, and the Office of Sustainability to produce the Climate Equity Plan. After the onset of the pandemic, I continued recording field notes during Pecan Street's many webinars and discussions that they used to engage the Austin community and showcase their work. Particular focus was paid to how Pecan Street's experts and administrators expressed ideas about the significance of energy consumption data for understanding the challenges and opportunities of renewable energy infrastructures. In March of 2020, I had planned visits to conduct observations of the Pecan Street Lab and technology incubator but, unfortunately, these were canceled due to the pandemic.

Outside of the City's energy transition activities, some of the first spaces that I conducted participant observations were at the bi-monthly meetings of Solar Austin and CleanTx, two clean energy advocacy groups in Austin. I used these meetings as an opportunity to observe and record how Austin's renewable energy networks are formed, maintained, and transformed. The meetings provided access to a diverse group of UT Austin's engineering students and faculty, present and hopeful local politicians, renewable energy entrepreneurs, start-ups, and enthusiasts, and employees of various companies within the renewable energy industry. My observations and analysis focused on the phatic labor behind Austin's renewable energy networks, the

demographic and sociological make-up of these networks, commentary on and efforts to encourage greater racial and gender diversity in the industry, information exchange and public education efforts, and the coordination of various clean-tech projects. My field notes documented local ideas about how the renewable energy industry could be utilized to grow and strengthen Austin's economy while also providing an opportunity to address long-established environmental and social injustices in Austin. After the onset of the pandemic, I continued to record fieldnotes at Solar Austin's online meetings and presentations. However, due to the nature of the limitations of digital platforms, opportunities for continuing conversations outside these presentations were severely limited. While the panel discussion that I had planned with Solar Austin for the Spring of 2020 was canceled due to the pandemic, the collaborative planning process provided great data on how the organization selected topics, planned, and advertised their events.

The final collective that I spent quite a bit of time and shared energy with was Austin's diverse environmental and energy activist groups. Before the pandemic, I recorded field notes on how these diverse groups (including Sierra Club, Sunrise ATX, Extinction Rebellion ATX, and AUSTIN 350) gathered, produced, and mobilized climate science and renewable energy data to achieve social and political change around energy and climate issues. I paid attention to differences in their affective styles, focuses, strategies, and how these influenced the structure and operation of their meetings, their organizational structures, and their social and political campaigns and strategies. During these meetings, I helped plan, organize and execute canvassing, protests, demonstrations, and other public events, noting the diversity of interests, political strategies and ideologies, information sources, materials/technologies, visuals, and specific language practices employed during these engagements and interactions.

Across each of these collectives, my observations focused on their diverse interests and investments in renewable energy as a social and environmental imperative. This included approaches and styles of rendering the local impact of climate change legible as well as the debates over the appropriate rates, budgets and expenditures, degrees and scales of public intervention, and economic and technological means of reducing, eliminating, or even compensating for the Austin community's carbon emissions. Participant observation enabled me to record palpable differences between Austin's clean energy collectives, as well as within these collectives between older and younger generations, professional backgrounds and forms of expertise, and according to different social, political, and ethical philosophies. I also observed and prompted discussions about what members of each collective thought of the other collectives and documented the ways that affiliated individuals were (more or less in/formally) taught to engage others in the community. I also recorded my participation in the gathering, curation, or production of data relevant to these collectives' diverse goals, and then "followed" this data down various channels of dissemination. These included keeping a log of emails, online forums, and text chats, local meetings, public hearings, protests, and demonstrations, and local and national conferences. This allowed me to explore various "data ideologies," or "particular beliefs about data that are socially inscribed and culturally informed by their upbringing, schooling, and participation in communities of practice" (Schrock and Shaffer 2017) and assess how these ideologies influence the production of clean energy technology and information.

I also used formal, semi-structured interviews to document the ways that differently positioned actors perceive themselves in relation to others within Austin's clean energy network. I asked interviewees about the specific practices through which they take part in the politics and science of Austin's energy transition and analyzed differences in these practices between

professions and institutions. My interview questions explored topics such as: their awareness of the types and locations of Austin's current and potential energy production sites; Austin's technologies of electricity production, use, and management; possible solutions to equity, affordability, and/or grid reliability concerns; the presence or absence of health complications or physical, emotional, or mental discomforts due to climate change or pollution in Austin and central Texas; and the subject's perceptions of Austin's other collectives and the possibility of collaboration. I also conducted regular conversations with interlocutors that served as unstructured discussions about their background, social networks and affiliations, personal and professional investments in clean energy, and perspectives on their own/other clean energy collectives and stakeholders. This enabled me to understand how my interlocutors qualify their knowledge of energy and climate science/economics/policy, narrate experiences of climate change and carbon emissions, and think about inter-collective relations. During data analysis, I analyzed how these narrations intersected and diverged. Data from interviews were recorded in written notes and audio and video recordings.

I began collecting an archive of historical documents, research papers, geological and ecological reports, meeting notes, planning documents, feasibility reports, white papers, grant applications, maps, and multimedia related to the Austin landscape, political-economic history, environmental health, climate protection, and energy system. This archive extended the temporal scope of my dissertation research, enabling me to track how Austin's landscape, economy, power system, diverse clean energy collectives, and ecology of ideas about climate change, climate protection policy, and energy transition have developed over time.

The onslaught of unsettling and traumatic events that would impact daily life in Austin, and much of the rest of the world during 2020 and 2021 (including the COVID-19 pandemic,

George Floyd's murder and the protests they inspired, the failure of the US government to adequately handle the pandemic, the storming of the US capitol on January 6, followed by the impeachment and attempted removal of the 45th US president from office, the Texas-wide polar storm system and resultant grid failure), would all attest to the fact that the transition will have to take place amid the chaos of outstripped and outmoded social, political, and infrastructural systems, on top of the extreme weather events of our changing climate. While not assuming the revelatory capacity of disaster (Barrios 2017), I would argue that these events woke many Austinites up to the fact that, despite all the planning and efforts to organize, even at small scales, the challenges posed by the transition to renewables could, at any moment, dramatically shift with the onset of unpredictable events.

In the case of my fieldwork, the most cross-cutting and salient event, by far, would undoubtedly be the outbreak of the COVID-19 pandemic.[2] Luckily, most of my interlocutors were able to transition to digital platforms in very little time. While the ethnographic value of

[2] Extensive planning and effort also went into the preparation of a Quotidian Anthropocene Field Campus in Austin as a part of my research methodology. I co-planned this event with my colleague Tim Schütz and advisor Kim Fortun in the Anthropology Department at UCI, along with my local collaborator, Ian Ferris, in the Rhetoric Department at UT Austin. The campus was intended to build an extended network of environmental justice scholars, generate teaching materials for high school and college level classes in environmental justice, and also to serve as a case study of experimental, collaborative research methodologies. Lastly, through planning these local events I had also established a new set of institutional connections that I hoped to develop to expand my sites of participant observation in the months that followed.

The campus was intended to take place in Austin, Texas March 24-27, 2020, with remote collaborations lasting from February 24 - May 4. Unfortunately, these plans were canceled due to the pandemic. Data collection events included numerous opportunities for campus participants to meet and converse with Austin's collectives, including a Solar Austin Happy Hour with a panel discussion that I had organized to showcase the energy and environmental research and educational programing under way at local universities in Austin, another panel discussion with life-long residents, educators, and activists in Austin, a climate action coalition meeting with representatives of Austin's diverse climate activist communities, and an informal mixer with members of the Resource Planning Working Group and Climate Equity Planning Committee. The field campus also included a tour of ERCOT's control room and data center, Pecan Street's lab and data center, Austin Energy's Decker Creek (1978) and Sand Hill (2010) natural gas power plants, a solar farm, the Mueller Energy Center's combined heat, cooling, and power facility, and the Bullock's Museum of Texas Oil and Gas. While these events would have been an excellent opportunity for collaborative data collection and analysis, the record of the conversations and labor that went into the planning of these events were also invaluable sources of data, through which I was able to collaborate and coordinate events across all four of my research collectives.

these virtual encounters was somewhat diminished, especially lacking in opportunities for more one-on-one, spontaneous trails of impromptu conversation, going virtual also had several perks. For one, it made these meetings more accessible to me and to others, even those outside of the Austin area. Secondly, it also made these meetings easier to record and archive for posterity, enabling even further dissemination after the fact.

Aside from the pandemic, another notable historical moment that impacted the shape and character of my fieldwork included the murder of George Floyd and the following surge of energy and organization around the Black Lives Matter movement. During these moments, many of the organizations that had already taken a strong focus on racial equity in energy transition began to double-down on this commitment. Many of the others also got the message and began to follow suit.

2. THE ANALYSIS

Even after establishing that an energy transition away from fossil fuels is both necessary and urgent, challenges remain. Transitioning to highly diffuse and stochastic renewable energy resources will require a thorough and costly reconfiguration of Austin's current power system. Furthermore, while Texas also leads the nation in wind energy, as of 2021, the Texas economy, in general, is still rather dependent on fossil fuels, producing the highest quantities of crude oil and natural gas in the United States (EIA 2021). This techno-economic lock-in, on top of its long history of legislative support for conventional energy industries, creates a considerably hostile political-economic environment for Austin's progressive energy agendas.

On the other hand, at least parts of the Austin community are increasingly associating conventional energy infrastructure with unprecedented rates of local flooding, wildfires,

heatwaves, and carbon-emission-related illnesses, while also recognizing that these burdens disproportionately impact lower-income communities and communities of color. And though Austin harbors a wealth of residents and local organizations invested in transitioning to clean energy resources, the motivations behind these investments differ widely, ranging from concerns about public health and social and environmental justice to creating quality jobs and spurring economic growth. And this tension between the political, economic, and technological challenges and opportunities of energy transition, amplified by the intensifying environmental hazards of continued use of fossil fuels, has fractured Austin's environmentally conscious community, bringing the issue of what constitutes responsible environmental governance to the fore.

I began this dissertation wanting to understand this set of cross-system dynamics in terms of a fractured environmentally conscious community. As time progressed, and as I became more familiar with Austin, with its twinned histories of environmentalism and environmental racism and their ties to the development of the Texas oil industry, I learned how, though Austin's environmental community may indeed be fractured, it was never whole to begin with.

Thus, my analytical attention shifted to the paradoxical way that this energy transition seemed to transpire through time, how Austin's renewable energy transition seemed to coincide with deeper entrenchments of petro-capitalist systems, and how the temporality of this transition was both multiple and disjointed.[3] This analytical turn required the expansion of my focus on energy *systems* to energy *ecologies* or, that is, from a delimited view of energy infrastructures to the more expansive way that differing materialities of energy resources and technologies both

[3] Foucault's genealogical work sets precedence for this approach to time. His histories of focal points of experience splits the "subject" into axes of experience, each with their own preconditions and histories of becoming. A correlate of the claim that madness, criminality, sexuality, etc. have their own histories is that, in the present, they maintain their own distinct rhythms, patterns, flows, speeds, and other spatio-temporal dynamics.

require and produce spatio-temporalities that intersect and articulate across scales, influencing the social rhythms and cycles through which we relate to our environments, to others (both human and non-human), to knowledge, and to ourselves.

In addition to the global need to limit carbon emissions in order to stave off the worst scenarios of climate change, renewable industry advocates often remark on the burgeoning industry's significant opportunity for investment and economic growth. Some who are more social justice oriented also see this as an opportunity to address and overcome the social inequities that characterize petrocultures. What is clear about the Austin case, however, is the political and ethico-aesthetic friction between those whose interest in renewables is based in the profit motive, the ecological conservation motive, or the social justice motive. Of course, the actual motives of any given group or individual cannot be reduced to any of these single motivations without serious injustice, the real situation is much more complex. However, it is also reasonable to employ these general motivations to critically examine the values embedded within different infrastructural projects, organizational structures, discourses, ideologies, and forms of expertise, and also the modes of organizing and/or strategies of influencing the behavior of both one's self and others.

One of the primary tasks at hand in planning energy transition involves making the difficult decisions (logistically, ethically, and politically) of how and when the necessary adjustments should be made, as well as the question of which populations (including human or otherwise) should pay the price vs. reap the rewards. Throughout the following chapters, I will make the argument that Austin's environmental liberalism and its associated successes in the development of renewable energy technologies and infrastructure were both powered by and inseparable from racial capitalism and fossil capital. The violent logics of speed, sacrifice, profit,

and externalization of costs that characterized the Texas oil booms and busts, and that are embedded in its social, legal, and technological infrastructures, are being put towards Austin's renewable energy transition, with unperceived and unintended consequences.

Even those who are explicitly critical of petro and racial capitalism find it hard to recognize and excise these logics, as they become written into the social cycles and rhythms of city life, into our forms of knowledge and self-reflection, into our bodily habits and sensitivities. Utopian visions of energy transition often mask the racial grief that surrounded petroculture. As Lennon describes, the "post" in post-carbon works as "a temporalized rhetorical strategy, [that] often replicates the racial erasures it purports to disrupt" (2020, 936). This provides a clear example of how petroculture shapes its own resistance; surviving as what I will describe as a petro-ghost.

The experience of Black life in the US, characterized by centuries of racial capitalism (Robinson 2000) and violent exclusions and violations of the social contract (Mills 2011), will not be so easily overcome. As Randall argues, trust must begin with an explicit recognition of this history of violence and exclusion and the development of a capacity to bring communities of color into the process of generating their own creative solutions to the problems posed by racial capitalist legacies (2006). Thus, another important challenge of a transition to renewables, if it is to be a just transition, will be ensuring that historically marginalized communities are not left out, or worse, left shouldering the bulk of both the transition's economic and environmental cost.

As many scholars note, the bulk of the human costs of fossil fuel industries, which any just transitions must seek to offset, have been borne by BIPOC communities (Bullard 2002, Sze and London 2008, Johnson et al. 2018, Pulido 2017, Baker 2019, Lennon 2020, Smith and Scott 2021); the same communities that are now most vulnerable to climate disasters (Gonzalez 2020).

As painfully demonstrated by historians of the racial Capitalocene (Vergès 2017), the production of surplus value that underwrites capitalist profits has always been rooted in the creation of social difference through the devaluation of the bodies, labor, and lives of people of color (Pulido 2017).

My research was designed to provide insight into the challenge of facilitating greater coordination and collaboration across different technologies, situated knowledges, and ethical perspectives for the purpose of creating a just and effective regime of environmental governance, capable of safely and equitably transitioning to renewable energy. Doing so requires unpacking the cross-system dynamics that are often neglected in more technocratic understandings of "energy systems." Despite recent changes in methods, concerns, and strategies of planning energy transition amongst some city staff and local environmental groups–which demonstrate an increasingly reflexive, critical awareness of racial and social inequities–local attempts at ethical reform through a just energy transition are still haunted (and therefore attenuated) by persistent logics of colonialism and petro-racial capitalism. What has yet to be determined is whether or not these petro-ghosts can be exorcized.

Thinking in these terms allowed me to draw both the analytical distinction and historical connection between colonialism, racial capitalism, and petro-capitalism in Austin. In seeing the latter as an outgrowth of the former, the root of the problem of climate change shifts from technologies for the extraction and combustion of fossil fuels to the colonial relations to the land and the racial capitalist evaluations of difference that made this extraction possible and this combustion meaningful. All too often, the result of environmentalism in Austin has merely shifted the burden of capitalist development from local to distant ecologies, and from non-human to (racialized) human others (Walsh 2007, Tretter 2016, Busch 2018). Indeed, one of the

motivations behind discourses on “the Anthropocene” is to make known the fact that such externalizations have come to catch up with all of earth’s diverse residents, though not to the same degree or at the same time. The ecomodernist approaches to energy transition in Austin, with their narrowed focus on carbon emissions, risk perpetuating this spatio-temporal structure. From an energy ecology perspective, a just transition requires shedding the habits of thought and action that induce and reproduce in us (in our identities, our language and other systems of meaning, our infrastructures, behavioral norms, and everyday practices) a complacency or acceptance, if not a disguised desire for our current fossil-fueled form of racial capitalism, even at the cost of all the ways this system dominates and exploits us.

To help me tease apart the complex tangle of processes that had constituted energy transition as a focal point of experience in Austin, I took up and modified a structured set of analytic questions that had been designed for the study of quotidian anthropocenes (Fortun et al. 2021). With questions spanning across 12 key identified scales and systems, this analytic was designed to both inform the way we think of/as open systems and conduct research on/in open systems (Fortun 2003). Accordingly, the discrete questions at each scale help direct attention to what are otherwise less discrete processes, as they are always already embedded and entwined in webs of relations to the others. While the complete set of questions, as an open whole, helps keep in mind how these processes intersect, entangle, and transmute, all without resorting to any assumption of totalization, finality, or enclosure.

QUOTIDIAN ANTHROPOCENE ANALYTIC FRAMEWORK
DEUTERO: What capacity (and incapacity) is there to recognize and attend to "the Anthropocene" in this setting? How might academic projects contribute to or scaffold this capacity?
META: How are anthropocenics in this setting described and narrated by different organizations and social groups? What do accounts include and what do they leave out? What discursive histories shape contemporary articulations? Where are there discursive risks?
MACRO: What economic and military activities have contributed to anthropocenics in this setting? What dispossessions, Indigenous and Black, formal and informal were foundational? What laws and policies have addressed anthropocenics? How are future economies imagined and planned?
MESO: Who are stakeholders in this quotidian Anthropocene and how do they relate to each other? Who holds power and how is it wielded? What forms of political organization have emerged to address and weather the Anthropocene?
MICRO: What practices (in industry, the military, in homes, and in play) have produced this quotidian Anthropocene? What remediation and adaptation practices (flood management, soil removal, etc.) have anthropocenics provoked?
NANO: What has shaped the way people frame and see this setting? What do people fail to see? How do people in this setting see other people? What social and knowledge hierarchies are in play?
BIO: How are bodies in this setting laced and burdened with anthropocenics? What occupational hazards haunt this setting, past and present? Who are vulnerable groups? How are anthropocenic bodies racialized bodies?
EXDU: What educational programs in this setting in primary and secondary schools, vocational schools, trade unions, universities, etc. are addressing anthropocenics? What expert communities are involved in characterizing and stewarding this quotidian Anthropocene? How are Indigenous knowledges mobilized or discounted?
DATA: What knowledge infrastructure supports recognition, characterization and response to anthropocenics in this setting? Who has access to relevant data and sense-making tools? Who does the knowledge infrastructure serve, discount, or criminalize? What knowledge infrastructure and archiving capacity is needed going forward?
TECHNO: What industries and infrastructure have produced anthropocenics in this setting? How has this landscape been engineered?
ECO: What ecosystems in this setting are depended on, protected, or compromised, and how is this recognized (or not)?
GEO: What geologic formations characterize this setting? How has intensive human activity marked, transmuted, destabilized and harmed this setting? How are global warming and other atmospheric currents stressing local landscapes and complicating Anthropocene stewardship?

Figure 1: Scales and Systems Analytic for studying quotidian anthropocenes, reproduced from Fortun et al. 2021.

Kim Fortun designed these scales and systems to capture the emergence of "late industrialism" as the way the processes of industrialism had "cohered, aged, ossified, degraded, and retrenched over time" (Fortun et al. 2021, 10). Clearly, energy transition is a late industrial problem. The carbon-intensive energy systems that we have become so dependent on, that have enabled massive population growth, expanded the length and quality of life, and contributed to the production of unprecedented luxury and wealth, and that have also polluted our bodies, air, and landscapes, diminished biodiversity, intensified wealth inequality, and powered violence, war, destruction, and genocide at global levels, emerged in and through processes of industrialization. This general analytic structure provides a solid backdrop for thinking about the processes that created both the existential necessity of and sociotechnical restraints upon this energy transition and also those processes that continue to shape the way this transition is being lived, conceived, practiced, and talked about.

In taking up this analytic and making it my own, however, I have attempted to rethink and reorganize the scales into subcategories that are influenced by Guattari's approach to ecosophy (1995, 2000) and Foucault's genealogical method (2010). The inspiration for this decision, following Fortun's long-established commitment, lies in dealing with the materiality and vitalism of cross-system dynamics, without losing sight of the lessons of post-structural theories of language. In reconsidering the study of energy transition in these terms, I have come to treat energy transition as a disjointed and divisive focal point of experience, one that has emerged from an ecology of processes that have their own unique intensities, qualities, and spatio-temporalities; the whole of which is never fully structured but rather only ever more or less synchronized. Foucault described his work as a history of thought, focused on domains like madness, disease, criminality, or sexuality as "focal points of experience" (2010, 5). Such focal

points, he argued, could be understood as the joint articulation of "forms of a possible knowledge (*savoir*), normative frameworks of behavior for individuals, and potential modes of existence for possible subjects" (2010, 3), to which I would add, following Fortun, a more materialist focus on infrastructures (conceived of expansively to include both the technological and "green" variety).[4]

[4] Brian Larkin defines infrastructures as "matter that enable the movement of other matter. Their peculiar ontology lies in the facts that they are things and also the relation between things" (2013, 329). I take this as a justification for considering geological and eco/atmospheric systems as the "green infrastructure" that underpins the socio-technological systems that are built into, on top of, across, within, and between them.

Techno Political Ecology (Technologies of Production)
GEO: How has the geology and physical geography of this landscape influenced the development and character of its local energy infrastructures? What potential resources for energy production does the landscape offer? How have these resources been taken advantage of? How could they be? How has this site's energy infrastructures marked, transmuted, destabilized, or harmed this setting? How, where, and what kind of traces of this harm is being observed, recorded, mitigated/exacerbated?
ECO: How is energy use shaped or influenced by the specificities of this location's climate and ecology? What ecologies and ecosystems in this setting are depended on, protected, or compromised, and how is this recognized (or not)? How are bodies (human and non-human) in this setting differentially laced, burdened, or benefitted by the current energy system and/or practices of energy transition? How are climate change and other atmospheric currents stressing this site's energy systems?
TECHNO: What technology does this site's current energy-system infrastructure consist of? How does it function, and dysfunction? How are the technological problems presented by different types of energy resources differentially understood? What sorts of technologies are being researched, proposed, or developed? What sorts of energy-related problems are imagined to be in/solvable through technology?
Social Ecology (Technologies of Power)
MICRO: How are energy transition research, planning, and practice carried out (or resisted) at the quotidian level? How do these practices dovetail with other practices (like economic development, flood management, wildlife conservation, social justice, or urban renewal, for example)?
MESO: What forms of political organization have been developed in order to plan, manage, or resist this site's energy system and/or energy transition? How do these organizations relate to each other (i.e. what kinds of coordination are in play and/or called for)?
MACRO: What economic activities have and continue to shape energy transition planning and practice in this setting? How does energy transition factor into the way future economies are being imagined and planned? What laws and policies have addressed energy production, distribution, and consumption? How do scales of sovereignties (federal, state, county, municipal, district, neighborhood) intersect, overlap, and resist each other in terms of energy transition planning and practice?

Epistemic Ecology (Technologies of Sign Systems)
DATA: How do various stakeholders understand the proper conduct for producing and interpreting data to develop a viable knowledge base for planning, practicing, and managing a transition to carbon-free energy? What data infrastructures have been developed, are being developed, or are perceived as necessary? Who has access to these data and sense-making tools?
META: How are energy transition imaginaries—motivations, rationalities, methods, means, scales, etc.—being expressed, deliberated, and debated in this setting? What new forms of expression have these discourses engendered?
EXDU: What roles have the different practices, venues, programs, levels, and institutions of education (formal and informal) played in shaping how local stakeholders think about and practice energy transition? Who is imagining and planning energy transition in this setting, with what modes of expertise, cut by what vested interests? What forms of expertise hold sway here?
Ethical Ecology (Technologies of the Self)
PROTO: What kind of knowledge is being produced, collected, visualized, inscribed, authorized, disseminated, and mobilized to inform, affect, or control energy transition?
DEUTERO: How have energy infrastructures impacted the thought styles, semiotic ideologies, and phenomenologies that are in play in understanding this energy system and imagining energy transition? What data, forms of analysis, and modes of expression are persuasive and consequential here? What role do sensation, attitude, and aesthetics play in data production and analysis?
TRITO: What conceptual apparatuses and habits, modes of collectivity and economy scaffold (or undercut) reflexive reconsideration of how the future of this site's energy system is being thought and talked about? What techniques or practices of the self are in play? How are people working to engender new subjectivities appropriate to a changing climate and future carbon-free energy system?

Figure 2: The four triads of an ecology-assemblage theory analytic for studying energy ecologies.

These four triads are intended to break down the problem of energy transition into its environmental, political-economic, scientific, and ethical dimensions. And while this particular breakdown is inspired by Foucault, the idea of considering a topic of investigation from multiple entry points is inspired by a lineage of experimental ethnography stemming from Gregory Bateson (1936).[5] Bateson's renegade rethinking of both ecology and mind had a profound influence on Felix Guattari, whose ecologically distributed model of subjectivity–across social, mental and environmental ecologies–followed directly in Bateson's footsteps.

Though inseparable in reality, like each of Guattari's discrete ecologies, these triads can serve as "interchangeable lenses or points of view" into both socio-ecological crisis and energy transition as a mode of prevention and adaptation (Guattari 2000, 42). In this sense, the triads resemble Bateson's early structural, functional, and ethological characterizations of New Guinea culture in Naven (1936), and embody the feminist epistemological commitment to explanatory pluralism (Keller 2003).[6]

Questions located at each scale and system are designed to be useful for honing in on certain discrete formal (GEO, MESO, EXDU, DEUTERO), tactical (TECHNO, MACRO, DATA, TRITO), or expressive (ECO, MICRO, META, PROTO) dimensions of energy transition, while the triad situates each scale into a subsystem of relations that is more akin to common levels of analysis in STS and anthropology. Lastly, the set as a whole, which I refer to as an energy ecology, enables more transversal understandings of cross-system dynamics.

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[5] In Gregory Bateson's first and only ethnography, he had already begun to deconstruct the "subject" into a multiplicity of processes, recognising the structural, functional, and ethological dimension of the human "in every piece of behaviour and in every native statement" (1936, 263). By the end of his career, Bateson began to synthesize this work into an ecological theory of mind, as "the interaction and survival of ideas and programs" that loop along diverse types and materials of circuitry (Bateson 1987, 340). This move opened up ecology as a model for understanding all kinds of nested systems, at scales at once within, between, and beyond the human subject.

[6] Kim Fortun calls such diverse entry points "kaleidoscopics," where one's object of analysis morphs and dis/reaggregates as one remixes transposable frames of analysis, much like the image through the viewfinder shifts with the turn of the kaleidoscope.

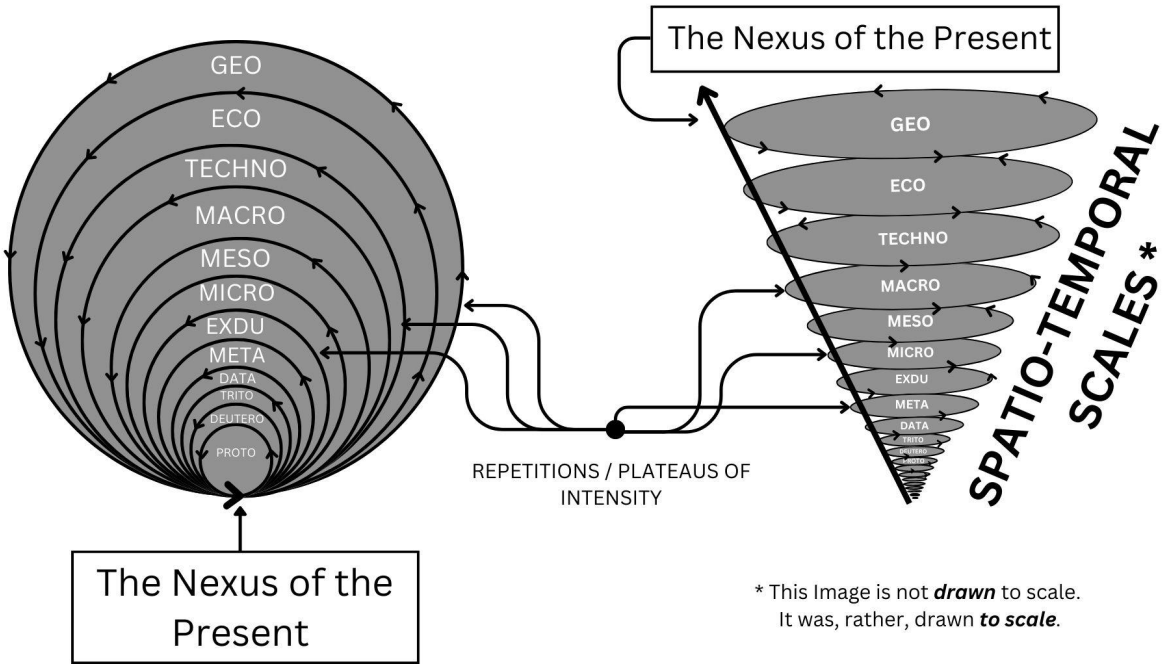

Figure 3: This image represents the way this dissertation conceptualizes and utilizes scale and system, where scale is the virtual dimension of space-time that is actualized in and through the repeated patterns of flows and breaks that constitute a system. A system is conceived of as a distinguishable repetition of flows (and breaks/transductions of the flow) of various kinds of content, such that patterns emerge and persist. Scale, then, is the virtual dimension of time and spatiality that can only become actualized in and through this repetition of these flows, breaks, and transductions. In short, systems actualize scales of space and time–without which they remain virtual–in and through the different spatio-temporal extensions of patterns. Each loop depicted here is intended to represent the space and time taken up in a system's pattern, thereby constituting a system that repeats at a certain scale. Thus, the larger loops represent patterns with a greater spatio-temporal reach, that is, with patterns that take longer and cover more ground before it returns to the origin, before the sequence of the pattern repeats.

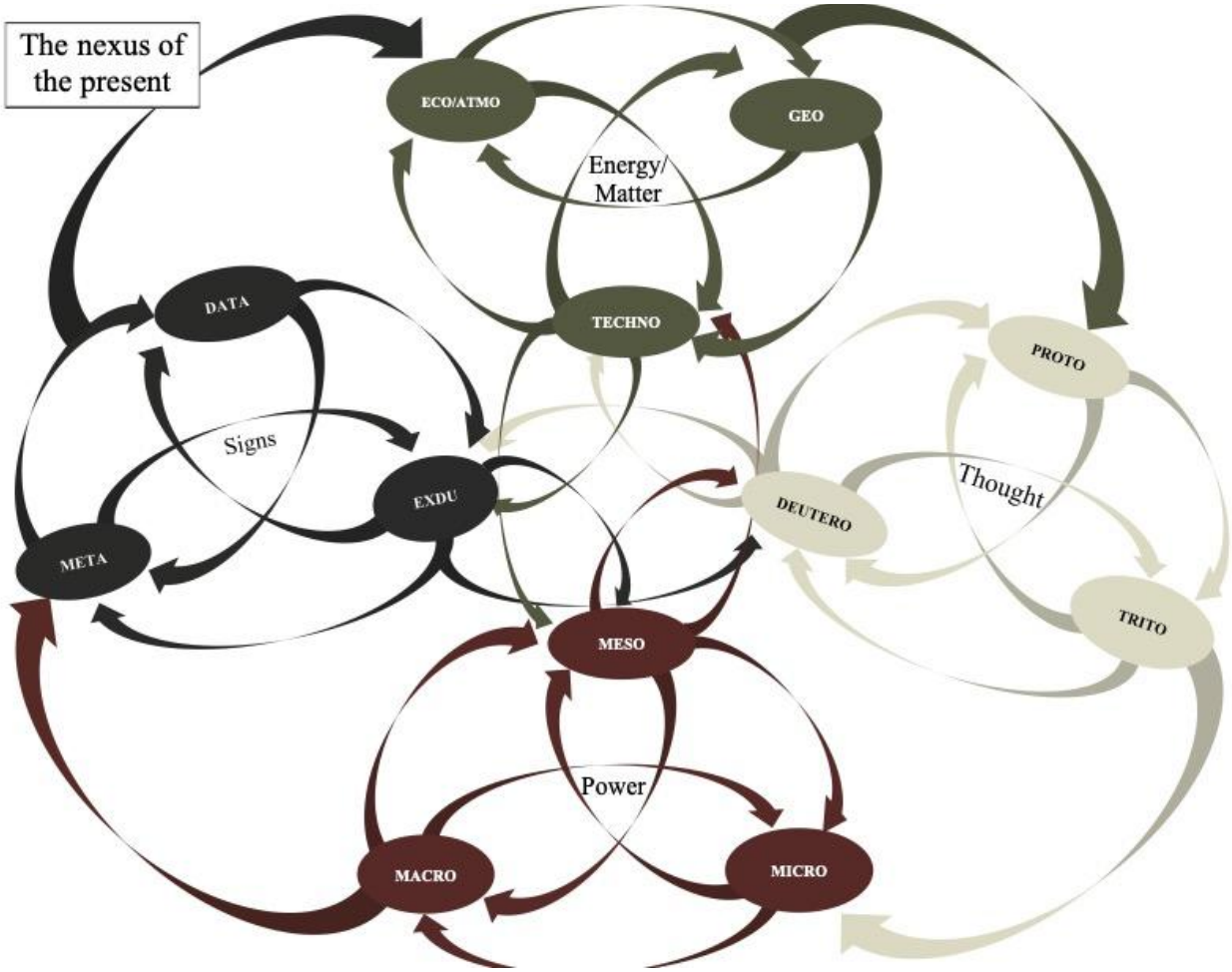

Figure 4: This diagram zooms in to further represent what the former diagram designates as the "nexus of the present." This diagram is intended to preempt misreadings, as Figure 1 could easily be mistaken as signifying hierarchy or discrete, closed systems happening in parallel. To combat this interpretation, this image indicates the open and entangled dynamics of these systems, which constantly intersect, articulate, feedback, de/synchronize, and produce other kinds of interferences. This dynamism ensures the instability of these patterns such that they ceaselessly split, combine, nest, shift, devolve, and desist. This image also distinguishes the sub-ecologies that structure the discussion within this dissertation's chapters, marking the different content or substance of their disparate flows: i.e., what flows in techno-political ecology is matter/energy, power in social ecology, signs (linguistic or otherwise) in epistemic ecologies, and thought (or attention) in ethical ecologies.

3. THE FOCUS

3.1 IT'S PLATEAUS *ALL THE WAY IN*

Taking the anti-essentialist concept of the plateau–understood as a more-or-less tenuous persistence of relations of reciprocity between opposing forces–as the only fundamental unit of analysis, this dissertation shows how ethics and politics can be rooted in materiality without erasing subjectivity, or succumbing to technological, historical, or environmental determinism. As Deleuze and Guatarri point out, even the ground beneath our feet is destined to return to the magma from whence it came (1987). However, this ground will also last much longer than you or I, or the urban infrastructures that we have constructed upon it, or the geo-climatic-ecological assemblages that enabled and guided these infrastructural developments, or the social systems developed to coordinate and reproduce the social life of the city in/as the quotidian.

In other words, more durable plateaus and assemblages create the conditions of possibility for the formation of lesser durable plateaus through a process of internal differentiation; that is, longer cycles of repetition enable shorter cycles of repetition to develop within them. On the flipside, these shorter cycles can also interlock to create the more complex patterns that alter or even produce longer cycles.[7] Obviating the choice between the presentism of Actor-Network Theory (Latour 1987; Callon et al. 2002)–which mirrors the smooth a-temporal, and infinitely manipulable temporality of "Whiteness" (Sojoyner 2017)–and the hierarchically structured, linear temporality of Multi-Level Perspective (Geels 2010, 2011)–which mirrors the structural sense of time as a socially constructed imposition, or a restraint on actions (Sojoyner 2017)–an ecological approach can accommodate both,

[7] This perspective counters the presentism of Actor-Network Theorists, who often brilliantly "explain the outcomes of interactions or translations, but forget that as soon as these outcomes are produced, they continue to exist" (Van Lente 1993, 31).

simultaneously, by emphasizing the transversal relations of emergence between scales of repetitions and refrains.

That is, as this dissertation will show many times and in many different ways, plateaus and assemblages, as "units of survival," are not things in and of themselves; they are, instead, like Bateson's description of the organism, inseparable from the set of environmental relations that enabled them to form and allows them to persist (Bateson 1987). In other words, they require the constant reproduction of the arranged field of force relations to be maintained. And, given that each plateau/assemblage is constructed out of different arrangements of force, their relative difference in composition creates a set of meta-relations of force between plateaus, between the plateau and the composite assemblages of which they are a part, and between the composite assemblages. And this ecology of meta-relations (of frictions, de/synchronizations, feedback loops, etc.) is constantly shifting in ways that renders the reproduction of its constitutive plateaus assemblages more-or-less durable or tenuous, more-or-less resilient or vulnerable to collapse.

To deny hierarchy is not to deny scale. Height is but one dimension among many. Scales may also be thought in non-hierarchical, spatio-temporal terms. In this case, what differentiates scales is the spatial scopes and the rates, rhythms, cycles, and durations of repetitions. Here, ANT's black boxes are traded for Deleuzo-Guattarian assemblages. Any repetition in the field of meta-relations between plateaus forms an assemblage, a thing-like entity. Some assemblages, some repetitions, continue to repeat longer than others, though this is not the repetition of the same, but of differential degrees of difference. The longer repetitions continue, the more opportunity for new assemblages, new and shorter, internal repetitions, to develop within the longer. This is the source of a scale's distinction, of its discrete existence as a unique scale.

To deny the bounded self-similarity of the human subject is not to deny the repetitions by which its structural effects may be felt, nor even the possibility of these effects to "loop" back upon and effect themselves. The human is a nested set of de-and-re-synchronized rhythms—rhythmic cycles of the body: the breath, the heartbeat, eating, sleeping, cell reproduction, protein synthesis; rhythmic cycles of the psyche: habits of perception and interpretation, of thought, of language and speech; rhythmic cycles of cultures: rituals, calendars, economy, politics. Thus, in place of thinking scale only in terms of space (cells are smaller than the human bodies they make up), think scale in terms of space-time (the repetitions of the body take up more space and endure much longer than the repetitions of the cells that make it up). But the human is also much more than the body; there are repetitions powered by bodies that engender new bodies.

3.2 REACHING FOR THE OUTSIDE

This dissertation is less an ethnographic representation of Austin's energy transition (though it is also that) than it is an attempt to fold poststructural theory and anthropological methods of research into the project of just energy transition, in and through the practice of ethnography. Doing so, I suggest, requires new focuses and modes of research and collaboration organized around two figure-ground reversals. The first reversal entails shifting the emphasis of social studies of energy from the development and systematization of energy technologies or practices, to the arrangement of desires that makes these technologies and practices meaningful: i.e. shifting from studies of infrastructural systems for the extraction and combustion of fossil fuels to the arrangement of colonial relations to the land (Liboiron 2021) and the racial capitalist evaluations of difference (Pulido 2017) that make this extraction possible and this combustion

meaningful.[8] The second of these reversals entails flipping the intention behind research from generating analytic answers or endpoints, to cultivating new analytic perspectives, modes of collaborative analysis, and new analytic spaces, including the space of the ethnographic archive.

4. THE TEXT

In 1976 two geologists, Garner and Young, produced a report on Austin's geology and environment in hopes of guiding development in such a way as not to negatively impact either human or non-human systems and processes (1976). Their report was supposed to look at land resource data to be able to predict where and how problems may occur, and thereby aid city planners in their decisions on how to properly locate residential, commercial, industrial, and public parks accordingly. The report looks at Austin's geologic, physiographic, biologic, and hydrologic features which includes rock types, vegetation, soils, topography, stream flow, and mineral resources. According to the authors, "The impact of development on natural features can be judged and predicted from examinations of physical properties associated with various rock units and from the relationship of these rock units to associated features and existing land use patterns" (Garner and Young 1976, 5).

Importantly, however, in their study, Garner and Young do not put forth a plan for sustainable urban development; that would limit the applicability of their work as development plans are constantly adapting to new contexts and new arrangements of desire. Thus, instead,

[8] This is in contrast to the rather intuitive method suggested by Frank Geels, whose multi-level perspective suggests explaining the structures of historical processes that carried energy technologies along from their invention, to their adoption, and eventual consolidation into a historical socio-technical landscape (2005). It is also a departure from projects like Carbon Democracy (Mitchell 2011), that root the formation of social and political systems in the physical properties of the materials and objects of an assemblage.

their study details the form and function of more stable sets of relations of force between Austin's different kinds of geological formations (i.e. their slope stability, internal drainage capacity, corrosivity, etc.), between these geological formations and local climatic and ecological formations (i.e. what they call vegetation assemblages), and between these geo-ecological assemblages and the City's extant land usages (low or high-density residential, office buildings, industrial, etc.).

The point of detailing these more underdetermined descriptions was to create a durable inventory of information, that could be selected from again and again, to generate unlimited iterations of development plans and strategies over time. That is, these geologists established a new *form of content*, detailing the force relations between the plateaus that have come to shape Austin's local ecology of assemblages, while trying not to delimit the possible *forms of expression* of that content (Deleuze and Guattari 1987). And, like the catalogs of military geographers (Foucault 1980), this inventory provides those in the position of power with, not so much a guide as a map, a mass of information, with which they can plan their own paths, develop their own strategies, and draw their own lines of resistance and flight.

In this dissertation, I have attempted to conduct a similar exercise, but one that moves beyond diagramming the plateaus of the geology-ecology-infrastructure nexus to fold in and diagram their associated *ethical plateaus*, or the forms of desire and the relations of power that shaped the diverse ways of reading, coding, and intervening in that nexus. And I used this analysis to argue that Austin's ecology of plateaus and assemblages have long been dominated by settler colonialism and racial capitalism, shaping, at once, Austin's development, local resistance to that development, as well as the remainder of discontents of that resistance.

That is, this dissertation argues that Austin's ecomodernist culture is a disguised petroculture, built upon the lingering plateaus of its settler colonial and racial-capitalist past (and present). But, in making this claim, I am not alone. Environmental justice organizations in Austin have long tied the City's twinned histories of environmentalism and social injustice together, arguing that the city's brand of environmental liberalism, with its "smart growth" rhetoric, masks a more insidious culture and politics of white supremacy. In the words of Kenneth Thompson, a life-long Austin resident, solar advocate, and a prominent public educator for social justice, Austin is a very "liberal" place, but it's not a "progressive" place. The distinction he is making here is that "liberalism" focuses on developing a politically correct discourse that rationalizes whatever agenda they may have. In other words, liberal politics starts with its own answers and focuses on how to frame them. While "progressivism," by contrast, starts and ends with questions. Progressive politics truly consider the consequences of development and policy actions for all involved parties and continues to question the meanings and the values of actions past as time moves on. Like Benjamin's angel of history, Kenneth's progressivism is a perpetual reckoning (1986).

In recent years, however, critiques like Kenneth's have begun to hold sway with some organizations of influence on the City's climate protection discourse, planning, and policy. After decades of struggle, Kenneth and other life-long environmental and social justice activists around Austin are beginning to sense what may be a new "structure of feeling" (Williams 2009), one that values and promotes racial equity, not only as a moral obligation, but as a necessary and effective means of fighting climate change and its most deleterious social impacts. In my work, I have sought out a better understanding of the ecology of heterogeneous factors that have both enabled Austin's technocratic and ecomodernist environmental governance regime to develop

and cohere, and also engendered the frames and practices that have been cultivated as forms of resistance.

This dissertation can also be thought of as an *ecological* genealogy of Austin's renewable energy transition.[9] Each of the following chapters will work towards identifying the forms, technologies, and practices that cohere and resist each other to bring about Austin's landscape of ethical positions on energy transition, historicizing them in order to emphasize their contingencies and identify other possibilities, other lines of flight. As the chapters progress, the scales and systems being foregrounded will also shift. However, the former chapter's considerations are not left behind entirely. Instead, it would be more accurate to say that they recede into the background of the next stage in the narrative, much like older layers of strata that lay deeper beneath our feet.

Chapter One focuses on the GEO, ECO/ATMO, and TECHNO scales, characterizing Austin's geological, ecological/climatic, and built environment, tying these to the early history of Austin. In particular, I trace the history and development of Austin's public infrastructure and utilities, in and along with the evolution of the Texas grid, drawing connections between these developments to characterize Austin's contemporary technopolitical ecology. This history shows how desires of empire and ideologies of white supremacy shaped the way the Austin landscape

[9] If, as I claim, Anti-Oedipus can be seen as a genealogy of Oedipus, it is not in the same sense as Foucault's or Nietzsche's genealogies. This is because Deleuze and Guattari's temporality is not a historical temporality (though, at times, they do also utilize the genre of historical narrative); it is rather an ecological temporality. A genealogy whose time is ecological may thus be contrasted from historical genealogy for its transversality, or, that is, by its tracing of a diagonal line across multiple temporalities differentiated by scale. In other words, instead of tracing transformations of networks of power along a horizontal axis of historical emergence (a la Foucault), they trace the transformations of energy as it flows transversally through assemblages that span across numerous spatio-temporal scales (or milieus).

Energy takes a different form at each scale, or milieu, being transduced as it passes through the assemblage's points of connection from one milieu to the next. For example, "desiring production" is the process of transforming physical energy into psychic energy through the passive syntheses. Thus, psychic energy–or the form that energy takes at the scale of the unconscious–is desire. Accordingly, social production is the process of directing flows of desire (psychic energy) to form the desiring-machines (which they will later term assemblages) that organize and produce society. Thus, social energy–or the form that energy takes at the scale of the socius–is power.

was interpreted and appropriated in and through the city's infrastructural development. This spatial history continues to have a profound and persistent effect on contemporary perceptions of Austin's public infrastructure in its relation to the natural environment, social space, and racial geography.

Chapter Two tracks back partway through the same history but with a shift in focus to the MESO, MICRO, and MACRO scales. Here I trace the historical roots of the factions of Austin's environmental communities. This chapter shows how Austin's general development from a backwater town to a booming, high-tech economy is rooted in the City's strategic re-investment of royalties from the University of Texas' oil assets. I also describe how Austin's environmentalists managed to appeal to these same logics of petro-capitalism to gain a moderate position of influence on the City of Austin's and even Texas' regime of energy governance. And while these techniques and strategies still have considerable influence amongst Austin's ecomodernists, there is another lineage of environmental justice organizing rooted in the grassroots campaigns of PODER and their substantial success in overcoming the environmental racism afflicting East Austin communities. Many of Austin's younger and often more radical environmental groups are more deeply connected to this other genealogy of environmentalism, constructed out of very different ethics, strategies, practices, and forms of political organization.

Chapter Three looks at EXDU, META, and DATA scales to characterize and contrast the diverse forms of knowledge that have been developed to support, reform, and resist Austin's energopolitical system of energy transition. This chapter thus further characterizes the rift between Austin's ecomodernists and energy justice organizations, along with their associated discursive practices and divergent rules for developing and validating claims to the truth. Here I reference the drastically different ethics, modes, and practices of knowledge production of the

Electric Utility Commission's Resource Planning Working Group and the Office of Sustainability's Climate Equity Plan. The former of which holds tight to legal and corporate structures and hierarchies of expertise as a means of limiting involvement and input. Doing so reflects the City's deep-seated technocratic regime of environmental governance that continues to produce and disavow the city's vast injustices and inequities. The latter, by contrast, established open and recursive structures of feedback, both within and across planning groups, that enabled much more collaborative and inclusive knowledge production processes to develop. I close this chapter by reflecting on this latter approach and how it could be improved and amplified through the development of increased public data capacity and reconfigured data cultures.

Chapter Four then folds in the PROTO, DEUTERO, and TRITO scales in order to get at the forms, practices, and techniques of subjectivity present amongst Austin's energy actors. Using an archive of oral histories, field notes, and interviews from the full gambit of communities in Austin that I interacted with, I discuss the technologies, infrastructures, and practices of self-care that energy justice organizations have cultivated to better recognize and exorcize the specters of Austin's petro-racial pasts. I also relate these endeavors to intervene in one's own subjectivation back to my work as an ethnographer and to the disciplinary commitments of anthropology, drawing a comparison between the self-critical work of these energy transition actors and the anthropological project, both of which turn on the trito-level impacts of a recursive study of cultural and epistemic difference. The chapter then closes by theorizing the potential for adapting ethnographic methods to serve a more pedagogical function, where the intention lies not so much in the production of qualitative scientific knowledge, but

rather to produce a change in the subjectivity of both the ethnographer and the communities with whom they converse, study, and collaborate.

Together, these chapters trace out the processes and histories of sedimentation through which Austin's diversity of forms, strategies, and practices of energy transition have taken shape. The multi-scalar and ecological framework that structures their flow enables the text to capture some of the Austin political landscapes' untimeliness, some semblance of how the present moment is produced by and caught up in cumulative histories, of processes with different origins, durations, and rhythms of differentiation and repetition. In that vein, part of the aim of this text is to develop and enrich empirically situated conceptual tools–like petro-ghosts, plateaus, ecology, assemblage, rhythm, pattern, etc.–that can help shift the energy transition discourse away from linear thinking and open up a wide range of multiple, overlapping and combined non-linear approaches. Another goal of this text is to identify and emphasize the practices and social and technological infrastructures that are inflected with these concepts, and that can improve our ability to understand and facilitate collaboration across appreciably different epistemologies and ethics.

CHAPTER 1: TECHNO-POLITICAL ECOLOGY

In February of 2021, a complex interplay of factors coalesced in a symphony of disasters that left much of Texas without power and water for days on end. Around about a month earlier, in what's called a "sudden stratospheric warming event" (Flis 2021), hotter than usual polar temperatures weakened the jet stream that usually fixes the polar vortex above the north pole. This weakened stream then enabled the polar vortex to dislodge from its usual axis and migrate southward across the lower United States, including Texas (Flis 2021). And given that Texas doesn't usually experience this degree of cold, the Texas grid was woefully unprepared.

But beyond the mere abnormality of the icy winds that froze up Texas' energy infrastructure, all of which could have been made to function at these temperatures if they had only been designed to do so, this grid failure became famous for being uniquely Texan. As the outages rolled on, causing other cascading infrastructural failures, what became apparent was how the disastrous dimension of the event was exacerbated by the energy system's critical interdependencies and over reliance on natural gas, by an ethos of Texas exceptionalism and a radical and emphatic faith in market logics, and by the structural racist legacies of the Jim Crow era that still segregate and disadvantage people of color in the state to this day.

Like much of the rest of Texas (all 254 counties in Texas were under disaster declaration), Austin experienced record breaking temperatures (6º F) and snowfall (6.4" on the ground for five days). According to the City of Austin's and Travis County's collaborative report on the disaster (2021), as early as February 11, temperatures in Austin dropped below freezing, and many of the City's departments sent out warnings to residents to prepare for a severe winter storm. The next day, the State of Texas issued a Disaster Declaration. At 10 a.m. the morning of the 13th, Austin opened up its Palmer Event Center as a "warming center," compromising on the

City's ongoing COVID precautions. On February 14th, Austin and Travis County declared a local State of Disaster and by the 15th, the City's single warming center had already reached its COVID-restrained occupation capacity. Temperatures dropped to their lowest point on February 16th. Due to exceeding need, the Palmer Center was reorganized to accommodate an extended capacity, reaching its maximum total of 500 occupants. By this time, the City's water infrastructure had also begun to fail, and on February 17th, the city issued a Boil Water Notice. Two days later, on February 18th, 96% of Austin's residents had access to power, but freezing temperatures would remain until February 20th.

Freezing temperatures lasted a consecutive 144 hours, and Austin's Boil Water Notice remained in effect for a full week. Around 40% of Austin Energy customers lost power and the City received 2,449 reports of broken pipes. By the end of the storm, the power crisis had caused a total of 295 billion in damages across the state (Devadanam 2021), and state officials calculated 246 storm-related deaths (Hellerstedt 2021).[10] [11] And out of those 246 deaths, 57% were white and non-hispanic (Hellerstedt 2021), despite this racial group making up 77.9% of Texas' population (U.S. Census Bureau 2021). By contrast, Black or African American residents made up 19% of storm-related deaths (Hellerstedt 2021), despite making up only 11.6% of the Texas population (U.S. Census Bureau 2021). The disproportionate disparities here reflect a long running trend of communities of color having greater exposure to environmental risks than predominantly white communities.

[10] Buzzfeed, however, conducted an investigation that calculated the death count to be closer to 700 (Aldhous et al. 2021).

[11] On top of the lives lost due to hypothermia and the inability to power life-sustaining medical devices, the Texas grid failure also resulted in the highest rates of carbon monoxide poisoning in recent U.S. history (17 deaths and over 300 cases of poisoning). According to Trevizo and colleagues (2021), Texas's lax regulations on carbon monoxide detection in homes, combined with a lack of public awareness of the dangers of carbon monoxide, led many to unwittingly poison themselves and their families while trying to stay warm. The article recounts some of these tragic stories of loss and confusion amidst one of the worst environmental disasters in Texas history.

In this chapter, I use the Texas grid failures that followed from the onset of polar storm Uri to frame the climate crisis and its injustices, as well as "disasters" more generally, in terms of Howey and Neale's concept of "divisible governance" (2022), which, in my usage, enables of critical understanding of how Austin's disjointed energy ecology has been produced in tandem with fossil-fueled, racial-capitalist assemblages. One of the key strategies of divisible governance that these authors identify is the fragmentation and organization of *representations* of space, time, and jurisdiction to obscure unjust distributions of risk and benefit across populations and scales. What my analysis adds, in this chapter, is a more materialist consideration of the way the problematic technopolitical assemblages that divisible governance helps obscure are built, from the ground up, through the strategic dis/articulations of what Gregory Bateson called "plateaus of intensity" (1987).

In the words of Robert Shaw, plateaus of intensity represent a "situation of constant evolution and becoming in which conflict does not build, but is expressed and released" (2015, 157). In my usage, I extrapolate from this definition to think the plateau as any kind of relative stabilization of force relations that, though tenuous, is stable enough to articulate in ways that enable more complicated assemblages. For example, the electric grid is a plateau of *electric* intensity, composed of a complex articulation of inputs and outputs that must be coordinated to maintain a voltage of 60hz, with only a small margin of error, in order to maintain its function. But so long as it is maintained, it can articulate with any number of electrically powered devices (air conditioners, hair dryers, electric vehicles, automated factories, etc.) that can further articulate with other kinds of non-electric, yet still assembled, configurations of plateaus (objects, materials, human bodies, plants, etc.), producing a complex and emergent ecology of diverse assemblages.

Thus, in this dissertation, plateaus should be understood as a non-formal "unit" of analysis, with which I will construct "energy ecology" as a Deleuzo-Guattarian inspired ontology of assemblages (Deleuze and Guattari 1987). The plateau is a diagram for rethinking form*, unformally,* as force relations that have become entangled in such a way as to become *thing-like,* to retain certain formal and functional properties, while only ever consisting of moderately stabilized, yet unstructured, relations of force. In sum, assembled plateaus are form's double on "the outside" (Foucault 1987). And though, *in our perception*, these assemblages appear as things, systems, processes, *outside of our perception* they are a "pure transmission of unique elements which remain indeterminate points, since they are not yet defined and limited by the curve of the statement that joins them up and assumes a certain form in their presence" (Deleuze 1988, 11-12).[12] I also make use of Mike Fischer's redux of the Deleuze and Guattari's concept of the plateau as the "ethical plateau," which adds a consideration of the implications of these dis-and-re-articulations of plateaus upon subject formation (2001).

In this chapter, I'll recount how Austinites have continuously re-evaluated, re-codified, and re-purposed the Texas landscape, tracing observed regularities in the relations of forces that characterize this Hill Country to appropriate, intervene in, protect, and establish new assemblages in and through the their dis-and-rearticulation within a more complex ecology of assemblages. The chapter begins with an analysis of how early Austinites interpreted the Austin quadrangle through the lens of ancient Greece and Rome, which both reflected and encouraged their desire to imitate these civilizations in the construction of a great Anglo-Texas empire to the west. I then describe how this desire took shape in and through the coded construction of this landscape, the planning and development of the town, the styles of local architecture, and in the discourses of what kind of city Austin might become.

[12] See Chapter 4 for a more detailed and thorough analysis of how the plateau relates to the statement.

I'll also describe how, outside the control of these settler's spatial and discursive practices, there were forces of disarticulation (unexpected weather, shortages of economic and natural resources, infrastructural failures, uncontrolled settlement and construction patterns) that continually worked against this desire. And I consider the way these unassimilable, yet inherent frictions of Austin's colonial regime caused that diagram to shift in historically particular ways. This transpired, on the one hand, in and through the desires and actions of those who had been excluded from representation and participation in Anglo-Austin's empire games, which created points of resistance. And, on the other hand, the force relations between Austin's local climatic, geological, and ecological assemblages, whose rhythms and scales had exceeded the spatio-temporal imaginaries of Austin's Anglo settlers, resulted in these outside forces overcoming the plateaus of Austin's infrastructural articulations. And it is this very failure that ends up, in turn, reframing as well as intervening in the assembled plateaus that have shaped Austin's environmentally liberal, and environmentally racist relations to its residents and to its local geology, climate, and ecology.

Thus, in looking at this dysfunctional history of Austin's infrastructures, I situate contemporary technological failures, like the Texas Power Crisis, within a longer history of development and disaster. And I will conclude by arguing that 1) Austin's long-established regime of divisible governance has enabled the techno-political ecology of assemblages and plateaus that produced the Texas power crisis; 2) this ecology of assemblages and divisions is rooted in racial capitalist and colonial logics that have privileged Austin's white, upwardly mobile residents by relegating the risks of development to communities of color; and 3) resembling previous concerns about local flooding and disease, contemporary concerns for environmental and energy injustices amongst Austin's elite are largely the result of the increasing

inability of Austin's divisible governance regime to reproduce the statements that have obscured the City's unequal distributions of environmental vulnerabilities, which have increasingly spilled over to effect even its most privileged communities. And while this latter conclusion presents the opportunity to reformulate the ethical plateaus that have shaped Austin's techno-political ecology since its earliest developments, there is also an ever present risk that contemporary disasters will merely be folded back into the city's sedimented rhythm of development and disaster.

1. SETTLING PETRO-RACIAL CAPITALISM

In much of both the academic and popular writing about Austin, one of its most frequently remarked features is the abundance of natural beauty. This is due in part to the fact that Austin is located at a nexus of different geological formations, which supply the city and its surrounding areas with rich and diverse landscapes, flora, and fauna. In fact, when Robert T. Hill—UT Austin's first professor of Geology—first arrived at Austin, he noted that the city was a prime location for the study of geology, as there is such a great diversity of formations and deposits from a wide range of geological ages (Young et. al 1977).

Austin's position at the intersection of diverse geological formations creates a rich and peculiar landscape that also supports a comparably unique ecology. Indeed, many of Austin's more charismatic species live in extremely niche habitats and can't be found anywhere else on the planet. Historians of the city often remark on the way that this landscape and the forms of plant and animal life it supports have shaped ideas for the city's future, particularly concerning its economic and cultural development. William Swearingen argues that it was the environmentalists' ability to enroll the elite Austinites' appreciation of the area's natural beauty that gave them the political power to quell the most ecologically harmful forms of development.

This unique breed of environmentalism, based in part on ensuring the elite's desired quality of life, helped to cajole Austin's growth machine into "build[ing] the natural into the urban rather than plowing it under the urban" (Swearingen 2010, 189).

Less panglossian histories, however, have exposed the darker side of Austin's development. Despite the negligible mineral resources within Austin, the city's modern social spatial production was ultimately financed by the rise of the Texas oil industry and the development of polluting industries elsewhere (Tretter 2016, Robbins 2003).[13] Furthermore, even the preservation of Austin's local nature wasn't equally guaranteed for everyone (Walsh 2007, Pace 2021, 2022). Austin's city planning processes both systematically reduced local racial minorities' access to Austin's preserved green spaces while also choosing black and brown neighborhoods as the location of the city's polluting industries (Busch 2017). Thus, despite Austin's remarkable record of environmental victories and glowing inter/national reputation as a ideal place to live, this section will show how its "weird" forms of life were founded on logics of settler colonialism and developed through the differential valuations and investments in land, bodies, and technologies that operated according to capitalist logics of progress and sacrifice.

[13] See Chapter 2 for a deeper engagement on the ties between UT Austin's oil and gas assets and the city's economic development.

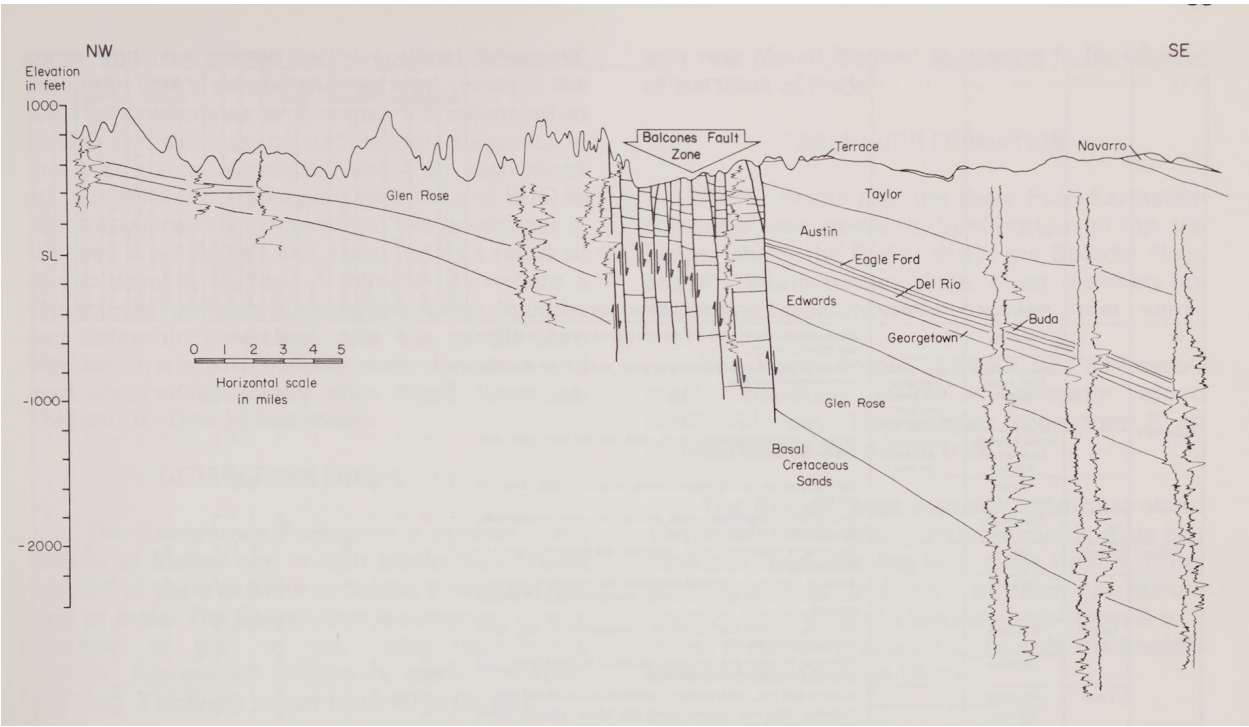

Figure 5: This image, retrieved from the Guidebook to the Geology of Travis County (Young et al. 1977), shows how the west side of the fault has lost many of the softer, younger layers of sediment still present to the east.

1.1 THE AUSTIN QUADRANGLE: A RIPARIAN ASSEMBLAGE

Austin lies within the coastal plains, but the outskirts include junctions with the Central, East Central, Southern, and Great Plains provinces of Texas. This translates into a pleasantly diverse landscape, with rolling hills and plains cut by numerous rivers, streams, and springs, and dispersed patches of prairie and timber woods. Aside from the creeks and the river, the most striking landmark in the region is the Balcones Escarpment, which sets apart West Austin from the east, and marks the eroded edge of the Edwards Plateau. The escarpment falls along a major fault line that cuts across the center of the United States, dividing the Great Plains and the

Coastal plains. This divide also marked a "cultural frontier," separating the farming cultures to the east and the ranching cultures to the west (Abbott and Woodruff 1986).

At Austin, this fault is markedly pronounced, due to the elevation of the Edwards Plateau. Austin sits at the border between Texas' older Proterozoic crust (1400-1150 mya) and newer Paleozoic crust (>550 mya), on a line that runs across the state from Dallas, through Austin, and then curves west towards Marathon and the Big Bend (Ewing 2016). During the Paleozoic, the Austin area was caught up in a large depression in the Texas crust that filled with large amounts of deposition. Then in the Upper Pennsylvanian, these sediments were folded, faulted, and uplifted into the ancient Ouachita Mountain Range (Young et al. 1977). This was a time of the formation of the supercontinent of Rhodinia, and the Ouachita mountains started to form when Laurentia (modern day North America) began colliding with Gondwana (Africa, South America, & the Yucatán), closing up the Rheic Ocean south of Texas. In both Marathon, Texas in the southwest and in Oklahoma to the northeast, the folded and thrusted rocks that once made up these mountains are still visible, while in Austin they have been severely eroded and buried beneath later formations (Ewing 2016). However, the fault line that they ran along is still creating visible impacts on the Austin landscape through the present day escarpment that characterizes Austin's western edge.

Fast forward a few hundred million years to the Cretaceous period. The Ouichita Mountains had eroded and Laurentia had fully parted from Gondwana to emerge as the North American continent, coming much closer to taking its current shape. As the continent pulled away, it initiated the large crustal depression known as the Gulf of Mexico geosyncline (Ewing 2016). Sea levels rose flooding all of Texas and much of North America into the Arctic. The flooded continent was covered with clear, shallow waters that were home to carbonate-secreting

organisms like algae, corals, and rudists, which, punctuated by periods of drought and die out, would eventually deposit layer upon layer of dense limestone, followed by lighter and more porous marl, and clay. Today, this limestone, which is much softer than the permian limestone out west, is known as “Austin Chalk” (Young et al. 1977).

A few million years later, in the Miocene, the waters had retreated, and Austin was a low land area. It was at this time that the major movements from the Balcones Fault began, causing drastic uplift to the northwest. As a result, extensive erosion began taking place on the uplifted section of the fault, causing all the Cenezoic and upper Cretaceous rocks to be eroded away (Young et al. 1977). This process continues to this day, where the oldest rocks exposed in Austin are to the northwest, with the youngest being exposed with each downward drop of the Balcones Fault block. An estimated hundreds of feet of such rock has been removed by erosion since the time of the Balcones faulting (Young et al. 1977).

Most developed areas of Austin sit in the Rolling prairie, a tract of land within the fault zone between the Edwards Plateau and the Blackland Prairie. The topography of the Rolling Prairie is only moderately dissected with shallow valleys, the slopes of which are commonly less than 5%, but the soil is also relatively thick and unstable, with low bearing strength and poor drainage (Garner and Young 1976). Much of this land has been developed to the extent that the region’s ecological assemblages are notably urban and professionally landscaped and maintained. To the west of the city lies the Texas Hill Country, which sits upon the Edwards Plateau. In contrast to the Rolling Prairie, the Edwards Plateau was long unsettled, as it lacked surface water; it wasn’t until windmills were introduced in the late 19th century that settlements began to spring up (Ewing 2016). The soils of the Edwards Plateau are thin and stony, but with appreciably better drainage. This supports a denser tree coverage, including Ashe Juniper, Live

Table 5. Physical properties of rock types, Austin area.

Rock Unit	Map Symbol	Slope Stability	Excavation Potential	Foundation Strength	Infiltration Capacity	Rock and Mineral Resources	Corrosion Potential	Soils	Characteristic Vegetation	Topography
Sandy Alluvium	As	Moderate to Low	Low	Moderate	High	Sources of sand and gravel	Moderate	Red-brown to gray sandy loam and gravelly sand	Cottonwood, sycamore, willow, ash, pecan, bois d'arc	Broad, flat floodplain
Clayey Alluvium	Ac	Low	Low	Moderate to Low	Moderate	Sources of sand and gravel	High	Gray clay and clay loam, calcareous		
Sand and Gravel	Sg	Moderate	Low	Moderate	High	Sources of sand and gravel	Moderate to High	Red-brown and brown sandy loam and gravelly sand less than 20 inches deep	Post oak and blackjack oak, elm dominant on many tributary deposits	Broad, flat terraces, upper levels are dissected
Clay	C	Low to Moderate	Low to Moderate (local thin limestones and sandstones may require ripping)	Low	Low	Cement raw material	High	Brown, dark gray, and olive calcareous clays and clay loams, 12 to 36 inches deep	Grasses and mesquite trees	Rolling prairies
Soft Limestone	Ls	High to Moderate	Moderate to High (generally can be ripped with heavy equipment)	High	Low to Moderate	Cement raw material	Moderate to Low	Dark brown to gray-brown, calcareous silty loams, 7 to 60 inches deep	Oak, juniper	Moderately dissected
Hard Limestone	Lh	High	Very High (generally requires blasting)	High	Low to High	Crushed aggregate	Moderate	Dark brown to red-brown, calcareous clay loams and stony clays, less than 20 inches deep; locally absent	Oak, juniper	Moderately dissected
Mixed Limestone	Lm	High to Moderate	Moderate to Very High (some beds may be ripped, some will require blasting)	High	Low to Moderate	Minor source of road material	Moderate to High	Dark brown to gray-brown, calcareous silty clays; clay loams and stony clays less than 20 inches deep; locally absent	Juniper, oak	Moderately to deeply dissected, stairstep topography
Dolomite and Dolomitic Limestone	D	High to Moderate	Moderate to High	High	Moderate to High	Minor and major aquifers	Moderate to High	Red-brown and brown, calcareous clays and stony clays, less than 20 inches deep; locally absent	Oak, juniper, hackberry, persimmon	Moderately to deeply dissected, stairstep topography locally
Basalt	B	High	Very High (blasting required)	Very High	Low	Crushed aggregate Soil conditioner	Moderate	Dark brown non-calcareous clay with basalt rock fragments	Grasses	Too local for characterization
Altered Volcanic Rock	V	Moderate to Low	Moderate	Low	Low	None	High	Dark brown non-calcareous clay, 12 to 30 inches deep	Grasses and mesquite trees	Too local for characterization

Figure 6: Austin's rock-soil-organic assemblages, reproduced from Young and Garner (1976, 17).

Oak, and patches of Persimmon, Agarita, and smaller trees (Garner and Young 1976). Thus, West Austin's rolling hills and lush vegetation make it remarkably scenic, with relatively little agricultural value. The easily dissolved underlying limestone also produces the karst formations of the Edwards Aquifer, with its many springs, seeps, and cavernous ecological niches (Austin Water n.d.), including the famous Barton Springs and its unique and endangered species of salamander.

East Austin, by contrast, which is located in the Blackland Prairie, is set apart by its deep and rich calcareous clays and clay loam. Before settlement, the prairie was made up of tall grasslands and very few trees, but with the eventual Anglo settlement, this land was largely tilled under to become cotton fields (Ewing 2016). The difference in charisma between the east and West Austin landscapes has continually influenced their evaluation, both in terms of where people desire (or can afford) to live, work, and play, and also in terms of which landscapes and ecologies deserve special considerations and protections (Busch 2017, Walsh 2007).

The central Texas region, which includes Austin, is also notoriously prone to flooding, inducing the army corps of engineers to dub the area "flash flood alley" as a spin on Texas' more famous "tornado alley" just a bit to the north. This propensity to flood happens in part because the steep updrift of the Balcones Escarpment causes rain storms to stall out over the area, often for days at a time, no matter what direction the storm front was headed. Storms have even been known to stall for an amount of time, move on, halt, and return to the escarpment to shed water a second time (Busch 2015). Furthermore, as I noted above, to the west of the escarpment, millions of years of erosion have left only the densest limestone near the surface. This causes a build up of water runoff across the Colorado River basin that drains an area of about 39,900 square miles (Clay and Kleiner 1952), leading to intense surges of rushing water.

In addition to the cataclysmic floods of the Colorado, Austin has many smaller floodplains associated with its many Creeks. The areas with highest likelihood for recurrent flooding include Shoal, Waller, Tannehill, and Boggy Creeks. While floods can become dangerous when landscapes and ecologies are misunderstood, they also play an important role in the life cycles of riparian ecologies (Pace 2021). In terms of Austin's notable record of flood

disasters, this can largely be attributed to the land use practices that have interrupted the ecological formations that had otherwise well-adapted to this long-running cycle of deluge and drought. That is, while geology plays a large role in determining the soils and their natural drainage capacity, urban development also entails clearing away vegetation and paving over otherwise permeable geological formations (Garner and Young 1976). This increases the amount of water that must be drained from an area within a given time interval. Austin's local creeks and streams are often not able to handle this increased recharge and an increase in flooding is often the result. Critical environmental historians have also shown how black enclaves tend to be sited in low-lying areas (Fiege 2014), and how municipal drainage works have converged with racist real estate practices to push black communities into flood plains (Colten 2006). As I will describe later in this section, these commonly noted outcomes of power relations can be seen in the development of Austin's racial geography as well (see also Pace 2022).

Figure 7: This 1891 illustration shows how the city was tucked between Shoal Creek (to the east) and Waller Creek (to the west) within plains of the Balcones Fault zone. It also shows how the development of the city clustered around cross-section of Congress Avenue and Pecan Street; the former of which traces the visible depression at the center of the prairie, and the latter of which passes through the Austin to Texas's eastern cities. which is relatively flat and level, compared to the more dissected landscapes of the Edwards plateau and Blackland Prairie. This image is publicly available at the University of North Texas's online Portal to Texas History.

1.2 BIRTH OF A CAPITAL: THE *DELUGIONAL* DREAMS OF EMPIRE

Austin's abundant water resources, and the associated lush, verdant landscape were largely the reason why the location was chosen for the Texas capital, and part and parcel of how the town came to be in the first place. In 1838, just before becoming president of the new Republic of Texas, Mirabeau B. Lamar had spent time hunting in Waterloo and the location's

beauty and ample game stuck with him. Thus, when he later commissioned a team to find a permanent spot for the Texas capital, he made sure Waterloo was on the list (Swearingen 2010).

This decision, however, was not made without resistance. Houston residents, including former president Sam Houston himself, were expectedly displeased with the capital being moved, as they hoped their own hometown would remain the capital site. They argued that moving the capitol to such an undeveloped backwater was risky both in terms of vulnerability to raids, invasion, and to precarious economics. However, Lamar had ambitions for a fully-fledged Texas empire to the west. And he populated the capital relocation commission with persons who shared his pension for westward expansion. And, as many thought moving the capitol to Austin would help encourage further Anglo settlement of Texas to the west, the Waterloo site was quickly selected. Not long after, the capital city was renamed "Austin" after Stephen F. Austin, who is widely considered the founder of (Anglo) Texas.

Austin's early settlers largely shared Lamar's vision and desire for empire. As, at the time, Austin was on, or actually outside the edge of Texas's anglo colonies, making it extremely vulnerable to raids of the Comanches and Apaches that often used the land as hunting grounds.[14] Thus, the fledgling frontier city tended to attract wealthy and industrious settlers with dreams of grandeur. And this pension for adventure set Austinites apart, in distinction, not only to the natives that had already occupied the land, but also to Houstonians, Dallasites, etc. that stayed in towns already settled.

[14] According to local community organizer and anthropologist, Dr. Tane Ward, the archaeological record shows that the Austin area is part of the oldest continually inhabited cultural territory in the Americas (Ward 2013). The oldest arrowhead point found in Round Rock is 14,000 years old, and the oldest continually inhabited sacred site in San Marcos (by the Coahuiltecans) is 12,000 years old (Ward 2013). Austin sits right in the middle. However, without any sense of irony, Austinites framed these indigenous people's raids of their camps and settlements as unwarranted invasions, rather than the other way around. Lamar, himself, was known for his particularly harsh and violent "indian policies." In his own words, "the barbarian race [requires] absolute expulsion from the country. The white man and the red man cannot dwell in harmony together. Nature forbids it" (Klos 2021, n.p.; partially quoted in Ward 2013).

When Lamar sent Erwin Waller to Waterloo to construct a plan for the town, Waller decided to nestle the town between the area's local water resources, using the Shoal Creek to the west, the Waller Creek to the east, and the Colorado to the south as the town's natural boundaries (see figure 7). As the town grew, the local hills, ridges, and waterways continued to shape decisions about neighborhood development.

The landscape was coded, invested with desire. Out of the 7,735 acres surveyed, Waller and his crew selected the 640-acre site as their location for the city's original locus (Humphrey 1976). They read the landscape, selected what was considered prime locale, tucked away between the creeks and the river, just to the east of the Balcones Escarpment, offering a magnificent view of Austin's western hills, romantically and haughtily referred to as the "violet crown" (Burleson 2011).[15]

The city was laid out as a grid, whose increments were shaped by local factors. Running north-south, the center of the town, Congress Avenue, followed a natural depression from the Colorado on up to the hill that would eventually host the capitol. The relatively steep inclines on both sides of the avenue gave the town a sense of symmetry and "augmented its linear nature" (Freeman and Freeman 1978). The capitol sat at the top of a hill (much like Capitol Hill in Washington, from which it was indeed inspired), and Congress Avenue (originally known simply as "the Avenue") fell away from this hill to the river. The street was set to be the widest in the town, at 120 ft., offering a grand view from the river all the way up to the capitol (Freeman and Freeman 1978). Congress Avenue's east-west companion, Pecan Street (now 6th Street), served as the major route through Austin to Bastrop, Houston, and other cities to the east (Freeman and

[15] The "city of the violet crown" became a common refrain for many of Austin's cultural elite, who often took to producing poetic descriptions of the landscape that drew upon the grandeur of antiquity. This particular refrain attempted to establish Austin as something of the "Athens of the South," referencing the Greek poets who described Athens as the "violet crown" of ancient Greece (Burleson 2011).

Freeman 1978). The early architecture along this cross section reflected the admiration of and desire for the grandeur of Rome, with the first permanent structures reflecting the revivalist architecture, influenced by Romanesque, Gothic, Renaissance, and Venetian styles (Freeman and Freeman 1978). Today, Congress and 6th Street still serve as the city center.

The pleasant aesthetics and symbolic resonance of this layout and design have long been remarked on approvingly by Austinites and non-residents alike (Barnes 2015). And yet, while Lamar and Waller intended to tuck their utopian capital city neatly into the natural setting, their reading of the physical geography was skewed by the relatively placid weather of their stay. Aside from the lush and verdant hills, Austin's (relatively) mild climate, compared to much of the rest of Texas, has also long been cited as a major attractor. Based on the ten-year averages of 2010-2019, January is the coolest month, with an average low of 41° F (5° C) and August is the hottest month with an average high of 100° F (38° C) (Osborn 2023). The average yearly rainfall is also a healthy 34.24 inches, and the growing season makes up 270 days of the year (Osborn 2023). However, the pleasant image presented by these latter averages are a tad misleading, when considering the region's regular drought-flood cycle (Busch 2017).

The state of Texas is notoriously prone to flash floods, holding 6 of the 12 records in the United States for the highest volume of rainfall within a 48-hour window (Busch 2017). In central Texas, this is compounded by the largely impermeable Glen Rose limestone foundation to the west, and the sharp rise of the Balcones Escarpment that tends to catch and stall storms over the area. Texas has also experienced some of the more severe droughts in US history as well. For example, while, usually the width of the Colorado river spans a couple hundred feet, a picture hanging in the Austin History Center shows a civil war soldier casually straddling the river (Swearingen 2010), and another of Austin's long-time residents has a famous picture from 1917

of his father doing the same (Hunt 2013). That said, visiting Austin at the right time of year, "the river might look placid and the entire landscape could appear absolutely verdant, similar to areas with higher, more consistent rain totals to the east" (Busch 2017, 22).

Part of the reasoning behind Lamar and Waller's choice of Waterloo as the new capital entailed the hope that the Colorado would be navigable, but this did not pan out, largely because of the unpredictable flow (Busch 2017). What's worse, in1843, just four years after the city's construction, the river flooded and destroyed much of its infrastructure, as well as damaging smaller agricultural settlements that had sprung up further down the river (Busch 2017). This first of many floods was Lamar's rather rude awakening to the fact that their chosen site was actually square in the middle of the Colorado's flood plain, and what seemed to the planners to be obvious and convenient design decisions turned out to be misguided.

A prime example was the city's proud and prominent thoroughfare, Congress Avenue. A wide, northward-running natural depression was chosen for the avenue, which, according to the perspective of William Sandusky, one of Waller's hired surveyors, "appears as if made by nature expressly for this noble purpose" (Barnes 2015). But this was also the lowest, central point of this part of the Rolling Prairie, and actually served as a natural drainage way to the river. Local branching streams crossed the avenue and dumped into the nearby Waller Creek. Construction along the avenue interrupted this flow, "and each new rain opened yawning holes, 'big enough to swallow a bulldog, donkey, juvenile elephant, etc.'" (Freeman and Freeman 1978, 1).[16] These drainage troubles continued to retard development as late as 1874, when local Congress Avenue

[16] Pecan Street, Congress Avenue's east-west companion, by contrast, was far more suitably chosen. It was situated far enough north to evade all but the most serious floods of the Colorado, while being southern enough to avoid disruption from the steep, dissected hillscape of northern Austin (Williams and Landon 1975). Thus, Pecan Street was chosen as the highway connection east through to Bastrop, Texas, and then on into the early eastern settlements (Williams and Landon 1975). As such it quickly became a thriving center of commerce.

residents “were startled to discover two springs of cold water suddenly appearing out from the curbstones” (Freeman and Freeman 1978, 1).

However, by the time Frederick Law Olmsted[17] visited Austin in 1854, he commented that it was “the pleasantest place we had seen in Texas” (Olmsted 1857, 110). He also noted the similarities of Austin and Washington D.C., not only “in the formality of its plan,” but also, importantly, in the verbalized “intentions of the Texans who had conceived of the city’s form twenty years before” (Freeman and Freeman 1978, 20). Indeed, the decision to move the capital of Texas to the small and vulnerable, backwater settlement of Waterloo was made for many reasons: for its beautiful scenery and ample water resources, for the hope that the Colorado would serve as a navigable river, and the hope that it would encourage further westward expansion and establish trade ties with Santa Fe, among others; but all of these rationales and desires were secondary to Lamar's desire for a great Anglo-Texan nation that could rival its US and European contemporaries, and perhaps even approach the status of those more extravagant empires of ancient Europe.

1.3 THE HYDROLOGY OF A PUBLIC UTILITY

> “The water supply of Austin has for a long time been furnished by a private corporation, which has been unable to give satisfactory service … . Having become satisfied that the water company, which already had a bonded debt of more than four times the cash value of its entire plant, could not replace its worn out machinery or increase its capacity, our people wisely determined to take the matter in their own hands and build a water and electric light system adequate for the needs of our growing city and commensurate with the importance of the capital city of Texas, and for that purpose voted for the issuance of bonds to the

[17] Olmsted’s opinion is notable, here, as he was a leading landscape architect of the time and pioneer of the City Beautiful Movement (Silva 2005).

> amount of $1,400,000 with a unanimity that stands unparalleled in the history of cities" (McDonald 1893, 3).

Today, Austin often tops the charts on the best US cities to live, cities of the future, best cities for jobs, and for young professionals. Residents proudly tout that the city is the "live music capital of the world" with a tech district—the "silicon hills"—that rivals silicon valley in California (Zimmerman 2013). However, this hasn't always been the case. In its early days, Austin was severely lacking in comparison to other modern US cities in terms of sanitation infrastructure, health code and safety regulations, and social services (Hamilton 1913).

While there was growing disappointment with this lack of infrastructure, Austin's low tax base posed a serious problem for any hopeful development. Given that Austin had a plethora of state or university owned land (that was exempt from property tax) combined with a general lack of major industry, the city simply lacked an adequate tax base to develop a public utility (Robbins 2013). Thus, in the early stages, public officials decided to outsource to private companies to satisfy the growing demand for this infrastructure. By 1887, the water utility branched out into providing significant amounts of electricity across the city, prompting the name change to the Austin Water, Light and Power Company in 1888. But the public was less than satisfied with the private utility's services which were both expensive and unreliable.

The above address, given by Mayor Jon McDonald to Austin's City Council in 1893, expresses some of the frustrations experienced by early Austinites, in dealing with a private water and electric utility. Many residents blamed this utility company for holding back Austin's development, in that the unreliability and high price of water and power made standard operations untenable. Thus, by 1890, the public had become convinced that damming the Colorado was the clear path forward.

The rocky canyons and ravines that had been cut into the Edwards Plateau above Austin offered ample choice locations to create reservoirs for controlling the flow and supplying water and power to its developing urban areas. An overwhelming majority of voters supported taking on a considerable amount of debt to construct this dream dam, hoping the cheap water and power would attract industrialists and Austin would become the "Lowell of the South" (Hunt 2011). Expectations were high and prospectors bought up riverside land below the dam with hopes of selling it to cotton mills. The city also constructed its first electric lighting system, in expectation of the new electricity, by 1895, with a series of 31, 165 ft tall lights known affectionately today as "Moonlight towers."

Though they managed to complete the dam by 1893, the flow of the Colorado proved to be more unpredictable than expected. As a result, the supply of power often waned to the point of failure for city lights and streetcars, making large industrial projects all but untenable. But the final nail in the coffin of Austin's dream dam came in 1900 when a surge of water from rainstorms upstream washed out the dam and tore it to pieces.[18] Sections of the dam washed into the power station, destroying it and killing at least 8 men inside (Hunt 2011). In total, the flood ended up causing $9 million in property damages, and killed 47 residents (Busch 2017).[19]

[18] In the years that followed the dam's destruction, a few more private dams were built, but these too would all succumb to the river's turbulence. The first long-lasting infrastructural development to enable Austin to break free of its liquid boundaries was achieved a few years earlier, in 1884, when a steel bridge was constructed followed by a trolley line (Freeman and Freeman 1978). While the bridge rendered crossing the river less risky, and therefore successfully enabled the development of Austin's southern neighborhoods, this did nothing to help control the river and secure the water supply in times of drought (Swearingen 2010).

[19] Developers were well aware that Austin's growth would depend on an extensive system of dams, but there was simply not enough money to finance such an endeavor. Thus, a truly adequate system of water-management infrastructure would have to wait until the shift in economic philosophy that inspired the New Deal. Lyndon B. Johnson, a native Texan that quickly learned to master New Deal politics, managed to garner federal funds for the construction of numerous dams north of Austin, along with many other important infrastructural projects (Busch 2017). Two of the most important dams were the Tom Miller Dam (completed in 1940) and the Longhorn Dam (completed in 1960). These infrastructural successes garnered Johnson much fame and recognition and launched his political career (Sansom et. al 2008). As of today, there are six Highland Lake dams that run along Colorado northwest of Austin, providing both the ability to dissipate floods and store potable water for periods of extended drought. The dams also enabled a steady source of hydroelectric power, providing electricity to the city.

Though this outcome was largely predictable, the city and people of Austin were devastated. They had put off many other public needs (paved streets, policing, fire departments, public health) to fund the project that now left them worse off than before. What is more, Austinites had fought tooth and nail against the private utility, for years, to get the bonds through and fund the dam. In the same 1893 address quoted from above, McDonald would proceed to describe the tactics and character of the water company's resistance to the dam as "a warfare upon the city, which for malice, meanness and mendacity has rarely been equaled. They used every means in their power to retard our work and prevent, if possible, the sale of our bonds" (1893, 4). Thus, having only just rid themselves of this tyranny, and having developed a taste of city-owned power, the public decided they weren't going back. And when the old Water, Light and Power Company offered to buy back Austin's assets to sell them power and water once again, the public refused. Instead, the City ordered steam generators to be shipped to Austin as city-owned assets, which would eventually enable them to recover their publicly owned electric and water utilities (Austin Energy, n.d.).

1.4 REFRACTED WHITENESS: A DISPERSION OF COLOR

Since its foundation, Austinites have dreamed up spectacular and fanciful machinations for the city's future. As the previous section detailed, one of the early schemes entailed dreams of hydro-powered industrial manufacturing, which was par for the course at the time, for any up and coming city. This, of course entails the drawing in of a capitalist class willing to invest in the area. Thus, alongside the dreams of grandeur, Austinites also engaged in a furtive propaganda effort, playing up the location as a site that "rivals Rome" in its abundance of resources, fertile soils, and picturesque landscape (Austin Board of Trade 1894). In fact, reading through these old

attempts to market the City of Austin, it becomes hard to distinguish what these authors actually believed, and what they wanted their audience to believe about the area and its potential.

Aside from the rather striking hillside landscape, Austin lacked many of the "natural advantages" of other cities undertaking modernization in Texas and elsewhere (Busch 2017). The land had no real mining potential, and the location was not at a port or at the nexus of trade routes like Dallas and San Antonio. Thus, unlike the Dallas-Fort Worth and the Houston-Galveston metroplexes, Austin emerged as a global center without a manufacturing or industrial base. Instead, Austin has taken advantage of the government jobs associated with the state capital and the production of knowledge and arts from the flagship University of Texas campus. Indeed, as Swearingen notes (2010), from its very infancy, the aesthetics of the Austin landscape combined with the vibrancy of the population were identified as the twin pillars of the city's growth (Swearingen 2010).

And yet, there was another, at least equally important pillar that would be put towards Austin's growth: the pillar of racial difference. And much of this has to do with the spatial arrangements that exposed communities of color to greater degrees of environmental risks, while also shaping their desires and strategies of/for resistance. While environmental racism typically focuses on the siting of pollutive industries near communities of color, a more recent turn has taken to considerations of how the environmental vulnerability of communities of color have also been produced by restricting access to safe and desirable property, and restricted access to infrastructure and education that increases these community's risk of exposure in natural disasters (Tretter and Adams 2012).

Much of Austin's early population growth did not come from capitalist investors, but rather from the influx of Black and Mexican immigrants who were, themselves, fleeing from the

ravages of colonialism and racial capitalism. The early settlers and residents of Austin tended to already be on the wealthy side, and therefore, many owned enslaved persons (Busch 2017). After the Civil War, Austin was also the site of many early freedmen colonies, as these former slaves headed west to venture off from the east-Texas plantations of their former owners. As a result, Austin had a relatively high percentage of black residents in comparison to most other large to mid-sized Texas cities in the 19th century (Busch 2017). And as the majority of these newly freed families traveled to Austin from the corn and cotton plantations to the east, many of them stopped and settled on the cheap low-land, riparian landscapes of Waller Creek on the eastern side of town (Pace 2021). Indeed, three of Austin's earliest freedmen communities (Pleasant Hill, Mason Town, and Robertson Hill) were located on this eastern edge.

Austin's Mexican population was, however, relatively sparse until after 1910 when the Mexican revolution induced an appreciable exodus from northern Mexico into Texas (McDonald 2012).[20] Before the revolution, there were some patterns of migratory labor in agriculture for many years but these laborers did not usually set up a permanent residence in the area. However, with the construction of a railroad network across the US, the economies of scale encouraged larger farms, which induced new kinds of relations between farmers and laborers (McDonald 2012). More generally, the railroads turned Austin, temporarily, into a trading hub, inducing the burgeoning of jobs and the eventual doubling of the city's population between 1870-1880 (Pace 2021). With the influx of new residents and labor needs, rather than depending on family networks, farmers began to favor Mexican laborers due to their willingness to work for less pay and to other common stereotypes about work ethic (McDonald 2012, Busch 2017).

[20] Though, historians debate as to whether the Mexican Revolution was a "primary cause" or more a catalyst of this migration, as many immigrants' self-professed rationale for moving was "to make more money" (McDonald 2012, 26).

The settlement patterns of Austin during this period were racially coded, with early Black and Mexican residents living in the riparian flood plains, along creek shores, and in other various properties considered less desirable.[21] In the years following 1910, Mexican immigrants began to congregate in an area that residents began to refer to as "little Mexico" (McDonald 2012). This area, at the intersection of Shoal Creek and the Colorado River is also one of the most flood-prone areas of the region (Pace 2021).

Across the city of Austin, hauling water up from the river for use was still common practice up through 1870's (Robbins 2013). Sewage was dealt with by cesspools and outhouses that often polluted the groundwater people used for drinking. As a result, typhoid fever, a disease contracted from contaminated drinking water, was 250% higher in Austin than the national average (Robbins 2013). What few and haphazard waste removal services that were provided to Austin residents were restricted to white communities and often dumped this waste in or near the city's Black and Mexican neighborhoods (Busch 2017). Thus, while rates of typhoid and tuberculosis were rampant throughout Austin, your chances of contracting such diseases more than doubled if you were not of Anglo descent (Busch 2017). Notably, strong measures to clean up the city and improve its sanitation infrastructure wouldn't be taken until the summer of 1912, when the disease began affecting Austin's white communities (Pace 2021).

Recommendations made by Austin's first sanitation survey, conducted the following year by William B. Hamilton suggested constructing new water and sewage systems to address the typhoid epidemic, tearing down shanties built in flood plains, developing parks out of these former shanty towns into public parks, and paving the streets (Hamilton 1913). Hamilton identified these "overcrowded" shanty towns as "the Mexican settlement between Colorado, Rio

[21] See Pace (2022) for a map of Mexican and Black households in Austin, Texas in 1880, as well as a detailed discussion of this settlement pattern and its ties to racial capitalism.

Grande, Fourth Streets, and the river front; and also of certain districts populated by the negroes and Mexicans along the banks of Waller Creek" (Hamilton 1913, 48). And he described them as "breeding places for moral and physical degeneracy, contagious diseases, and crime" (Hamilton 1913, 48).

Over the next few decades, farming to the east of Austin, on the Blackland Prairie, would increase considerably, enabled in part by the construction of new, sturdier bridges crossing over Waller Creek, constructed in part with funds the municipal government garnered from their newly established tax base (Pace 2021). By the mid-1890's, East Austin's Black communities were beginning to thrive, having established two universities and the city's only black highschool. This drew substantial pull of Austin's Black community to the east side. That said, at this time, many black communities were still interspersed throughout the city, often living in close proximity to white neighbors (Busch 2017). These Black residences were not yet resisted by their anglo neighbors, in part, due to the fact that white privilege was firmly protected through the strict institutional inequalities bolstered by the Jim Crow laws. Black residents lived in "society" but were precluded from participating in social life: i.e. public politics. Furthermore, the Anglo elite considered it essential to have black communities nearby to serve as a pool of domestic and unskilled laborers (Busch 2017).

1.5 A REGROUPING: WHITENESS AT A DISTANCE

However, with the advent of automobiles and the production of suburbs, communities began to desire white-only spaces, developing new suburbs outside the original plots (Tretter 2012, Myers and Brown 2021). By the 1920's, new "streetcar and, later automobile, suburbs" like Travis Heights, located just across the Colorado from downtown Austin, had begun to spring

up in order “to meet the transportation needs of commuters” (Myers and Brown 2021, 141). This would bring about a profound shift in the way the landscape and its settlement patterns were viewed, valued, and enrolled in struggles of domination and resistance.

Influenced by the 1920’s culture of progressivism, Austin's newly established tax base, and the now burgeoning automobile culture, the City of Austin hired Koch and Fowler to conduct a study using the new techniques of urban planning, which they had hoped to help resolve their backwardness. Koch and Fowler identified new potential neighborhoods at the outskirts of the town. One such site included the high bluffs of Shoal Creek, which they deemed as “very desirable residential property” (1928, 29). That said, Shoal Creek is also marked by deep valleys, “in varying widths,” which these developers considered “not particularly desirable for residential use” (1928, 29). But as these lowlands were “considered very cheap,” and could “be acquired for a reasonable figure”, they suggested the City purchase the land in order to turn the area nearby these residences into a park with a luxurious park avenue, intended to provide automobile users with pleasant views as they drove (Koch and Fowler 1928, 29).

A similar scheme was also planned for Waller Creek, which, due to its propensity for violent flooding to wash away bridges, had long been Ausitn’s eastern urban edge (Pace 2021). But, in this case, development would entail “the acquisition of certain cheap property along the banks of Waller Creek,” which wasn’t deemed a problem as “most of the property [that was] needed [was] occupied by very unsightly and unsanitary shacks inhabited by negroes” (Koch and Fowler 1928, 28).[22]

[22] But, unlike Shoal Creek, these plans to develop Waller Creek were not brought to fruition, in part because the slope of the creek had been so badly disturbed that construction was considered too dangerous. As a result, Black communities and businesses continued to thrive in these lowlands for decades to come (Pace 2021).

But what to do with all of these displaced residents of these former slums? Koch and Fowler's decision here reflects the general spatial strategy of racial capitalism in the era, marked by the relocation of communities of color through the restricted provisioning of infrastructure to certain segregated districts (Massey and Denton 2003, Tretter 2012): "In our studies in Austin we have found that the negroes are present in small numbers, in practically all sections of the city, excepting the area just east of East Avenue and south of the City Cemetery. This area seems to be all negro population. . . . [T]he nearest approach to the solution of the race segregation problem will be the recommendation of this district as a negro district; and that all the facilities and conveniences be provided the negroes in this district, as an incentive to draw the negro population to this area" (Koch and Fowler 1928, 56; quoted in Pace 2021).

Thus, with these words, the City of Austin's 1928 Plan is the first instance where residential segregation was codified, and eventually written into the city's racial geography. And, even though the Supreme Court decision in Brown v. Board of Education (1954) legally prohibited segregation, this particular segmentation of Austin's social space proved quite durable, as I-35[23] continues to mark a clear edge between and Austin's communities of color to this day.

What is more, as this plan also zoned East Austin for mixed use, environmental risks have been disproportionately distributed to East Austin, consistently subjecting Austin's Black and Brown communities to diverse environmental hazards, ranging from petrochemical storage facilities, manufacturing, power production and other forms of industrial pollution, to recycling and waste management. Thus, while Austin has a well-known reputation as an environmentally responsible city with a high standard of living and a wealth of nature preserves, parks, and green

[23] East Avenue would eventually be converted into the Austin segment of Interstate Highway 35 in the 1950's (Pace 2021).

spaces for outdoor sports and recreational activities (Swearingen 2010), these benefits have not been as accessible to Austin's BIPOC populations (Walsh 2007).

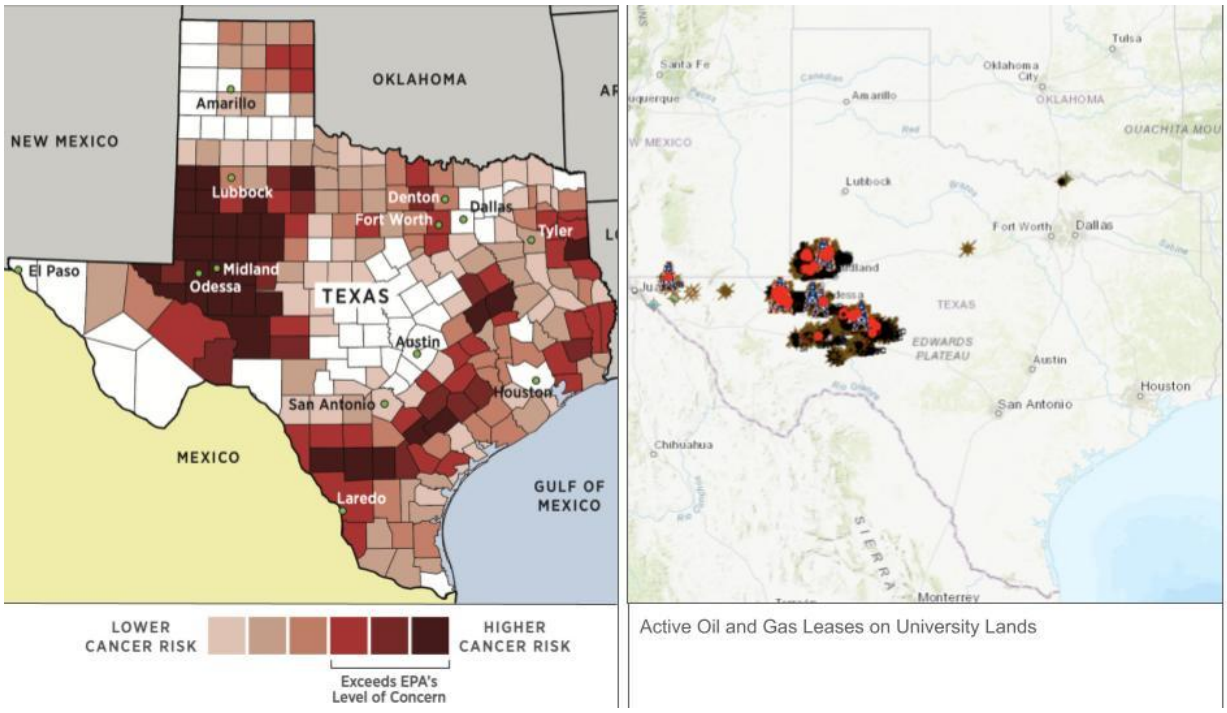

Figure 8: This image, created by the author, juxtaposes a data visualization created by the Clean Air Task Force on cancer risks from the Texas oil and gas industry with a data visualization of active oil and gas leases on University Lands, the fiduciary steward of Texas' Permanent University Fund. Ever since oil was struck on university property at the Santa Rita No. 1 in 1921, the oil and gas royalties garnered by the Permanent University Fund have been used to develop the University of Texas system.

At a grander scale, but also much like how Austin relegated the city's environmental risks to its eastern corridor, the City of Austin has benefited greatly from the production of environmental hazards that are even more displaced from Austin's residents and its cherished landscapes and ecologies. For instance, the vast oil and gas resources controlled by UT Austin, the flagship university of the University of Texas system, have long been deployed to acquire or develop infrastructure to attract high-tech industry to the city (Tretter 2016, Robbins 2003). And

shown in the above map, the locations of these oil and gas leases correlates strongly with the highest rates of cancer risk due to air pollution in the state (see figure 8).

1.6 GHOSTLY DESIRES OF DEVELOPMENT AND DISASTER

In the five discussions above, I have tried to tell a repetitive story to produce an argument in form, an argument that identifies a rhythm of development and disaster. It's a rhythm of destruction and resuscitation, of dashed dreams that crumble in the wake of unforeseen events and forces… but not completely. In each refrain, the story describes an arrangement of desire and the strategies and actions developed to fulfill that desire in ways that both reflect and respond to the concurrent relations of power of the era. And, in each case, the arrangement of desire encounters a block, frustrated to the point of the arrangement coming undone, being unable to persist in the same way that it had before. And yet, even after this unraveling, a shape of that desire persists as if it were the same, but in new form; like a ghost of its former self.

For instance, Lamar's desires for Austin were nested within an assemblage of Anglo-Texas empire, and he and his city planners designed the city with an eye and an air of nostalgia for the ethnic-empires of European antiquity. And this manifested in the design of the original plan as well as the style of the architecture and the dreams and discourses of its residents. The birth of the "violet crown," of Austin as the Athens of the south. Thus, though Lamar's original imperial desires did not manifest, a fraction of that desire did persist in the successful establishment of Austin as Texas's capital and as a major US city. Furthermore, Austin survived in and through capitalizing on its varied cultural, geo-climatic, and economic distinctions that had set the city apart from the rest of Texas. And, in a sense, this is, itself,

Austin's variation of that hyper-Texan spirit of autonomy and exceptionalism, though with its own refined flair and gusto.

Half a century later, Austinites have largely abandoned the pursuit of empire and the retro-gaze towards antiquity as a wellspring of identity and inspiration; the arrangement shifts to a more industrial capitalist mode of desire. That is, the dream is no longer "Athens" but rather to become the "Lowell of the south" (Hunt 2011).[24] And, accordingly, the desire shifts from mimicking the grandeur of the past to becoming cutting edge of the future, from colonization and controlling of new lands to the construction of modern infrastructure and conveniences here "at home." And yet, still with a similar adventurous gumption that lead to Austin's settlement in the wilderness, Austinites make tremendous sacrifices to raise the funds for investing in a grand public utility, powered by a modern hydroelectric dam that would provide sufficient water and electricity for a hopeful cotton mill industry, with plenty to spare for local amenities as well. But, once again, the unpredictability of the Colorado River thwarted these ill-conceived dreams. The dam is overcome, flooding the city, once again, with death and destruction. But, at the same time, in the interlude, Austinites develop a taste for the power of public utilities. Thus, even with the loss of their investment, and with it their dreams of modernization and industry, there is a significant survival. Austin maintains ownership of their utility, and Austin Energy becomes one of the oldest and longest-running public electric utilities in the state of Texas.

So, here we are at the turn of the century. Austin is still suffering from a lack of public infrastructure and a lack of public finances, due to the substantial losses from their investment in the 1893 dam. Austin continues to grow all the while, primarily from the influx of Black and Brown immigrants fleeing the disparate forms of violence from whence they came. As the city crowds, dispersed slums develop throughout the city, and formerly suitable modes of waste

[24] Referring to the expansive textile industries of Lowell, Massachusetts.

become unsustainable. Soon, the disease and the considerable squalor produced by overcrowding, which were once relegated to Austin's lower classes and communities of color, began causing more and more trouble for the local white elite (Pace 2021). Jim Crow laws were in full swing and, accordingly, contemporary biopolitics of sanitation included keeping "whiteness" homogenous and separate from other races and ethnicities. At the same time, increasingly affordable automobiles begin hitting the Austin market, inducing a new desire in the form of white flight and suburban sprawl, along with all the transportation troubles that come along with it. Thus, being the height of the progressive era, Austin hires a consulting firm, Koch and Fowler, to utilize the new sciences of urban planning to help address their yawning desire for "white public space" in the form of greater segregation, sanitation, and transportation.

As we know, the civil rights movement would eventually (and painstakingly) succeed in overcoming legal segregation. However, the quotidian level patterns and practices that had produced Austin's segregated racial geography, as well as "whiteness," as a hegemonic arrangement of desire in Austin, were both largely left intact. And that's the case, in part, because the one implies the other. As environmental justice activist and Austin local, Lauren Ross, once described, whiteness is more than just an identity or an attribute, it's also "a measure of the distance from the violence that it takes to support our lives" (Ross 2018).[25] But this "distance" need not be spatial. As David Theo Goldberg has noted, the United States' lingering and unrecognized apartheid is due in part as a result of *distance* being qualified by geographic locations or in spatial measurements rather than by the *difference* established through "reinvented articulation of racist concepts" (Goldberg 1993, 203). Thus, the "distance" afforded

[25] Having long been involved in the fight for racial and environmental justice, Ross learned this frame of thinking from her work with an indigenous activist at Standing Rock. See Chapter 4 for a more enduring discussion of Ross's perspectives and activism.

by whiteness can take the shape of separation in many different forms: temporal, linguistic, emotional, cognitive, or financial, to name just a few.

Across these stories, this distance has been a friction, one that catches up with those who, at the onset, were its benefactors. Austinites' various solutions to the technopolitical-ecological problems of the present, problems that have, themselves, been posed by the unintentional disruption of the Austin quadrangle's plateaus and assemblages in the past, these solutions are, at every stage, a redistribution of the environmental risks of urban life along the Colorado River in Central Texas. In other words, these solutions are not so much solutions as they are postponements of future disasters, facilitated by relegating the problems of contemporary infrastructures and social structures, that racial capitalism produces and depends upon, and that impacts disparaged bodies first and to the highest degree but eventually begins to escape the barriers that had been designed to maintain "the distance" that whiteness affords.

One contemporary example of the collapse of this distance can be found in the Texas power crisis, which, as I will discuss in the following section, serves as yet another example of the way disasters reveal unequal distributions of environmental risks that have been there all along. And, though communities of color still suffered the brunt of this disaster, what this crisis also reveals is how the petro-capitalist infrastructures designed to produce the seamless, smooth, space-time of racial capitalism have, all the while eroded the plateaus upon which these infrastructures depend, to the degree that the capacity of the Electric Reliability Council of Texas, and other formerly effective modes of infrastructural governance have failed to maintain the "distance" which had heretofore protected Texas' more privileged populations from the ravages of the forces of the outside.

2. THE GRID: A PETRO-RACIAL CAPITALIST TIME MACHINE

Figure 9: This image was taken from CultureStrike, which is the InstaGRAM handle of The Center for Cultural Power.[26]

The above image shows a picture of Austin, Texas during the February 2021 polar storms, serving as a powerful representation of the (infra)structural inequality manifested in the City's system of emergency response. The empty office buildings of downtown Austin are shown lit up. East Austin, by contrast, which is home to much of Austin's Black and Latinx

[26] This image went viral on social media shortly after the storms. The City of Austin and Travis County explained the image by noting that "multiple neighborhoods, including historically affluent communities, experienced power outages, not just East Austin," but that "essential services relied on maintaining electricity to downtown and the Capitol Complex" (2021, 8). The Officials also stated how they had "urged conservation from other downtown facilities" (2021, 8). In reproducing this image here, I am not trying to argue that East Austin was consciously and intentionally subjected to blackouts, in order to spare other, more affluent and "whiter" communities. Instead, I am using this image to demonstrate the way racial and other social inequities are built into the sociotechnical systems in ways that shape the ethical plateaus of energy governance and emergency response.

communities, is a sea of darkness. This image exemplifies how, as an assemblage of desires, technologies, and techniques, the grid both materializes the ethical issues of petro-racial capitalism and promotes its problematic solutions.

Following up on numerous reports of racially biased distributions of risk during Texas' February blackouts, a study by Carvallo and colleagues provides empirical evidence of the degree to which people of color were disadvantaged (Carvallo et al. 2021). The authors identify a general lack of publicly available data on the locations of blackouts, especially at a granularity that would allow scholars, activists, and other interested persons to make correlations to the racial makeup of these communities, or other important demographic factors. The authors argue that this lack of data and lack of access to data plays an important role in mystifying–and therefore reproducing–the material conditions that underwrite structural racism in the United States.[27] Controlling for both income level and the presence/absence of critical infrastructure, however, they found that communities of color were four times as likely to experience an outage than predominantly white communities. Furthermore, they argue that current rationales for explaining the locations and distributions of blackouts cannot account for this finding, suggesting the need for further research into how and where racial bias has been baked into the energy system and its methods and strategies of emergency response.

In the previous section, I traced the long history of whiteness in Austin through the unequal distributions of environmental vulnerabilities between Austin's white communities and their communities of color. I did so by taking up a recent shift among urban environmental histories of racial inequality from focussing purely on the sociolegal techniques and strategies of

[27] The authors of this study generated a brilliant method of producing their own data on this topic. Using satellite imagery, these scholars were able to compare the distributions of lighted areas before, during, and after the storm to pinpoint blackout locations and durations. They then used the EPA's Environmental Justice Screening tool to combine this data with the demographic data collected at the level of Census Block Groups.

division “to also think of Jim Crow landscapes in terms of topography, drainage works, streams, and flood control” (Pace 2021, 609).[28] In this section, I will be reproducing an analysis of this rhythm of development and disaster towards a critique of the ethical plateaus that enabled, rationalized, and justified the decision to cut power to certain neighborhoods in Austin, while highrises and office spaces downtown were left running: how did this become the “ethical" move?[29] To understand without excusing these responses, which resulted in close to 86 deaths in the Austin area alone (Alund 2021), this section repunctuates the infrastructural history of the Texas grid failure, and Austin’s role in it, to conjure the petro-ghosts that still inhabit the interstices of Austin’s environmental liberalism, and its regime of divisible governance.

2.1 AN ISOLATED GRID

The Texas Power Crisis points back to deep seated issues related to the structure and operation of the Texas power grid and energy market, which was designed to operate at the brink of failure, in order to keep average costs low and maximize the potential for profits during high "pricing events." Unlike many other Independent System Operators (ISO), which often combine energy markets with capacity markets to ensure greater grid reliability, the Electric Reliability Council of Texas (ERCOT) uses the price signals of the energy market alone to manage grid reliability.[30]

[28] Similar to how Pace analyzes the way Austin’s early forms of environmental racism took shape around absent infrastructures that exposed communities of color to flood hazards, the Texas power crisis shows how the lack of grid infrastructures similarly spatialized racially unequal distributions of environmental vulnerabilities.

[29] As Neil Smith argues in his analysis of Katrina, “In every phase and aspect of a disaster—causes, vulnerability, preparedness, results and response, and reconstruction—the contours of disaster and the difference between who lives and who dies is to a greater or lesser extent a social calculus” (2006, np).

[30] This information on the design of the ERCOT market is reproduced here from the author’s fieldnotes, which he took during an in-depth lesson on the market given by Mike Enger of Austin Energy during Austin’s Electric Utility Commission’s 2019-2020 Resource Planning Working Group meeting on November 7, 2019.

For instance, PJM (another ISO, operating in the northeastern US) has a capacity market that projects and procures the projected amount of energy needed three years in advance of the day it will be delivered (Robinson 2021). In doing so, they are typically over-budget by about 21%, creating a substantial safety reserve. The costs of this reserve are then recovered through the charges made to ratepayers through their monthly bills (Robinson 2021).

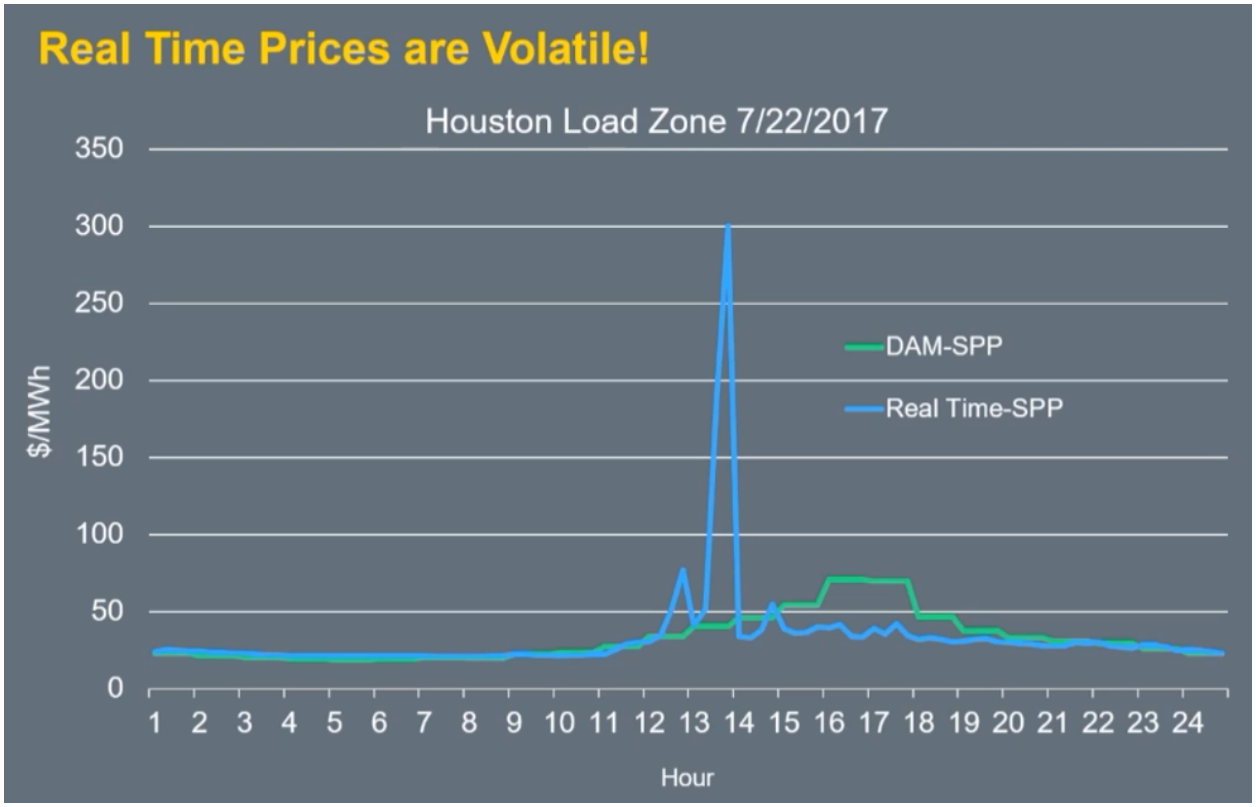

Figure 10: This screenshot was taken during an ERCOT wholesale market training.

In Texas, there is no such capacity market. Instead, Texas manages its marginal reserve by taking the full capacity for energy production in the state and subtracting the projected "peak demand." This "energy only" market, as it is often called, means that energy operators are only paid for the energy they put into the market at the price reflected by the energy demand at that

precise time. This creates a volatile market in which energy prices fluctuate wildly, with the final cap set at a whopping $9,000 per Megawatt hour (for comparison, the average price was about $22 per MWh in 2020 (EIA 2021)). Accordingly, this creates a supremely tough environment for planning into the future at all, especially in regard to timing larger and longer-term investments like the construction of new cleaner and greener power plants, the weatherization of existing plants and transmission infrastructure, or other such investments. By contrast, capacity markets allow for a steady, fixed stream of income from ratepayers that can be budgeted and invested over an extended period (Robinson 2021). Thus, there is a real sense in which the Texas energy market dissuades power generators from attending to maintenance issues or for investing in things like winter weatherization, which will be expensive, hard to recoup, and (especially for many Texas generators) only necessary for a handful of days a year, or even less.

Usually, Texas' reserve hovers at about 12-15%, which is about the same as ERCOT's neighboring ISOs (NGA 2021). However, there is another marked difference between Texas and these other ISOs: a notable lack of interconnections. For instance, in an emergency or a power shortage of some kind, both the Southwest Power Pool and Midcontinent ISO have substantial capacity for electricity to flow between these otherwise independent control areas (NGA 2021). ERCOT, by contrast, has only a handful of DC ties to other systems, with very limited capacity to bring in or send out energy across these interconnections. In that sense, the Texas grid operates more like an "island system," like Hawaii, or New Zealand, which do not have the option of bringing in power from elsewhere. For this reason, these island control areas are forced to maintain a substantial reserve margin, almost double that of Texas' 12-15% (NGA 2021).

So, why doesn't Texas interconnect? Well, that has to do with the long-held value for independence. That is, by limiting these cross-state interconnections, Texas has been able to

avoid federal oversight, offering the state an impressive amount of political autonomy over its power system. However, in a paradoxical way, this very "Texan" desire for autonomy at the federal level, to be even "more autonomous" than the rest, combined with the emphatic preference for market-driven energy governance (supposedly to keep prices low for everyone), has actually restricted Texas capacity, at the state level and below, to ensure safe, affordable, and especially equitable access to electricity; a fact made most evident during the 2021 crisis.

2.2 ARTICULATING THE TEXAS GRID

Early electricity production began in Texas in the 1800's when utilities were formed to supply power to the compressors used to make ice.[31] As these utilities grew, they began to sell their excess energy to eager city residents, which eventually turned into the establishment of electric utilities.[32] Up until World War II, these Texas utilities, like other utilities around the US,[33]

[31] In non-photovoltaic generation, electricity is generated by passing a conductor through a magnetic field, which causes electrons to move as a current or flow through the conductor. The power to turn an electric generator comes from a prime mover, which could be a flow of air or water, combustion of gas, the production of steam by coal or nuclear-power, etc. Solar panels work a little differently but in either case, the process of generating electricity is transforming one form of energy to another. The reason why electricity was chosen as the gold standard form of energy is because it is the easiest to move across long distances and distribute to an end user (Bakke 2016).

[32] At this time, and for the next hundred years, electric utilities were designed and operated as vertically integrated utilities, meaning that the utility owned the generation assets, the transmission and distribution lines, and therefore had a monopoly over the sale of electricity within a specified territory. This also meant that these individual utilities were in charge of scheduling and dispatching electricity to match current load. See this video of ERCOT's history on the organization's website (ERCOT n.d.).

[33] The first development of something like a public electric grid took place in New York when the Edison Illuminating company built the Pearl Street Station in 1882. This small grid, only about a sixth of a square mile, had the single purpose of powering 400 street lamps that served a meager 82 customers (Bakke 2016). For a time, there was no "centralized grid," but rather a slew of overlapping electricity companies that created a complex mess of competing interests, technologies. As Bakke puts it, "America was in this brief moment before the arrival of the rotary converter in danger of having nothing like a national grid, nothing like municipal grids, but just a mess of competing interests and inventions, mechanical systems, and investor preferences" (2016, n.p.). From these modest beginnings, a centralized generation design was established that became the model for all forthcoming electric grids.

operated as isolated control areas. Then, as a way of supporting the war effort, several utilities agreed to operate together, forming what was called the Texas Interconnection System, to enable any excess energy from central and north Texas to be sent to the ports along the gulf coast. Recognizing the reliability advantages of interconnection (i.e. neighbors could now help supply power to each other when assets went offline), these utilities stayed interconnected after the war.

Another pivotal moment in the history of the Texas grid took place after the Federal Power Act in 1935, which established Federal control of energy that crossed state lines. In response, the utilities of Texas decided that no one would send power outside of Texas. In that way, they created a sort of electrical island, where the Public Utility Commission of Texas was the single regulatory authority. This independence has been jealously guarded ever since. As of now, there are 5 DC ties in ERCOT that connect the Texas grid to other interconnections. These ties enable energy transfers in both directions. However, very little power actually travels across these connections. In hot summers, ERCOT may pull power in from Mexico or other states. At other times, they may send power out because they have an abundance. This spatial arrangement of isolated grids is actually quite similar to the way the Texas grid used to operate internally as well, across its relatively isolated utility control areas.

Within Texas, the notion of a state-wide “grid” began to take shape with the establishment of the Electric Reliability Council of Texas (ERCOT). The council was established in 1970, just five years after one of the worst blackouts in North American history struck the Northeast. The federal government took the blackout as an indication that utilities needed more holistic oversight and established the National Electric Reliability Council (NERC). One of the first moves of this council was to break down jurisdiction to further regional councils. ERCOT would be the regional reliability council for Texas.

Though the NERC was established in response to the blackout, the Texas utilities' decision to develop ERCOT was really motivated by the federal mandate much more so than an actual concern for reliability. Indeed, even with this new, higher level of organization, each individual control area within ERCOT still managed its own reliability and served its own load. In this model, the rates paid by energy customers were directly determined by operative costs of the different assets and the fuel costs of different generation mixes. Thus, at this point, there was no real "energy market" to speak of. Cities, co-ops, or private utilities simply owned their own assets and their citizens paid rates that enabled the utility to cover the cost of production. Buying and selling across these control areas did happen, but it was uncommon and more often than not took the form of an exchange in kind (megawatt for megawatt), rather than a contracted purchase of energy over time. As Michael Enger, Austin Energy's Energy Market Manager, once remarked, "I don't want to say a gentleman's agreement," but it was less a "market" in the typical sense of a domain for profit driven buying and selling and more of a social norm and expectation that "one control area [would help] out another control area to keep the lights on and maintain reliability."

2.3 DEREGULATING THE TEXAS ENERGY MARKET

In 1995, legislation passed that deregulated Texas' wholesale energy market. This meant that Texas' individual control areas could now regularly enter contracts to buy and sell energy to other utilities in order to help serve load or to generate revenue. For instance, in Austin back in the late 90's, the city had excess generation. Thus, Austin Energy was able to sell this energy to other entities in order to drive down the rates paid by local Austinites. Retail, however, was still

managed through regulated monopolies, meaning that the end customers' access to electricity was provided by a single utility.

Then, in 1999, Texas passed Senate Bill 7 which deregulated retail load in Texas in addition to wholesale. At this point, all investor owned utilities had to unbundle into a transmission and distribution company, a generation company, and a retail provider company. In 2001, after SB7 passed, the grids' control areas were consolidated into ERCOT which became an Independent Systems Operator. As an ISO, ERCOT took on several new responsibilities including the responsibility for maintaining system reliability, for providing open access to transmission for all load serving entities, for switching retail providers (in deregulated areas), and for wholesale market settlement and the delivery of electricity. Texas established a unique model for running a deregulated electricity market, one that had been designed explicitly against the failed market designs deployed in California just a few years before. The California model had extreme consequences for both grid reliability and for being able to hold their utilities accountable for damages from under-maintained equipment.[34]

[34] What happened in the late 1990's in California was the deregulation of wholesale energy, which meant that utilities' monopolies over generation, transmission, and distribution were busted up. Investor owned utilities (IOUs), like PG&E, were forced to dramatically decrease or even completely desist from energy production, and therein forced to buy most of their energy on the newly established, deregulated wholesale market. There was also initial talk of eventually deregulating the retail market on top of the wholesale market (which is the case for most of Texas), but that idea was thrown out after the energy crisis in 2000-2001.

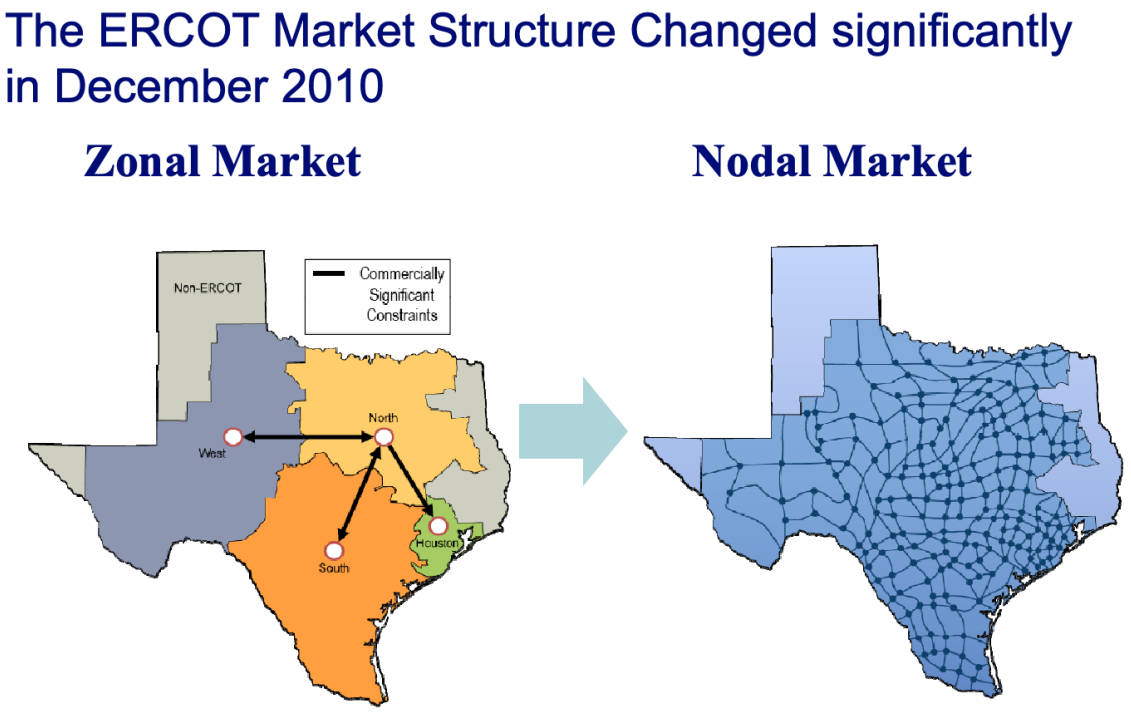

Figure 11: This slide was taken from a presentation given by Pat Sweeny of Austin Energy on May 16, 2011.[35]

At first, Texas had a zonal market structure made up of 4 zones: West, North, Houston, and South. Across these zones, wholesale power trades were subject to centralized scheduling by ERCOT, which used this authority to maintain reliability. After a few years, this zonal market was decided to be too inefficient. As trade was only scheduled and settled at the zonal level, entire zones were being fiscally punished for congestion that might actually be quite discrete. In 2003, PUCT ordered the development of a new *nodal* market design that was more similar to the markets in the North East and California. The market was scheduled for 2008 and it came online in September of 2010. In the new nodal market, financial exchanges do not take place between parties. Rather, ERCOT is the supreme mediator. That is, all generation is sold to ERCOT and all load is purchased from ERCOT.

[35] Find a link to the presentation here: https://www.austintexas.gov/edims/document.cfm?id=152729

From ERCOT's perspective, this new market structure offered two main advantages: 1) A greater ability to control for contingencies in balancing energy production with demand, and 2) a greater ability to pinpoint congestion and price accordingly. ERCOT manages these operations by dispatching more and more assets, economically (from lowest cost up to the highest), as demand increases. That is, every load serving entity will have a price that they offer for their energy. ERCOT will send the signal to dispatch energy based upon the price to which that energy has been offered and the demand for energy at that time, where the lowest is dispatched first.[36]

2.4 AN ISLAND WITHIN AN ISLAND

Within the ERCOT's "island" grid and energy market, Austin Energy serves as another, different kind of "island." That is, unlike many competitive regions in Texas, Austin's utility is municipally owned and operated. This effectively means that Austin Energy has a monopoly on electricity provision within their service area, which they are in charge of managing under the direction of Austin's City Council. This structure offers Austin more democratic control over the way they produce, distribute, and consume electricity, allowing for planning processes like the Resource Generation and Climate Protection Plan, which generates goals and guidelines for the utility to follow in performing the city's transition to renewable energy.

[36] In truth, this is the market's "ideal," but it can never be fully realized. That is, electricity is not dispatched purely economically and in real time, not exactly. Instead, ERCOT dispatches generation through a security-constrained economic dispatch. They consider their system through what is called an N-1 Contingency: if any one asset or power source went offline, ERCOT would still be able to produce and distribute the grid load effectively with what they have left. So, the goal here is to balance generation and demand in near real time to avoid frequency shifts that burn out transmission wires, which is when assets go offline and start causing blackouts. Thus, the price that each node is receiving is the market telling the generator whether they want that generation or not based on 1) where the asset is located, and 2) on ERCOT's system conditions at the time.

Cary Ferchill, who was chair of Austin's Electric Utility Commission at the time of my fieldwork, often commented on the fact that Austin Energy is regularly referred to as a "regulated utility." However, as stated earlier, ERCOT determines the dispatching of all wholesale energy in Texas. Thus, despite this democratic control at the retail level, Austin Energy must still operate within the ERCOT market at the "wholesale" level. That is, first and foremost, Austin Energy produces and sells electricity into the ERCOT market at the current market price. They then *buy this electricity back* from ERCOT in order to finally sell this electricity to their customers. Because of this, there is only a round-about, and somewhat fictitious sense in which Austin produces its own electricity. And, importantly, it also means that Austin Energy, like all power generators in ERCOT, are subjected to the Texas energy market's renowned price volatility, increasing the financial risks of investing in new infrastructure, like renewable energy. As Ferchill instructs, "not being regulated in the wholesale market is a really big deal. It complicates the analysis we have to do." Thus, there is a very real sense in which the utility and, by proxy, City Council are forced to adopt or at least factor in capitalist logics and strategies into their energy transition planning.

For instance, Austin Energy owns ecologically destructive assets that compromise public health, though mostly in well-removed places. For example, AE's dirtiest energy asset, the Fayette Power Plant (FPP), is located 64 miles away in La Grange, Texas. This coal plant is the 16th largest polluting facility in the state of Texas, emitting mercury, lead, nitrogen oxides, sulfur dioxide, carbon monoxide, particulate matter, and other pollutants that are associated with ecological destruction, cancer, and other serious health conditions (Cortez 2014). In 2004, the Clean Air Task Force conducted a study that estimated economic damages related to the ecological and public health impacts from FPP's pollution at $5.6 million annually (Cortez

2014). After a decades-long battle, AE's share of the FPP (AE owns 1/3 of the plant, the Lower Colorado River Authority (LCRA) owns the other 2/3) was slated for closure in 2022, according to the 2017 Resource Generation and Climate Protection Plan. In November of 2021, however, it was announced that negotiations with LCRA broke down, and Austin Energy's share of the plant is no longer expected to close any time soon (Austin Energy 2021).

In this section, I have detailed the history of the structure of the Texas grid and energy market which, much like the history of Austin's settlement and racial geography, took shape out of a rhythm of development and disaster. In what follows, I will begin to think across these disastrous events to draw out a more general theory of disaster, one that makes use of this dissertation's concepts of scales and systems to theorize disaster as emergent from the schismogenic patterns emerging within disjointed ecologies.

2.5 GRID FAILURES IN/BY/AS ECOLOGIES

Deleuze and Guattari describe the plateau as "a continuous self-vibrating region of intensities whose development avoids any orientation toward a culmination point or external end" (1987, 2). One useful example of a plateau can be found in the electric grid, where the electric current must be maintained at a very specific level of intensity (repeating at 60hz, or 60 cycles/second) to prevent the vibration from resolving in climax—i.e., from shorting out, on the one hand, or from overloading the grid or the devices connected to the grid, on the other. One point to emphasize here is that plateaus are not given: they require maintenance of their preconditions in order to be maintained themselves. However, once emerged, and as long as they are maintained, plateaus may further articulate with other plateaus to form an assemblage, such as the numerous machines and devices that can be connected and powered by the grid's flow. Such heterogeneous

assemblages enable the grid to further articulate with other flows that underwrite other unique rhythms—i.e. lights that enable people to work or plants to grow against circadian rhythms, or machines that keep hearts pumping in sync with respirating lungs. Thus, plateaus can support the formation and articulation of other plateaus to form an indefinite number of assemblages, amounting to what Deleuze and Guattari called the rhizome, but what I call here an *ecology*.

As we have now related, a vast array of assemblages are dependent on the grid, which power our social lives, from our economies to our food systems to entertainment, and at times, even our body's vital systems. In recent decades, the design and models of the electric grid and energy market have undergone dramatic changes, reconfiguring the assemblages that shape the strategies, ethics, and protocols of grid management. Whether discussing fuel-source intermittency, load frequency control, real-time markets, or emergency response times, the synchronization of speeds and intensities is the essential resiliency challenge of the Texas grid. And, comparatively, Texas grid operators have been relatively well-equipped and successful in this domain. However, climate change, aging infrastructure, emerging technologies, and shifting cultural values are getting ahead of these formerly effective systems of control. The February 2021 blackouts are paradigmatic of Texas' fraying energy ecology and fractured ethical plateaus.

In the perspective of the local energy expert and University of Texas professor, Michael Webber, at least part of the long-term solution to Texas's grid crisis involves diversifying Texas' energy resource mix, which relies too heavily on natural gas. According to Webber, natural gas systems rely heavily on electricity systems, and vice versa. The sequence of failures that resulted from this interdependence played a large role in the severity and length of the February disaster. As a fix, Webber suggests developing more geothermal, wind, and solar resources that do not

rely on electricity to function. He also notes that coal and nuclear are other options, but does not recommend them due to their own environmental impacts and reliability issues.

But the crisis wasn't all due to these sorts of critical interdependencies. The Texas energy market structure played a hand in enabling and even creating incentives for foul play. Kaiba White told me in an interview for Scott Knowles' COVID Calls, "A lot of it, it kind of exposed how opaque [the Texas energy market] is, especially the natural gas industry and the natural gas markets." She continued:

> "Some of those power plants were rolling dice and trying to save money by not having a firm contract and then they didn't have access to gas to, you know, to run their power plant. But there were others who did have firm contracts and those contracts were just basically thrown out the window. And, you know, the natural gas companies would say that, you know, well, they, they couldn't make good on those contracts. But meanwhile there was gas at some points in the crisis that was being sold out of state, and at quite hefty costs. So a hefty profit for the companies. … It would be a real challenge to figure out, were there contracts that should have been made good on that weren't. But we're just kind of at the mercy of the industry because it's so unregulated."

While those gas companies were able to take advantage of the crisis, many power companies, municipal utilities, and retail electricity providers were forced to contend with skyrocketing energy prices during Texas' February storms. And the former Texas Public Utility Commission Chair, Arthur D'Andrea, sought to protect the profits of utility companies by refusing to correct pricing errors. The base of the dispute came from ERCOT's decision to hold the price of electricity at the $9000/MWh max for an additional 32 hours after the Texas grid failure had been resolved (Steffy 2021). This price hike cost energy companies upwards of $5.1 billion, inducing numerous Texas power providers and retailers to declare bankruptcy. In the aftermath of the disaster, amidst the political fallout, all three of the Texas PUC Chairs resigned.

Indeed, the Texas grid crisis has exposed the degree to which Texas elected officials and regulators have "cozied up" with fossil fuel advocates and lobbyists (Lederman 2021). In particular, according to an NBC News article, many of these politicians consulted with the known fossil-fuel apologist Alex Epstein on how to frame the grid disaster. Epstein is the founder of the Center for Industrial Progress (DeSmog n.d.), a right wing think-tank that works to present the use of fossil fuels as a moral imperative. Accordingly, Epstein blamed the outages on Texas' over-reliance on wind and solar energy. This is patently false, as wind only accounts for 10% of the Texas power supply (as opposed to 72% represented by gas and coal) and wind actually outperformed fossil fueled power plants in some areas. But this didn't stop Texas Governor, Greg Abbot, or other Texas officials, from running Epstein's propaganda. Many of Alex Epstein's "Energy Talking Points" (Epstein n.d.) found their way into elected official's tweets and public statements. When asked about this point, Kaiba explained, "They [Texas regulators] had already heard it so many times, so they didn't even bother… some folks did not bother to, you know, check the facts before just assuming that. 'Yeah, of course. This is the fault of wind and solar because we know it's unreliable.'"

Power companies, municipal utilities, and retail electricity providers were not the only one's impacted by the skyrocketing energy prices during Texas' February storms. Electricity customers who were signed up on variable rate plans also felt the unbearable financial weight of the disaster. Despite using regular or even decreased amounts of energy, some residential customers' bills shot up to $5,000 for the month of February (Halkias 2021). Many of these customers were not even aware that they were on variable rate plans in the first place, as with some providers, you have to actively choose to stay on fixed rates with every renewed contract; the default is to switch you to variable. As it stands, Texas residents and businesses

will continue to pay off the massive $47 billion in energy costs for decades to come, a hefty price tag for the energy used in just 5 days.

Deleuze and Guattari's concept of the plateau helps us understand the materiality of stability, the way antagonisms between discrete forces can be arranged to produce a more-or-less tenuous entanglement, a kind of closed circuit, a feedback loop. What the concept of *ethical* plateaus contributes is an emphasis on the ethical dilemmas that such acts of assembling entail, as well as the way assembled plateaus shape the grounds upon which we build our ethical sense. That is, if the possibility of assemblages is endless, why this particular assemblage over that? What new assemblages are necessary or desirable? Which assemblages may be prioritized or sacrificed? Upon what basis may we make such decisions? Fischer states that the articulation of assemblages themselves creates demands and/or restrictions for further assemblages (2004).

The technologies of the grid along with those powered by the grid promote a hierarchy of decision making, such that it may become ethical to sacrifice a neighborhood's access to heat during a polar storm in the effort to keep the grid as a whole from collapse. Or, it may be considered ethical to prioritize a hospital's access to energy over a similarly populated apartment complex. But this logic becomes all the more problematic when taking into account the segregated nature of Texas' residences, and the fact that communities of color were 4 times more likely to experience outages during the storm than predominantly white communities (Carvallo et al. 2021).

CONCLUSION: SPACE AND TIME ARE INFRASTRUCTURES

Black feminist scholars have long called for the abandonment of additive approaches to understanding oppression for an appreciation of how systems of oppression interlock into a matrix of domination (Collins 1990). Technopolitical critiques of ethical plateaus can be put to this task by delineating how the coordination of technologies and infrastructures into complex ecologies gives systemic racism, classism, and gender oppression a physical underpinning and materiality. Such plateaus, through extended processes of articulation, across socio-natural scales, accrete and become sedimented over time.

In the discourse of social theory, technopolitics is a concept developed to explain how infrastructures, rather than being value neutral, are always designed and implemented in ways that betray political rationalities. Brian Larkin describes this systematizing property of infrastructures as "objects that create the grounds upon which other objects operate" (2013, 329). Importantly, anthropological and STS-inflected treatments of infrastructure include not only physical, technological objects but also soft technologies such as new methods of accounting, business models, economic policies, or other techniques of power (Hughes 1993).

The first half of this chapter established the troubled history of Austinites' misguided interventions into the Austin quadrangle's riparian ecology of assemblages. At every step of the way, these settlers were attempting to decode and articulate with the relations of force that had already been established, but in such a way as to bring them under their control, to master them. However, the culturally and historically specific arrangements of desire that shaped the imaginaries of the form that this mastery would take evolved considerably, over time, in a radically non-linear fashion. This section recounted that history as a series of diagrams, "a supple

and transversal network that is perpendicular to vertical structure" and that produces "an unstable physical system that is in perpetual disequilibrium" (Deleuze 1988, 35-36). The diagram, as an arrangement of desire, "makes history by unmaking preceding realities and significations, constituting hundreds of points of emergence or creativity, unexpected conjunctions or improbable continuums" (Deleuze 1988, 35). In this way, the diagram is a mutation and a mutant, a mingling of the plateaus of the past, reconfigured in the present, to produce an emergent future. In this sense, the mutations of the diagram are not produced as continuities but ruptures, turns of the kaleidoscope, a dice throw.[37]

The history of Austin's racial geography is a history of these ruptures, a rhythmic series of development and disaster that produces the shift from one diagram to the next: i.e. from the diagram of ethnic empire, to that of industrial capitalism, to that of the automobile suburb. The ruptures take place, not when all plateaus of the previous are destroyed, but when the composite picture of the previous diagram, the previous arrangement of desire, can no longer be reproduced.[38] Thus, what follows from disaster is another arrangement of the surviving plateaus, producing a complex mixture of difference and improbable continuities; it produces ghosts.

In the second half of this chapter, I retold this story, but with a shift in focus from the settlement of Austin to the articulation of the Texas grid and energy market. And in this version of the tale, I demonstrated the delimited coordinational capacities and effects of these infrastructures, how they both enable and restrict the articulation of further sociotechnical assemblages. But the Texas grid and energy market also do much more than enable these

[37] "the preceding dice throw fixes the conditions under which the following dice throws are cast. This does not remove chance. But it makes a mixture that we will call a mixture of chance and dependency" (Deleuze 1986, 17).

[38] This is what we mean by the common phrase "you are dead to me." Not that we no longer perceive your pulse, but that, due to the erosion of plateaus of intensity, upon which our friendly relations were built, we can no longer reproduce the same composite picture of the person we once knew.

articulations; they create a schismogenic space-time that produces stability and consistency by simultaneously creating (and demanding) disarticulations from an increasingly unstable environmental context. This schismogenic form of temporality, which thrives on an ever increasing dissonance between smooth time (taken as natural, stable, and continuous) and striated time (taken as a construct that is fragmentable, distributable, and manipulable), this contradictory form of time is fundamental to racial capitalism (Sojoyner 2017).

As Damien Sojoyner puts it, western temporality is a "difference-making project," one that is "critical in making race appear logical and commonsense where it is in fact fictive and quite fragile" (2017, n.p.). Sojoyner studied the way the United States's carceral and education systems functioned to re/produced the social differences necessary to the function of racial capitalism, such that "[t]ime's structural effect on Black people dissolves and is reconfigured as Black people's lack of desire, will, or internal fortitude to change their circumstances in the present moment" (2017, n.p.). And while Sojoyner's spatial and discursive studies of the prison and the school helps us understand the structure of racial-capitalist time, a study of the techno-political ecology of the grid and energy market helps us understand how that structure is infrastructured.

The ERCOT grid + energy market is often called a "clock," because it must keep a constant rate of repetition: 60hz or 60 cycles/second. In that sense it's trustworthy, like a clock. But unlike most clocks, the utility of the grid is not actually to keep time, but rather to produce it.[39]

[39] "*We* create the year, academic and fiscal, and the day, whether holiday or workday, in terms of the events and situations that make them significant and worthwhile, and we do so by *predicting* them and then seeing how the events and situations impinge on our expectations. Calendars, schedules, timetables, and seasonal expectations and routines are all "predictive" devices for precipitating (and thereby surprising ourselves with, and not *predicting*) time. They are a means of setting up expectations, which in their fulfillment or nonfulfillment, become "the passage of time," "the weather," "a good time," or "a bad year." By extending our calibrations and our expectations into periods of years, decades, centuries, and even millennia, we are able to precipitate (statistically and otherwise) a

The grid is a time machine, not one that travels through time, but one that produces time. Like a highway that produces a smooth and continuous space for high-speed travel, the grid is an infrastructure for producing a smooth and continuous time, a never ending "present." It synthesizes diverse temporalities to provide a sense of fluid time, a mundane, constant present that transcends the nested scales of repetitions and cycles upon which it depends. Electricity providers, which are called "Qualified Scheduling Entities," provide ERCOT with a constant supply of data that ERCOT stores to create a pure past, which it analyzes to produce forecasts (themselves constantly updated) into the future. The market design is composed of nested cycles that are averaged, smoothed out, or synthesized at different increments: the week ahead, day ahead, hour ahead and in "real time." As an added security measure, these cycles of scheduling and adjustment do not actually complete before they begin again. They overlap, sort of like a round in music, to better ensure the grid maintains its required constant level of intensity.

Mike Fischer's conception of ethical plateaus can help us think about the way the grid's "multiple technologies interact to create a complex terrain or topology of perception and decision making" (Fischer 2003, 36). Together the grid's interlocking material and technical infrastructures make up the proverbial "playing field" of daily life, while also determining its "un/evenness." What I have tried to illustrate with my discussion of the Texas grid failure is how this "rupture" exposes the way this field is appreciably skewed along class and racial lines.

In Fischer's rendering of the concept, ethical plateaus both enable and restrict certain modes of thinking, desiring, and judging by the particular material-temporal demands for maintaining the articulations of the assemblages and plateaus of which socio-technical systems

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temporal and often cyclical "reality." We have fiscal "boom" and "bust" periods, depressions and recessions, historical "developments," cycles, and 'ages'" (Wagner 1981, 57 emphasis original).

are composed. However, these ethics or logics may be radically transformed as the relations between plateaus, assemblages, or the totality of possible plateaus and assemblages themselves change. What is important here is developing a rich understanding of the dynamics of the full ecology of systems; how the discursive, sensorial, psychological, and material dimensions of oppression respond to and feedback into biological, geological, climactic systems, maintaining a structural integrity over this shifting ground that consistently and measurably impacts the well-being of certain populations instead of others.

Following Scott Knowles, I consider disasters as "processes, playing out in uneven temporalities, and always with deep histories" (Knowles 2020, 193). Knowles uses this point to stress the distance between disaster at the "event" scale and the scale of "slow disaster," using as examples the slow rate at which "technological systems decay and posttraumatic stress grinds its victims" (2020, 197). Much of this decay comes from lack of maintenance, which can be "hard to sense or monetize until a disaster occurs in 'event time'" (Knowles 2020, 197). Then in the post-phase of disaster, he notes the "rush to learn something," as a step towards returning to "business as usual," and we do mean *business* literally here. And Knowles laments the fact that this rush for an answer often means we don't take the time to study the disaster adequately, nor to listen to the experts' advice once generated.

Given his articulation of these disaster time scales, I believe Knowles would agree that this post-phase of the disaster is not so much "post" as an evolution of the disaster's unfolding, that this rush to return to business as usual reflects rates and speeds that were constitutive of the "disastrous event" itself. For instance, a precursor to the 2021 grid failure in Texas took place in 2011. Expert analysts pointed out that the increasing regularity of polar storms in Texas meant the grid simply had to be weatherized in order to limit the risk of blackouts spurred by abnormal

bouts of severe cold. But the rush to return to business as usual, the pressure to turn fast profits, plus the short attention span of news coverage, all contributed to the 2021 disaster. The point here is that while the overall process may be “slow,” some of these constitutive processes are not notable or problematic for their slowness, but rather their speed. Thus, on top of having their own fast or slow temporalities, disasters are produced in/by/as an ecology of rhythmic or cyclic processes that repeat their patterns and cycles at different rates, producing an ecology of temporalities that are out of joint. And the destructive intersections or interactions of these cyclic temporalities causes the disequilibrium of the ecology, of the overarching system of systems, that we recognize as "disaster."

In sum, grid disasters are neither fast nor slow, but rather the disintegration of space and time, produced out of the complex, nested arrays of shchismogenic interplay between diverse temporalities, including changing weather patterns, crumbling ecological systems, economic and market cycles, political or governmental processes and cycles, and the energy consumption practices that characterize daily life, to name a few. The result is such that Texas’ formerly effective systems of control are now being outstripped, as its petro-based energy ecology engenders the disarticulated temporalities that were constitutive of the 2021 disaster–with more to come.

CHAPTER 2: SOCIAL ECOLOGY

One of the events that first piqued my interest in Austin's energy transition took place on August 10th of 2017, the day I attended a rally and then public hearing at Austin's City Council, organized to resist the Electric Utility Commission's recommendations for updating the City's Resource Generation and Climate Protection Plan. The Electric Utility Commission had just completed its Resource Generation Planning Working Group and released a set of recommendations that, I had heard, would effectively set the pace of Austin's renewable energy transition back by 20 years. This, to me, seemed counterintuitive. Having grown up just a few hours north of Austin in Fort Worth, I had long thought of Austin as a progressive city, especially when it comes to the environment. And climate studies had only continued to demonstrate the increasingly pressing need to curb carbon emissions as fast as possible. Thus, I was perplexed and fascinated at this decision to retreat from or at least temper the city's commitments to renewable energy transition. I was further confused to find out that these recommendations had caused an appreciable rift in Austin's environmental community, between supporters and defectors. What sort of factors, pressures, information, or even questionable vested interests could have led to this split?

At the rally before the hearing, many of Austin's environmental groups were present, from large, national groups like 350 and Sierra club, to the more Austin-specific PODER, Solar Austin, and ATx EJ. Kaiba White had arranged for many of Austin's environmental justice and renewable energy icons to speak to the gathering crowd. Each speaker, in their own way, provided critical analysis of the way Austin's environmental justice movement had been hampered by the deeply entrenched categories of thought and practice that shape our thought and experience. Daniel Yonus, of the group People Organized in Defense of Earth and her Resources

(PODER), spoke about his involvement in the long-established resistance to the City's environmental racism, including his part in PODER's notable victory against the petro-chemical "Tank Farms" that had been poisoning his community. In his words "PODER is dedicated to including human beings in the environmental equation. Which, all too often, we are focused on the water, the land, the trees, the air, we forget the people." Daniel was then followed by Richard Franklin who continued Daniel's human-centered approach. But as a member of the local school board and president of Black Austin Democrats, Richard started his speech by talking about how local environmental injustices were affecting the children of his community, "I've got kids who are playing on playgrounds everyday, less than four miles from the Sandhill Power Plant. And as the wind blows, the particulates from that are in the air, and kids who are outside playing are breathing that in, putting it in their mouths and eating it. Whether you like it or not, that's what's going on. … When do we get past the point of doing the same thing over and over again and raise the standards for everybody, and the way we live?"

In each of these speeches, the speaker worked to redefine the language, categories, logics, and the figures and grounds that have long shaped environmentalism in Austin, with the human-nature divide sitting front and center. Austin's earliest environmentalists, who were focused on environmental conservation, would have found this line of argumentation confusing, even basic understandings of ecology and environment and ecosystems were not widely shared (Swearingen 2010). During the time of early conservationism in Austin, one could argue, Austin's local green spaces functioned as what Michel Foucault called heterotopias, or "sites ... that have the curious property of being in relation with all the other sites, but in such a way as to suspend, neutralize, or invert the set of relations designated, mirrored, or reflected by them" (Foucault 2008, 16-17). In other words, the parks and nature preserves served, not only as a real

space that can be inhabited, but also as a mirror, one that reflected a utopic imaginary of Austin—as a preserved natural space—that does not exist. And these individuals were not so much motivated by concern for the environment, in itself, but for the heterotopic functionality of "beautify[ing] a section of the city in which they lived" (Swearingen 2010, 50). And it was this *otherness*, this heterotopic function, combined with a conception of the environment as a resource or as a commodity, that shaped these Austinite's desire to market the Austin landscape for investment from outsiders, but in a way that did not compromise their own enjoyment of it. Or, to repeat Swearingen's rather approving phrasing, "to build the natural into the urban rather than plowing it under the urban" (Swearingen 2010, 189). This struggle to ensure that the city of Austin was a great place to live drew wide political and financial support, formulating the beginnings of Austin's environmental bloc.

In his critical history of Austin, however, Elliot Tretter notes a troubling omission in Swearingen's account. At no point in the latter's 273 page history of environmentalism did Swearingen mention PODER and their struggle for environmental justice (Tretter 2016). Instead, he focused on the crystallization of the more liberal-oriented meaning of the environment, with which Austin communities rallied to resist any development that would damage Austin's spaces of outdoor recreation and/or their charismatic species. This discursive omission, which is tantamount to subalternization, harkens back to Daniel Yonus's speech, where he pointed towards PODER's struggle to protect the environment in which they lived, the environment of people's homes and neighborhoods instead of that of parks and greenbelts, in terms that Austin's more liberal environmentalist communities could understand and respect.

The human-environment binary also structured Austin's early ideologies of energy governance. It wasn't until the 1970's (but even more so in the 1980's) that a broad view of the

human-environment dynamic started to shape energy production, conservation, and pollution reduction efforts in the city. Before this time, Austin's energy governance regime enrolled the natural environment through the production of hydro-power and through resource extraction. A series of frame-shifts in this ideology had to be achieved before Austin's utility planners could begin to recognize the environment's role as a pollution sink, or to come to value the untapped potentials for renewable energy, or to start thinking about demand management as an alternative to power production and how the local climate and physical geography could be factored into more symbiotic forms of architectural and infrastructural design. It wasn't until these frameshifts developed this more integrated understanding of Austin's historically produced infrastructure-environment nexus that environmental justice organizations, like PODER, were able to pressure the city and the public utility to factor in a concern for energy and environmental justice.

All of this is to say, the very possibility for the speakers at this rally to talk so plainly about the human as part of the environment, and about how the prioritization of Austin's non-human environment over its historically marginalized communities' environments has masked the considerable cost borne by Austin's diverse residents (but especially the most vulnerable), this was decades in the making. In this chapter, I will trace the ecological genealogy of the arrangement of desire expressed in this rally and in its focus on environmental justice, the multi-scalar story of its conditions of possibility. This story requires the linking-up of multiple stories: how Austin's regime of environmental governance enabled the onset and perpetuation of local environmental injustices, how these injustices were themselves desired, rationalized, and carried out, and how certain local Austinites came to recognize and collectively resist them, with varying degrees of success.

And though there have, indeed, been considerable successes within Austin's environmental justice movement, the struggle to redefine the environment and its issues continues, as evidenced by the rally's final speaker, Dave Cortez. In his closing talk, Dave pushed the envelope even further than his comrades. After checking on the crowd to see if they had been fed and hydrated, he turned to discussing his recent work in the Montopolis community, organizing to resist gentrification in Austin's historic and traditionally black communities. "Um, you may have heard a little bit about our work in East Austin, fighting to save Black history, in Montopolis. Uh, local developers, you know they're all over the place." He addressed the crowd: "You might wonder a little bit about why we're, why ATx EJ is working out there, how is that environmental justice? … And I'm gonna tie it all together." Dave then proceeded to discuss his involvement in a number of different causes and movements and actions that may not immediately appear to fit within environmentalism, including the Occupy Austin movement back in 2011, in the flood relief campaigns of 2013 and 2015. He also noted his work in other, far removed locations, like at the Dakota Access Pipeline in North Dakota and the Dos Republicas coal mine in West Texas. "And what's clear to me when I see this stuff, and why I bring you this message today about Montopolis, Dos Republicas, West Texas and DAPL, is that something big, something deep, something very complicated is in action. Um, if we're gonna fight climate change, sure we have to fight it here [points to the city council], but we also have to fight it in ourselves: our lifestyles, our politics, our views on how the world works, on how we talk to each other. And most importantly my friends, we have to look at ourselves critically, we have to critique ourselves, always." He continued:

> "If you voted against Trump, and you wonder why he's in power, ask yourself, 'What else can I do to beat back that fascist regime? Does it mean that I get more people who sound and agree and look like me?' Probably not. It means we gotta go and find the people in the streets who felt abandoned by both parties, who felt

> abandoned by a system that has done nothing but allow their neighborhoods to be destroyed, for their neighborhoods to be displaced, for their ancestors to be dug up from the ground, and we need to take that fight out into their neighborhoods."

The argument Dave is making here is of critical ethical and strategic importance. Between, within, and across the short stories he told and propositions he made, there lies a statement about political thought: the ultimate political move lies not in winning or losing specific political battles, though this is also important, but in defining the very realm of politics, in defining the political field of struggle.

The lines of political battles are drawn in ways that inevitably circumscribe a narrow field of struggle, in ways that designate and determine the proper sites, means, and tactics of that struggle, in ways that suggest which groups of people count as valid stakeholders, as important and influential figures, and as potential allies with whom to form strategic relationships. But these lines and these designations are not inevitable, natural, or even necessarily logical. They are themselves political. But they are a form of infra-politics (like infra-structure) in that they shape what can be seen and what can be said within the political domain. Any political struggle has such an infra-politics, which is not so much exterior or interior to politics as much as it is the conditions for politics, because it is "farther away than any external world, and hence closer than any internal world" (Deleuze 1988, 117). This outside is at such an ultimate distance and proximity because it ultimately defines us. Thus, we are completely barred from reaching it, in the same way that one cannot see their own perspective or bite their own teeth. But it is also ultimately close to us, in that we owe to it our very capacity to experience and to think.

In short, the outside is inseparable from the folded relations of forces that produce arrangements of desire; the inside, or subjectivity, is the enclosure that is produced in and through this arrangement. Thus, politics is not about reaching the outside of thought, which is

impossible. What is possible, however, and this was PODER's greatest achievement (and the environmental justice movement's, more generally), is to re-infrastructure the enviro-political realm through a creating new articulations of the forces that have yielded desire's historical arrangement. That is, PODER and others mobilized the force of the outside, they mobilized the difference between their experience of environmental injustices and the hegemonic discourse of Austin as a just, environmental city, thereby reconfiguring the categories through which Austinites began to perceive and experience the environment as a political terrain. However, in succeeding to gain recognition from the City, Austin's environmental justice movement risks being internalized and enfolded, having been given its own place within the apparatus of capture.

As a deviation from Dave's call for self-critique, but one that shares its same spirit and impetus, this chapter performs a critical repunctuation of Austin's history of environmentalism. In what follows, I will trace the evolution of the forms of organization, governance, and political-economic practice that have shaped Austin's capitalist machines of development, its local forms of environmental resistance to that development, and the modes of environmentalism that fall between and outside these designations. I follow the conflicts arising from these differences as they intensify, converge, synthesize, split, and otherwise evolve. The final outcome is an attempt to grasp the current field of power relations shaping Austin's renewable energy transition, and the presently contentious arrangements of desire that this field engenders.

The first section looks at the foundations of Austin's environmental bloc, which took place in reference to Austin's slow, early growth. The next section investigates shifts in governmentality that coincided with the city's mid-century booms, which spurred new approaches to urban planning and development that were saturated in West Texas oil. Responding to both the fuel shortages and price drops, this section also tracks the strategic

reinvestment of Austin's petro-wealth and power towards the city's high-tech economy. The third section then looks at how this recentering of Austin's economy around technology relates to the birth of Austin's interest and stronghold in renewable energy tech. The fourth section traces out how Austin's environmental justice movement formed and coalesced around these same issues that produced the conflict between Austin's developers and their environmentalists, but largely in resistance to both sides of this dialectic. And I show how this third position, outside the binary, effectively unsettled the rules of engagement of the otherwise long-running dialectic.

As with the series of stories of development and disaster, told in the previous chapter, these stories of social constructions also have rhythm; they repeat, producing consistencies in the form of refrains. Like the electric grid, these repetitions produce a plateau of intensity, which is composed of cycles and repetitions that intersect and overlap and, in doing so, produce frictions and feedback that delimit (i.e. either strengthening or undermining) the possibility for the perpetuation of this plateau–and the assemblages which it articulates–on into the future.

In this chapter, however, the plateaus discussed are not composed of physical or material forces, but rather relations of power. Furthermore, unlike the previous discussion of technopolitical ecology, in social ecology, both the forces of the outside and their disruptive effects are largely painted in a positive light; they enable the redrawing of the lines that have shaped the political field of struggle, opening up new directions and possibilities for thought, strategy, and action. However, as I will note in my conclusion, the force of the outside can only produce moments of rupture that, as soon as they erupt, begin to fold back into the apparatus.

Thus, unlike with technopolitical ecology, where the goal is to minimize the destructive force of the outside, to articulate with the plateaus and assemblages as smoothly as possible, so as to minimize any unnecessary destruction and disarticulation; in the social ecology, justice is

produced by developing practices of and for disruption, to continually reach for and mobilize the marginal as a method of undermining the central. This is because, in technopolitical ecology, the breaks, flows, and articulations were *material* and the forces of dis/articulation were *physical*, being as it is, stitched into the Real. Social ecology, by contrast, has a more complicated relationship to the Real, being confined to the realm of meta-relations between assemblages with their own calculus and their own sources of energy, power works, not on *things,* but on *actions* (Foucault 1995). In short, what flows, breaks, and articulates in this chapter is not energy but power.

1. DIALECTICS OF ENVIRONMENTALISM

How did Austin become environmentally conscious? Much of the current conflict in the discourse about sustainability in Austin, including but not limited to energy transition, can be traced back to a long-standing conflict between two opposing imaginaries for Austin's growth: profit-oriented developers and quality-of-life oriented environmentalists (Swearingen 2010).

Early political efforts to establish parks and to clean up and replenish Austin's landscape and wildlife habitats were more centered around the fact that these were some of the primary features that made Austin a desirable place to live and to do business. For instance, the political process through which the Shoal Creek Trail and greenbelt was established did not resemble anything close to grassroots political organizing. It was rather the result of a small number of wealthy and well-connected individuals who took it upon themselves to invest their time, money, and influence in the cleaning up and protection of the land surrounding their residences (Swearingen 2010).

In contrast to this landed-elite contingent, a new breed of conservationists began to develop out of networks of young professionals working in government and coming out of the University of Texas. This was taking place in the mid 1950's, at a time Vic Mathias took over Ausitn's Chamber of Commerce, and began shaping much of the city's cultural and infrastructural developments, taking advantage of UT Austin's oil money to draw a new breed of educated youth who had come to Austin to go to school or to establish themselves as young professionals.

Due to a greater awareness of the shifts in thinking about the relationship between cities and the environment, these professionals were keener on "how the two could interact to produce a more livable urban environment" (Swearingen 2010, 51). They were also better able to see and articulate the signs of environmental degradation, and thus served as both watchdogs and the vanguards of the environmental movement. What this group succeeded in doing was to use their knowledge about the environment to motivate and organize both the landed elites and a wide network of middle-class citizens that wanted to preserve "the feel of Austin," which meant preserving the green spaces of Austin that they had enjoyed growing up (Swearingen 2010).

1.1 AN ENVIRONMENTAL SEAT AT THE TABLE

In Swearingen's words, this quality-of-life contingent wanted "to build the natural into the urban rather than plowing it under the urban" (Swearingen 2010, 189). It was this struggle to ensure that the city of Austin was a great place to live that drew wide political and financial support. This aesthetic and pleasure-based focus on place was organized and mobilized in such a way as to bring an environmental coalition into political power. In 1997, the Watson City Council—also known as the "Green Council"—adopted the Smart Growth framework that was based on a "three legged stool" of economy, environment, and equity. This established the

contemporary environmental discourse in Austin, "where 'environmentalists' shared power, and the direction of the city, with business groups and real estate people" (Swearingen 2010, 192).

While this early victory in the City Council cemented the establishment of a strong environmentalist contingent in Austin, the developers superseded this authority by appealing to the industry-friendly sensibilities of the state government for support in obstructing the city's environmental protections. The state began to pass a series of what came to be referred to as "Austin-Bashing Laws" that were intended to put this city's more uppity environmental politicians in their place (Swearingen 2010). For instance, by ending Austin's power to annex local lands into their jurisdiction, developers were able to side-step the City' Council's attempt to limit development over the Edwards Aquifer. The state also passed HB 4 (a "grandfathering" law) in 1987, which allowed developers to ignore any city ordinances that passed after a permit had been granted. With new ordinances being ineffective towards extant permits, the City's ability to intervene and shape Austin's development was substantially decreased (Swearingen 2010).

Business elites saw it in their long-term interests to adopt some aspects of environmentalism to help transform Austin into the modern technopolis. They quickly recognized how their strong opposition to the Save Our Springs coalition worked against them, leading to a triumphant environmentalist friendly City Council in 1997: aka the "Green Council." As a response, Austin's local growth coalition began to set their sights on the revitalization of the downtown area and building up East Austin. As the downtown was already thoroughly developed, and East Austin was not situated above the Edwards Aquifer, nor in the habitats of local endangered species, this proposal was gladly accepted by the local environmentalists (Busch 2017, Walsh 2007).

According to Tretter, the "sustainability fix" complements the "growth machine" theory, showing how sustainability can be turned into an engine and catalyst for growth (2016). In his analysis, Tretter focuses on how this shift to thinking in terms of ecologies, in tandem with a new strategy for a regime of social control shifted the burden of growth from non-humans to the homeless and to communities of color (2016). These shifts came out of a backdoor political compromise between the City Council, the local business community, and environmentalists (Walsh 2007). The community members of East Austin, who would be the most impacted by these changes, were notably excluded from this conversation.

The tactics used to police "sustainability" were similar to those of a previous clean up regime geared towards crime prevention. All that changed was the rhetoric of the law and policy from "cleaning" up the downtown, to "greening" it up (Tretter 2016). The camping ban (which established a $500 fine for sleeping or trying to sleep in public), was a major political victory that enabled the thorough displacement of the homeless from the business district. The Downtown Austin Alliance (DAA) commissioned a volunteer "rangers" task force. These citizen volunteers were considered the "eyes and ears" of the police and were tasked to notify the local PD of any unseemly activity, which more or less translated to signs of homelessness (Tretter 2016). Thus, as Tretter argues, the "smart growth" plan of 1997 was less a grand victory of progressive political leadership than a shifting of the cost of development from non-humans to homeless people (2016).

The Green Council promoted Smart Growth as an alternative to the opposition between the quality of lifers and the developers (Swearingen 2010). Kirk Watson, who was mayor at the time, saw the 3 pillars of Smart Growth as ecological preservation, economic prosperity, and social equality, echoing Bill Clinton's platform of sustainable development (Tretter 2016).

According to the 1997 council, the sustainability benefits of having a dense and vibrant downtown would be accrued through decreasing carbon emissions by decreasing the need to drive, and by constructing buildings with higher energy efficiency. This connection between dense urban districts and smaller carbon footprints, however, has largely been a rhetorical construction more so than an empirically researched hypothesis (Tretter 2016). Furthermore, as the following section substantiates, this narrow focus on Austin's carbon footprint enabled the reproduction and intensification of Austin's racial inequities.

2. ASSEMBLING THE "TECHNOPOLIS WHEEL"

In 1988, three prominent scholars of UT Austin's IC² Institute,[40] Raymond Smilor, David Gibson, and George Kozmetsky, analyzed the establishment of Tracor, a local tech-entrepreneurial success story, to produce a widely-read article on Austin's development as a "technopolis." In doing so, Smilor and colleagues came up with their concept of the "technopolis wheel" (figured below) as a diagram for understanding the kinds of social organization that enables places like Austin, Silicon Valley, and other high-tech clusters to come about.

[40] The IC² Institute was established in 1977 as a "a think-and-do tank to explore the broad economic, technological, and human factors that drive economic development in regions" (IC² Institute 2021).

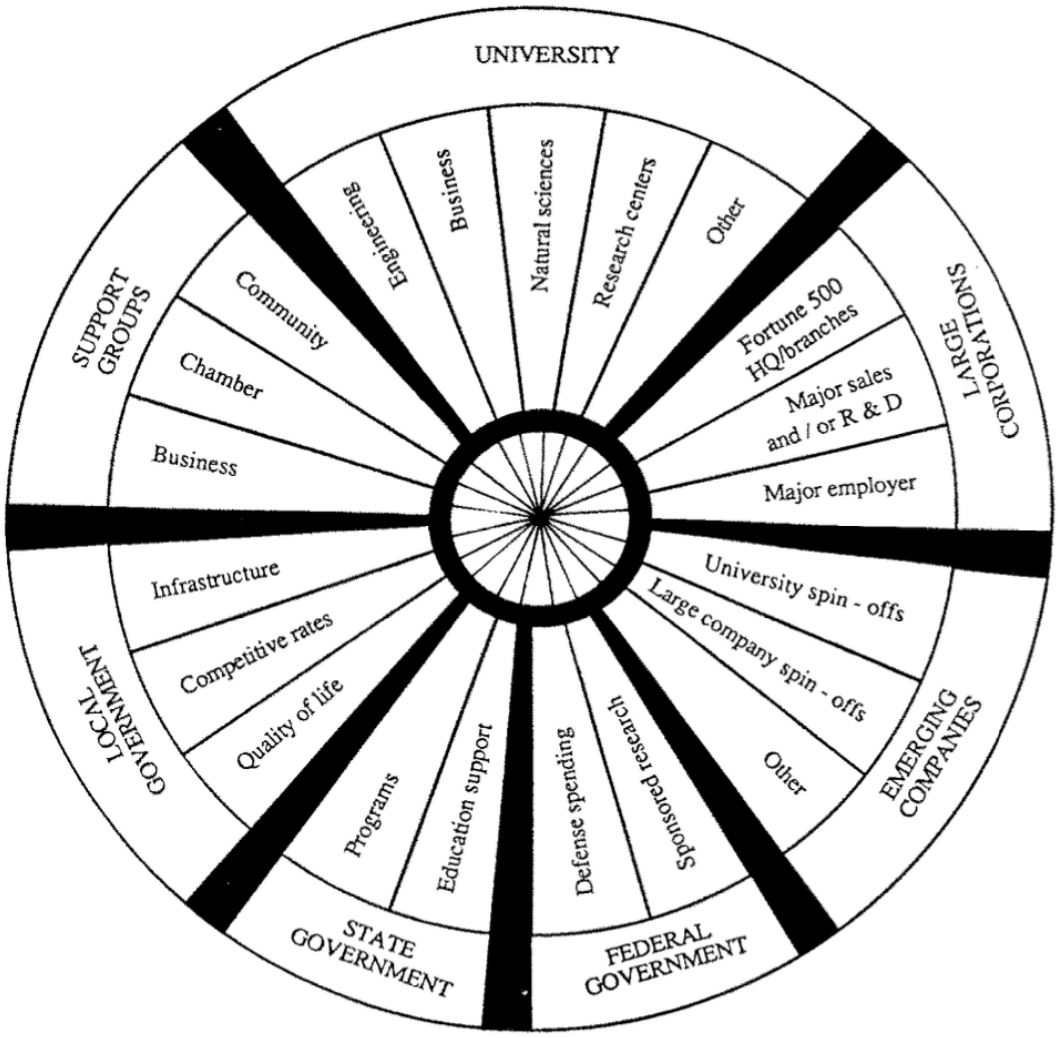

Figure 12: The Technopolis Wheel, as developed by Smilor et. al 1988.

The wheel identifies strategic segments that, according to their argument, need to be aligned in order to successfully develop a new technopolis. And the authors placed a significant emphasis on "the role of influencers who provide leadership in each segment while networking the different segments to form new institutional alliances" (Smilor et. al 1988, 50). In this section, I will take a critical look at Austin's technopolis, taking note of the strategic alliances and marginalizations and the techniques of power developed to support Austin's development strategy. The novel political strategies–which were developed to help shift the Austin economy

from an overreliance on oil and agriculture to a modern, diversified technopolis–both gained a sense of inevitability and also strengthened the city's already entrenched structural inequities, and are crucial to understanding how Austin's petro-pasts haunt its renewable futures.

2.1 "PUF" THE MAGIC OIL FUND

In the last chapter, I noted how economic development in Austin took place slowly for the first century, limited largely by the lack of exploitable natural resources and the inability to control the Colorado River. In the late 1860's, most of Austin's growth came from the resettlement of Texas' newly freed Black communities looking to escape the plantations where they had been formerly held captive (Busch 2017). Then, in 1881, the state chose Austin for the location of its flagship university, the University of Texas, which brought in a new breed of well-educated and affluent Austinites who's income was not reliant on local economy, as they were paid by the state.

Just five years earlier, in 1876, over 2 million acres were granted to the UT system as an asset to draw funds that would go into the Permanent University Fund (PUF) (Smyrl 1976). Given its humble beginnings at the university's foundation, the PUF was originally structured in such a way as to preclude the university from spending any of its principal (Cook 1998). Thus, when it came to growing the university, only the meager profits garnered from grazing rights were available for capital purchases. The University could then use this land to generate capital by two primary means, subsurface royalties and by selling or renting the land (Matthews 2006). However, as part of the structure of the PUF, only funds garnered through surface rents of the land could be used to construct or acquire new buildings and facilities. By contrast, money

generated through mineral rights was to remain in the PUF as part of the principal of the endowment and therefore could not be spent (Matthews 2006).

This presented a problem once new oil fields were discovered under the university property in 1923. Between 1923 and 1925, the PUF funds went from a measly $16,000 to $4 million (Tretter 2016). Now funded at a level competitive with the richest universities in the country, it appeared that this former backwater university was poised to join the elite of higher education. Just one problem remained, however: the university's structurally delimited ability to put these PUF funds to "good" use.

While the interest from this unexpected boon could be used to expand the university, this rate of growth was not sufficient to keep up with the university's growing demand for enrollment. Then, in 1928, the same year that racial segregation became encoded into city law through the Master Plan, the Texas State Legislature and the University of Texas worked together to restructure the PUF, allowing the university to issue bonds against the newly fecund university fund (Cook 1998). That is, the university could sell bonds against the principal of the endowment, the proceeds from which they could use for the construction of new university-related buildings (Tretter 2016). And these bonds could then be paid off over time, from the profits garnered through grazing rights and through the annual interest garnered from the fossil fuel profits. With the university's new access to credit in hand, combined with the City's new techniques and apparatuses of modern urban planning, the City of Austin started to develop a new, university-centered growth pattern that has continued to transform and develop to this day.

2.2 THE AAEDF: A *DAM* MONEY MAGNET

Still, at this time, growth was limited by Austin's restricted capacity to control the Colorado river. Which, as covered in more detail in the previous chapter, led to the construction of a hydro-electric dam at the turn of the century. Efforts to dam the river, however, were continually thwarted for decades, up through to the 1930's, with the onset of the New Deal. And already, at this time, we start to see the beginnings of a conflict emerging between those techno-optimists who saw the damming of the Colorado as a glorious modernization project that would set Austin on a path towards better days, and Texas' more working class culture that valued rugged individualism over large, government-sponsored infrastructure projects (Busch 2017).

However, in 1934, the Texas legislature created the Lower Colorado River Authority (LCRA) to help curb the crippling droughts and violent floods of the unpredictable Colorado River. By 1937, Lyndon B. Johnson had become quite adept at working through the LCRA to bring New Deal funding into Texas, developing a system of dams that created Austin's numerous highland lakes. Johnson also strongly encouraged LCRA's role as the primary electricity provider to the rural areas of Central Texas (Williams and McCann 2012). In the late 1940's, these developments drew the interest of a fellow named CB Smith, who established the Austin Area Economic Development Foundation (AAEDF), a privately funded organization that wanted to draw attention to Austin's new infrastructure to better market the city as an ideal site for industrial development.

One of the AAEDF's first moves was to rezone 40 blocks in south east Austin for industrial use, lobby the City for infrastructural development in the area, and develop an industrial rate for natural gas at the public utility (Robbins 2003). Once this was accomplished,

all they had to do was sell national companies on the area. The AAEDF did so by hosting VIP parties, courting newspaper executives and Chambers of Commerce members, and touting the abundance of water and electricity for industrial purposes, which had recently been supplied by the highland lakes and the system of dams constructed by the LCRA (Robbins 2003).

While Smith had some small successes with the AAEDF, attracting a chemical company and a bus manufacturing company, industry was still notably lagging in Austin; only 2% of Austin jobs were in manufacturing in the mid 1950's (Robbins 2003). One of the AAEDF's struggles was that it largely ran up against the interest of the Chamber of Commerce who, at the time, was more agriculturally focused and therefore much less interested in developing Austin as an industrial center (Robbins 2003). But this was set to change by the mid-1950's when another prominent business man would take the reins of Austin's cultural and economic development, leading, in a big way, to the city's high-tech future.

2.3 LOCK'N LOAD: A UNIVERSITY IN THE CHAMBER

When Vic Mathias became Chief Executive Officer of the Austin Chamber of Commerce in 1956, Austin's development took a turn towards the city we know today. In the City of Austin's own words, "much of what Austin has become during most of the last half-century is due in many ways to *the vision and quiet leadership* of Vic Mathias" (City of Austin 2014a, 1; emphasis added).[41] Of primary importance was Mathias's aggressive courting of the high-tech industry, as a "clean" alternative to industrial manufacturing. Mathias noted that some of the primary reasons people were attracted to Austin were the beautiful natural environment, low cost

[41] This quote, taken from the original draft of a resolution that would officially rename a portion of Austin's Auditorium Shores "Vic Mathias Shores" (City of Austin 2014a) was edited before being approved in the final city ordinance. Notably, in the final version, the modifier "quiet," which had originally been used to describe Mathias' leadership style, was removed (City of Austin 2014b).

of living, and corresponding high quality of life. And he didn't want the development of a local "smokestack" industry to ruin that appeal. But he also noted that Austin was lacking in jobs for keeping the young professionals graduating from UT around as a profitable tax base. And so he coordinated the plans of the Chamber of Commerce with the university, pairing clean-tech industry recruitment with university research specialties as a way of decoupling Austin's economic growth from environmental destruction.

Mathias knew he needed a strong connection to the University of Texas, as he "had observed that the other budding high tech areas were all near major universities" (Mathias 2005, n.p.). He found that connection through Niels Thompson, the Director of the Balcones Research Park. Established near the tail end of WWII, the Balcones facility was one of the small corridors of tech development in Austin that Mathias could build on. It was originally intended as a strategic resource to help the war effort (Smilor et. al 1988), but the military contracts in sonar, radar, and other military technologies also trained a number of local technology specialists in ways that established Austin's early foothold in tech development (Robbins 2003).[42]

According to Mathias, Thompson had shown up to a Chamber of Commerce meeting and spoke out about the need for a close relationship between industry and education, "since education supplies the future brainpower for industry. I latched on to him like a leach, and through him was able to schedule meetings with deans and administrators" (Mathias 2005, n.p.).

And with this connection, the Chamber greatly expanded upon the Balcones Research Park model, coordinating efforts between the university's new capital purchases–like land, facilities, and machinery–that would then be advertised by the Chamber of commerce, serving as

[42] Indeed, Frank McBee, the founder and CEO of Tracor, Austin's first home-grown, Fortune 500 company, was an early success story to come out of UT's investment in technology. McBee graduated from UT's Mechanical Engineering program and went on to become the supervisor of the Defense Research Laboratory at UT's Balcones Research Park. In 1955, he started an engineering and consulting firm that eventually merged with another Texas firm (Textran) to form Tracor in 1962 (Smilor et. al 1988).

part of the incentive packages for drawing new high-tech industries into the city. The federal government's funding for land development in the 1960's, which established the legal framework for taking land and deferring the social and economic cost of expanding the university, also had a significant impact in increasing the capacity of the University of Texas to expand spatially (Tretter 2016). With the help of this federal funding, the University of Texas quickly shot up the national rankings, and the City of Austin began to attract investment and development in technology: including software design, semiconductor manufacturing, aerospace, biotechnology, and computer equipment (Tretter 2016). However, the way this manifested distributed a disproportionate amount of the cost to moderately resourced communities, including Austin's Black communities located on the East side of IH 35.

2.4 THE ALCHEMY OF DESIRE: GREEN IS THE NEW BLACK?

Mathias' capacity to understand and cultivate Austin's desire to become a city of knowledge and industry–supplemented by the development of legal infrastructure, at more macro levels, to patent/copyright knowledge in order to secure rents (Tretter 2016)–enabled him to assemble a remarkably successful coalition between economic developers, the university, and tech firms. And as the research university took on this new mediating function, it created a plateau that served as both a reason for growth and as a leader in growth and land development (Tretter 2016).

Over time, this arrangement created conditions for UT Austin to transform its oil and gas assets into cleaner and, eventually, *greener* R&D. With the 1973 oil embargo and the ensuing economic crash, the courting of tech in Austin greatly intensified throughout 1980's. Most scholars mark the turning point of Austin's development as a technopolis with the successful

recruitment of the Microelectronics and Computer Technology Corporation in 1983 (Smilor et al. 1988, Robbins 2003, Hughes 2010, Hartenberger et al. 2012, Tretter 2016, Busch 2017). Importantly, this was explicitly framed as a means of putting Texas' fossil fuel revenues towards the diversification of the Texas economy, therein moving away from its overdependence on oil and gas (Hartenberger et al. 2012, Robbins 2003).

Austin's ability to outshine the numerous other cities competing for these investments was largely due to the state's ability to raise money for the construction of new research facilities through the university. The university used its authority to sell bonds against the PUF to raise around $50 million to be spent on land and construction of new facilities. This "opened up new possibilities by connecting a state university's endowment, and its bonding authority, to land development schemes designed to subsidize for-profit business and support the state government's industrial policy" (Tretter 2016, 78). In turn, this made Austin and its renowned UT campus all the more attractive as a site for partnerships between government, industry, and the university, to attract R&D funding in burgeoning industries, not the least of which was renewable energy (Jaffe et al. 2016).

UT Austin got into the renewable energy industry quite early, founding the Austin Tech Incubator in 1989, which, in turn, founded the Clean Energy Incubator in 2001. And Austin's Clean Energy Incubator is one of the oldest and longest run in the United States. Another important development came with the launch of the novel R&D non-profit, Pecan Street Inc. Pecan Street was born out of the idea that Austin's well-developed tech ecosystem, located within the business-friendly state of Texas, could catalyze and gain dominance over the clean energy industry in the same way that a previous generation had done with semiconductors in the 1980's. As the cofounder, Isaac Barchas put it, "…to be honest, what got everyone so excited

about this project early on was that it could be an even bigger economic payoff for Austin. At a time when Austin's technology industries were clearly suffering, charting a path toward new economic opportunity was our primary driver" (Pecan Street Inc. 2010).

2.5 A GHOSTLY ECHO: THE SOUND OF "SILENT LEADERSHIP"

On top of the mere fact that UT Austin's financial wellspring was the oil and gas assets on university lands, the precise way in which the university translated those funds into social and political power also harkened back to earlier racial-capitalsit modes of Austin's development. For example, one of Mathias's first big moves as CEO of the Chamber was to help develop and then endorse the City of Austin's 1957 Industrial Development Plan, which zoned east, southeast, and northWest Austin as industrial zones (Robbins 2003). This industrial zoning designation, however, was made despite the fact that homes, local businesses, and schools were already located in these spaces, and the plan passed largely without their knowledge or approval. As Mathias once put it, "I wrote a plan, and began discussing it with individual leaders in Austin. I tried to pick people likely to agree with such an effort–many in real estate and banking" (Mathias 2005).

Building support in this way, by appealing to those who are not only likely to share your perspective and its blindspots, but have also already shaped the political landscape in their interest, this creates the perfect conditions for injustices to transpire, persist, and intensify. Which is exactly what the 1957 plan accomplished. Building on the damage of the 1928 Master Plan, which codified East Austin as both the industrial district and the "negro district," the 1957 plan both ensured that Austin's polluting facilities would be able to remain in East Austin, and that

the families living in these zones would have trouble getting loans to repair or maintain their homes, paving the way for dilapidation and gentrification (Burnette and Cruz 2017).

3 THE PLATEAUS OF ENERGY CONSERVATION

The primary goal of Austin's utility, for the bulk of its history, has been to produce the most kWh of electricity at the lowest possible price to better serve and attract industrial development in Austin. As a result, the utility had mostly invested in constructing large, or what's often referred to as "utility scale" power plants that centralized their control and seemed to enable the greatest efficiency of operations. The ideology of power production was heavily supply-oriented, with local Austinites being perceived as "customers," whose role was largely to determine the amount of energy needed, and to keep the utility in check in terms of pricing. In the attempt to keep prices low, Austin began to develop more and more natural gas facilities, which had been pricing lower than coal, nuclear, or any other alternative energy resources. This over reliance, however, left Austin vulnerable to supply shortages (Duncan 2018). The rating structure was also designed to place the burden on residential customers, who paid a substantially higher rate than the city's more energy-intensive businesses and industries.

3.1 "KEEPING THE LIGHTS ON": THE RISE OF EVERYDAY ELECTRICITY

In Austin, along with the rest of the US, energy consumption increased rapidly after World War II. New lifestyle changes and electronic devices like washing machines, dishwashers, televisions and air conditioning were becoming the norm in both homes and businesses. Peak

demand for energy in Austin (i.e. the highest peak of electricity use in a given timeframe) increased by 325% from 19.2 megawatts in 1945 to 81.6 megawatts in 1955 (Austin Energy n.d.). Shudde Fath, a local eclectic utility legend in Austin, first started paying attention to electricity upon purchasing an AC unit for her husband's store to sort of "keep up with the Joneses." As she related, "when air-conditioning came in in the middle '50's, businesses–you know, you had to put in air- conditioning to be competitive because people weren't gonna go in a hot store if there was a cool one" (Fath 1997). And as she was the one running the books for the store and writing these checks, she started to take an interest in how electricity was being sold. After some digging, she found out that the rate structure was set up in declining rate blocks, so that the highest users paid the least, and that this was intentional to attract industrial use in Austin. But, as Fath notes, though they called it an *industrial rate*, "[i]t was things like Scarbrough's department store and the Stephen F. Austin Hotel. It wasn't what they did, it was just how much they used, and they named 'em the industrial class" (Fath 1997). So she got involved with the utility, organizing her community to fight for a "flat rate" for everyone.

3.2 A NUCLEAR WAKE UP CALL

A significant turning point in the history of Austin's energy governance took place in the late 1960s and early '70s, with the rise of anti-nuclear activism in the city. In 1971, Austin joined Houston and San Antonio in a feasibility study for a nuclear facility in Bay City, Texas (Public Citizen Texas 2009). Many environmentalists began organizing against its construction, including an icon of renewable energy in Austin, Roger Duncan.[43] "I had joined other people and

[43] Duncan was actually first drawn into energy politics by Shudde Fath: "there was a knock on his door and a woman named Shudde introduced herself" (Barnes 2016). Fath was helping to campaign for presidential candidate George McGovern, but ended up talking with Duncan about Austin's more local issues. Duncan would prove to be an innovator. In 2009, Public Citizen named Duncan as one of their Outstanding Public Servant awardees, writing

protesting against that on—on the grounds of nuclear waste and safety and so forth at that time and the environmental issues. And one thing led to another and pretty soon I became very involved in politics and decided to run for City Council in Austin" (Duncan 2018). Paul Robbins, another prominent Austin environmentalist of the 1980's and 90's, and author of Austin's Environmental Directory (2003), got his start in nuclear activism. Having watched a documentary on the danger of nuclear power as a teenager, Robbins was extremely worried by the prospect of locating a reactor in Texas. "I mean, one meltdown could take out a whole state and, you know, kill lots of people and damage property for generations, if not millennia. And so I—that was my entry point" (Robbins 2018).

Both Duncan and Robbins were moved by the idea of energy efficiency as a way of avoiding the need for nuclear power. According to Robbins, he was talking with a fellow nuclear activist over ice cream one evening when the idea of energy efficiency came to mind, "I said, 'what if we took all the money that was going to go into the nuke and put it into energy conservation?' We could create jobs. …we could save as much electricity as the plant would generate" (Robbins 2018). He would turn this interest into an early report on the potential for efficiency.

Like Robbings, one of Duncan's first big moves in rethinking the public utility was to endorse the pursuit of "energy efficiency" instead of simply constructing more and more power plants to meet demand. Reflecting on his run for Austin City Council, Duncan remarked "as an anti-nuclear activist, the question that everyone was asking me was 'well if we don't have a nuclear power plant, how are we going to keep the lights on? What's your alternative to nuclear

"Duncan is a true visionary who has not only blueprinted the greening of the Austin City Council but also of the city's public utility. He successfully transformed Austin Energy and set standards for the rest of the nation" (Public Citizen 2009).

power?' And that's when we really learned about energy efficiency. Energy efficiency, at that time, was a radical idea" (Duncan 2018).

Duncan further described how this idea of energy conservation through energy efficiency played a large role in his first election to city council. Austin, at the time, was still reeling from the energy crisis spurred by the oil embargo put in place in 1973 by the OPEC alliance, in retaliation for the US support of Israel. Robbins recounts, "back then, it was the energy crisis and people couldn't afford their electric and gas bills and there were, at various times, gas lines because there theoretically wasn't enough gasoline available" (Robbins 2018). On top of the oil crunch from the OPEC embargo, there was a natural gas shortage that was the worst crunch in the resources' history (Hughes 2010). Austin's utilities were nearly completely dependent on oil and natural gas to supply residents with electricity, heat, hot water, and the ability to cook.

Duncan also cited the energy crisis as fundamental to his ability to run on an energy conservation platform: "the Arab Oil Embargo was a big turning point for energy conservation and efficiency in the United States, not only for the automobile, … for the first time, [leading physicists] were putting for[ward] the bold ideal that we could do the same thing we're doing now but use less energy. And so I took that platform and ran with it" (Duncan 2018). On one particular occasion, Duncan recounts a winter storm that had prevented fuel trucks from accessing Austin's Holly Power Plant. "And I remember watching on TV, we came within 24 hours of the lights going out in the city. And so the power plant future of the city was a big issue at that point" (Duncan 2018).

But despite all the trouble of the energy shortage, the public utility was still a windfall for the City. In the 1960's and 70's, Austin's public utility amounted to 29% of the city's expenditures, but contributed some 40% of the city's revenue (Hughes 2007). Thus, the utility

had an incentive to produce and sell power, even at high costs, creating a room for a schism of interests to develop between the utility and the public. Austin's new, progressive energy bloc, which had been crystallizing around the nuclear issue, would use this schism to develop political footing. And the nuclear project played right into their hands. The nuclear plant, called the South Texas Project (STP), had originally projected to cost 1 billion dollars, but had continually overrun this limit, totalling at 5.6 billion dollars by the time of its completion. These prices were then being forwarded on to Austin's residents, contributing to their already overburdened energy costs.

3.3 USEFUL SKEPTICISM: OR, THE POLITICIZATION OF ENERGY

Thus, the nuclear facility, which was originally intended to help bring the costs down, had caused their utility rate to go up, creating what Robbins referred to as useful skepticism, because "as the public got more skeptical, they were willing to listen to our side" (Robbins 2018). He and his allies ran a two-part campaign, a general education campaign and a campaign looking to generate "shock value." The public education campaign included bumper stickers, t-shirts and other paraphernalia, as well as regular public speaking: "We went door to door with literature. We spoke at public hearings endlessly and ceaselessly" (Robbins 2018). The shock value was brought through stunts like dancing through the halls of a public hearing dressed as a dragon, personifying the nuclear plant.

> "So the dragon begins to speak and, you know, he roars and the interpreter says, he's pleased to meet you. He roars again. The dragon says he's hungry. He roars again. He says he'd like a snack. Roars. Something green and leafy. So they start feeding him money. More money, more money, until, at one point, he stops and begins to defecate nuclear waste and then he—he prances off again—dances off again. And the—most of the auditorium was just in stitches. And he made the front page of the Statesman the next day" (Robbins 2018).

Robbins saw all of this showbizness as serious, life or death politics: “Again, I was motivated by concern that the—the damn thing might melt down” (2018). But he also knew that not everyone shared his sensibilities. So, rather than try to cajole people into their own environmental anxieties, he went for their purse strings. “And you know, we realized the people that were motivated by environment were already with us, so we were trying to find more voters that would go with us on economics” (Robbins 2018).

3.4 ENERGY GOVERNMENTALITY

Throughout the middle of the 20th century, Austin’s significant increases in population, along with new demands for energy usage, and the pressures of global energy conflicts, all started to intersect in ways that greatly shifted how Austin Energy strategized and conducted its business. No longer just about offering a cheap price to industry (though that was still a factor), the public became a motivation for energy politics. However, if you wanted to have an influence on Austin Energy, you had to either represent a large energy demand (i.e. industrial scale), or have the backing of a lot of people-power. Thus, in an effort to cultivate the latter, environmentalists started to develop the strategy of appealing to Austinites’ non-environmental values. That is, activists like Paul Robbins explicitly designed their strategies around values that they, themselves, didn’t necessarily uphold in order to produce an intended political effect. Their strategy was to “read the desires of the room” and use this to their advantage, rather than undertaking the longer, more painstaking road of education advocacy. But, as this strategy of using economic logics to produce strange bedfellows produces quick results, it would largely continue to strengthen and develop, as the the focus of environmentalism shifted from conservation of fossil fuels, to their elimination in/through the building out of renewable energy.

4. SYNTHESIZING RENEWABLE ENERGY

At the onset of the renewable energy movement, there was potential for development along different paths: 1) a distributed path around private sale of infrastructure (i.e. solar water heating, or small sets of solar panels or wind turbines), or 2) centralized, utility scale power plant development (i.e. solar farms, wind farms, battery farms, etc.) (Smith 2002). A number of strategic developments took place at this nascent time that are still influencing the renewable energy movement today. In particular, there was the purposeful move to imitate the mineral rights contracts that the oil and gas industry had developed in order to drill on private land, creating similarly structured leasing agreements for what would come to be known as "wind farms" in many of the same locations as former drilling sites. Secondly, the Texas Renewable Energy Industry Association (TREIA) collectively decided to invite the utility industry to join their association, which opened up the opportunity for developing and incorporating renewable energy into the Texas grid. Lastly, with this shift in strategy towards the utility industry happening alongside that industry's growing interest in deregulation, the Renewable Portfolio Standard went from a backwater strategy to the mainline of renewable energy advocacy and climate protection activism. While these moves were taken with caution, and strategically geared towards the goal of developing as much renewable energy as they could and as fast as they could, they also reinforced the utility as a center of power, and locked us into our current situation where, despite considerable concerns for reliability and equity, "grid-scale" renewables seems to be the only path forward.

4.1 SURVEYING OF THE LANDSCAPE

Before this time, in the earliest days of renewable energy, solar water heaters were the "hot" commodity of what was then called alternative energy tech. In fact, solar water heaters had been a trendy renewable technology before, once in late 1800's and again in the 1930's, "As I recall there were somewhere in the neighborhood of thirty or forty thousand solar water heaters in Florida, in the 1930's" (Smith 2002). But interest resumed in the 1970's with the exploration of new materials and development of new technologies in response to the pressures of the fuel shortage. The revival of the solar heater, however, "was less driven, in many ways by environmental issues, than by the need to have alternatives. And the term, 'conservation' at that time was much more common as well because" one way to conserve fossil fuels "was by using alternatives" (Smith 2002).

The nature of this product was such that they were marketed and sold on an individual basis, in a similar way that rooftop solar arrays are today. This made it hard for the Federal Government to know how much interest there was in the industry, inspiring the Department of Energy to send out contracts, one of which the Texas Solar Energy Society won, to explore "what existed in the field in this particular state, related to solar energy, cataloging it and documenting it and so forth" (Smith 2002). Being a Texas Solar Energy Society member and a former solar heater salesman himself, Russel Smith took the lead on this project and discovered plenty of solar water heating businesses and manufactures as well as a few small-scale wind energy technology companies. Smith also noted "about a half dozen" schools or universities that had courses and/or were conducting research related to solar energy. Smith's discovery of widespread interest in Texas led to the influx of more and more contracts to conduct further study and advocacy of the renewable energy industry. Smith recounted, "[a]t the height of the contractual

efforts that we had through the Department of Energy, I had maybe three hundred thousand dollars worth of contracts flowing in and a staff on those contracts of about five people. And with that kind of support, … the Society was beginning to thrive, and we were adding chapters locally, around the state" (Smith 2002).

4.2 A FAILED INCENTIVE: THE DEATH OF THE DISTRIBUTED MODEL

A little later down the line, the concept of a solar "tax incentive" began to cause debate among the TSES members. In Russel's view, "the argument, the discussion that we were having centered around, is this a tool or a mechanism that will be useful and effective, or counterproductive? And it all depended on how the—the incentive was structured" (Smith 2002). Well, it ended up that the federal government would develop a considerable tax incentive, 40% of the price of the solar heating system taken off the top of your income tax liability for that year, with a cap of $10,000 dollars. This motivated a slew of new solar heater businesses springing up to take advantage of this window of opportunity that they, quite rightly, as it turned out, thought would likely dry up. "And within a couple of years, there were at least a hundred and fifty solar water heating companies in Texas, either manufacturing, but primarily dealers and distributors and installers" (Smith 2002). But these incentives were not well planned or implemented, and created a gold-rush style development where questionable products, business models, and ethical practices became the norm. As a result, the industry did not achieve the "economies of scale" effect that they had sought. In fact, because the tax incentive cap was set so outlandishly high, developers started finding ways to considerably inflate their prices without increasing the value of their product. As Smith explained:

> "I think that a lot of what happened is, the next guy down the block figured this out. Where do you go to sell a two thousand dollar water heating system? You go to households that have what? Money. … And you say, "Well look, you know, that company over there. Yeah, they're selling their water heater for two thousand dollars, but, you know, we have a better water heater. First of all, that's why ours is more expensive; but furthermore, ours is three thousand, but that's twelve hundred dollars back at the end of the year. So you couple twelve hundred dollars, plus the fact that ours is a better water heater, and you're going to save more money on it. If you add all of that up, and actually our more expensive water heater is a better deal, than their cheaper water heater'" (Smith 2002).

And this marketing ploy proved to be successful. Sometimes it did involve better products, but a lot of people were simply working the numbers in their favor. So, much to the chagrin of more legitimate solar businesses, by the end of the tax credit period in 1984, some installations were going for as high as $8-$9,000, over 4 times the original price. Another problem consisted of the lack of training, regulation, and certification that enabled even basic installation mistakes (i.e. installing on the North side of the house, which receives less sun) to become commonplace. And those who saw this going on and tried to call out these scams and mistakes, they were often condemned for slander rather than listened to. Congress knew just as much as the rest of the industry about all this mess and so after five years, they decided not to renew the incentive. And "Midnight, 1984, December 31st, … everybody turned into pumpkins. And within a year, there wasn't twenty percent of the industry in this country left" (Smith 2002).

It was a disaster that set the industry back by "a minimum of fifteen years" (Smith 2002). Indeed, Smith and others had even entertained the idea that the tax incentive was designed to fail, intentionally, to sabotage the industry: "I mean, people are going to game the system when you lay it out there like [that], and it's going to result in an industry shooting itself in the foot, and then you pull the plug on it" (Smith 2002). But Smith never fully indulged in that level of

cynicism, preferring to think of it as more the result of poor planning, combined with the panic around fossil fuels and enthusiasm for solar at the time.

4.3 WIND ROYALTY: MODELING OIL AND GAS

By the mid 1980's Texas Solar Energy Society had begun to develop a considerable lobbying presence, to the point that they had become worried about their tax status as a 501c3. So they formed the new Texas Renewable Energy Industry Association, which enabled them to up their lobbying presence and affect Public Utility Commission policy and state legislation. One of the first big moves that they decided to make was to invite the utility companies to join their ranks. This was really going against the grain of the time, when the conservationists and alternative energy buffs considered utilities their enemies. Smith characterized the thinking of these folks as follows: "there was a—a significant direction that said, 'Small is beautiful. Big is bad; utilities are not good; we want to all produce our own power; we want to reduce the consumption of power on an individual basis (not a bad idea) and that's how we're going to solve the problem'" (Smith 2002). On the other side, many TREIA and TSES members had come around to the idea that utility scale was the only way to go. In fact, Michael Osborne, one of TREIA's three founding members made just this argument by appealing to the oil and gas industry.

> "I did the plenary speech at the National Convention in 1981 that—this is after I'd put my turbines in—and said no, that's the wrong model. You don't have an oil and gas guy come to you on your ranch and try to sell you some drilling equipment and say it—and—and talk you into drilling an oil well and producing oil and then selling the oil to somebody. That's not what they're doing. They're coming on to your land and saying we'd like to lease your land. We'd like to produce the minerals that are here and we'll pay you royalty" (Osborne 2018).

As Osborne notes, however, the "distributed energy grid versus, you know, a utility-run grid, that's really a political idea" (Osborne 2018). And while he tended to agree on these philosophical lines, in Osborne's view, "[e]conomically, it just didn't make sense yet…" (Osborne 2018). His logic was to go for big gains at the utility scale, which is land intensive, but you offer a royalty that would make the land owners rich, thereby creating a class of stakeholders that might lobby with them for policies that will encourage even bigger renewable projects. Once again, he cites the oil and gas industry as precedent:

> "In the oil and gas business, in the early days, you had guys like, you know, Colonel Lucas, you know, wildcatting… And now you have these gigantic rigs that are … going 3 miles deep, 4 miles deep. And with … horizontal drilling, you know, they may go down 3 miles and then they may go sideways for 2 or 3 miles. Now that takes a lot of capital to do that. And then you compare that scale with the scale that we see offshore for oil and gas right now and it's another quantum leap. And so we'll see that in the wind business. We'll see that, you know, it'll get bigger and bigger and bigger and it, you know, you're not going to be a little wildcatter in that business" (Osborne 2018).[44]

4.4 SETTING THE (PORTFOLIO) STANDARD

So, in 1993-1994, TREIA shifted to the model of influencing centralized utilities and started actively recruiting utility companies, "[a]nd one by one, they joined the organization, and we had our disagreements and—and ups and downs, but we had them on the board, we shared these discussions and we got to know each other pretty well during that period of time" (Smith 2002). This move to include the utilities also coincided with growing interest in deregulating the utility industry, which, if done without concern for energy diversification, would have almost

[44] Eventually, however, Osborne believes that the distributed model will win out, as the "distributed versus centralized and stuff depends on your actual technological development and its time in the development stage" (Osborne 2018). He actually has quite a utopian view of the future, where high-tech quantum physics has enabled nearly everything exposed to sunlight to turn photons into electrons, and it's all hooked up to an electric grid-plus-storage system that balances the flow and provides all our heating, lighting, and transportation needs.

certainly squashed the fledgling renewable energy industry. Renewables were simply more expensive than fossil fuels and even nuclear at the time, and deregulation would incentivize wholesale producers to focus on generating profits from volume sold at a competitive price. Thus, as Smith put it, "Forget about the fact of whether it's the right thing to do; forget about the fact of whether it's good and good for us. What would that mean to us in the marketplace?" Many were worried that deregulation would be a fatal blow to large-scale electricity production from renewable resources in Texas. And so they developed the idea of generating "Renewable Portfolio Standards" to ensure some degree of renewable development in those early years, which was intended to get the renewable industry over the initial hump of competing in a completely deregulated market.

The choice to deregulate was spurred in part by the huge disparity in energy tariffs charged by utilities, from 3.7 to 11 cents per kWh (Hughes 2010).[45] This was largely due to the way utilities produced their power. Some utilities had settled on constructing large coal or nuclear power plants, the costs for which would be recovered, with interest, over the time of the plant's operation. Many industrial users saw themselves as "trapped" by the regulated areas, and wanted to take advantage of some of the lower priced energy that they saw available in other utility territories (Hughes 2010). Thus, interest in deregulation grew over time, as it became seen as a means of leveling out energy prices, enabling greater diversification of energy resources, and paving a way forward for wind development.

In the initial phase of deregulations, the Texas PUC instituted what they called the "Price to beat," which froze the price of the former monopolized utility providers at their 1999 rate. This precluded these providers from utilizing their current dominance to artificially lower

[45] The Public Utility Regulatory Act (PURA) of 1975, which established the Public Utility Commission of Texas, sought to level out these differences. What they ended up seeing, however, was climbing rates (Hughes 2010).

their rates and preclude the entry of any potential competitors. The Senate Bill 7 also required Texas' first Renewable Portfolio Standard. The standard required the development of 2,000 MW of renewable energy by 2009, in addition to the 880 MW already installed at the time. The category of "renewable" included "solar, wind, geothermal, hydro, wave, tidal, biomass, and biomass-produced waste products such as landfill gas (Hughes 2010, Public Utility Commission of Texas 2003). The bill also tasked ERCOT with managing a Renewable Energy Credit system, whereby those utilities unable or unwilling to develop renewable energy were able to purchase renewable energy credits from utilities that had produced a surplus.

4.5 GIVING DEREGULATION "A PERSONAL TOUCH"

Many people were invited to the table of discussion around deregulation, and Smith, in particular, claims that the network of relations between utilities and renewable advocates that TREIA had established played a large role in their ability to work through their disagreements: "the environmental groups, the consumer groups, the renewable energy folks, the utility industry; everybody was involved in this discussion, in a very, I think, forthright and open way, and what evolved was what we think is probably a program that has the best opportunity for success of its type in the country" (Smith 2002). Other stories, however, show how the negotiations were somewhat precarious, last minute, and targeted. As Smith himself stated, "maybe this is a Texas perspective, I don't know, but it all comes down to personal relationships" (Smith 2002).

The Deregulation bill was co-sponsored by Senator David Sibley and Representative Steve Wolens. Sibley, who was head of the Senate Committee at the time, asked Jim Marston, of the Environmental Defense Fund (EDF) what they could do to get the EDF's support of the bill. Marston recalls that Sibley was wise to the fact that he would need some progressive

environmental policies to get the bill to pass the Texas House, which was majority democrat and chaired by an environmentally friendly democrat. So, Marston and EDF set two requirements: 1) a redress of a "grandfather bill" that enabled Texas's worst polluters to continue polluting, and 2) to require 2000 MW of utility scale renewables as Texas's first Renewable Portfolio Standard. Another story of even more "last minute" input comes from Osborne, who was on a trip to New Orleans with fellow renewable advocate, Tom "Smitty" Smith, when he received a call from Steve Wolens. Wolens was chairing a House Committee on deregulation and, at the very last minute, called to tell Osborne that he had decided to include renewable portfolio requirements in his deregulation bill. Thus, he called Osborne because he wanted to consult his expertise on the language he should use, "in like ten minutes. … And so we gave him some language and it ended up in there. And that's how we got our first goal" (Osborne 2018).[46]

The Renewable Energy Portfolio was expanded in 2005, making Texas the second largest producer of renewable energy in the country. It was signed by governor Rick Perry, who otherwise has a strong track record of support for the oil and gas industry, against concerns for the environment. However, at the time, renewable energy wasn't yet politicized to the degree that it would be in later years (Osbourne 2018), and so Perry and the rest of the state senate justified the increased standard by claiming that it would create jobs, reduce pollution, and help free Texas from dependence on foreign oil.

[46] When asked further why he thought Wolens might have come around, Osborne explained it in terms of a "stranded regulation cost." The logic here was that nuclear facilities had been granted a "stranded assets cost" because their multi-billion-dollar facilities would not be competitive in the deregulated market. Well, Osborne and others argued that regulation would have provided better tools for pollution reduction that are lost with deregulation, and thus argued for renewable portfolio standards as a way of mitigating this "stranded" regulation.

4.6 ELECTING SOLAR: A TOP DOWN GRASSROOTS APPROACH

Today, Texas leads the US in renewable energy production, largely because of its enormous wind energy assets (Gearino 2023). But, as Kristen Hughes notes, these more rural Texas facilities, "while valuable to the counties hosting wind farms, foregoes opportunities to improve air quality in the metropolitan areas where 85 percent of Texans reside" (Hughes 2010, 157). Thus, environmentalist's interest in solar grew as a way to promote cleaner, renewable energy closer to these metropolitan areas. Within Austin, Solar Austin was one of the first local non-profits to make solarization their priority. Solar Austin is a 501C3, dedicated to influencing and supporting greater solar adoption in Austin, but also across the state of Texas.

Solar Austin formed out of a strategic partnership between Public Citizen (which was headed up by Tom "Smitty" Smith) and Virtus Energy. Virtus Energy was a private energy consulting firm owned and operated by Mike Sloan. Sloan had a background in engineering, which gave him a level of credit that Smitty, over at Public Citizen, wanted to take advantage of. So, Smitty hired Sloan to help him work against TXU's plans to construct a slew of new coal and gas plants. This formed a bond and gave Sloan the experience he needed to land a position conducting a statewide assessment of the renewable energy industry in Texas for the Energy Development Council, paving the way for Sloan to become the chairman of the Texas Solar Energy Society.

The City of Austin, at the time, was also putting together the Sustainable Energy Taskforce, and they selected Sloan for their chairman. This was 1997-98, when the city was working to develop GreenChoice and their first ever Renewable Portfolio Standard. The public

utility had just merged with the energy efficiency utility to form Austin Energy, and the two cultures “couldn't be more different. You know, one had all big power plants. They liked to burn stuff. The other was the efficiency guys” (Sloan 2021). Sloan, as chairman of the Sustainable Energy Taskforce, was tasked with overseeing the generation of a plan for “how to make Austin fully sustainable, 100% sustainable energy, [when] we don't have any funding for you…” So they put together the “GreenChoice” program, first of its kind in the nation, that offered individuals and businesses a ten year contract for 100% West Texas wind at a fixed rate.

Soon to follow, Texas legislators began planning for deregulation, and so Sloan and Smitty teamed back up in the Texas Renewable Power Coalition, which brought together a diverse group of various environmental groups and industry in order to develop Texas’s RPS legislation. That RPS was a “windfall” for Texas wind, but the solar industry had continued to lag well behind. And so many turned their focus on how to recreate their successes with Texas wind in the solar industry.

This would not be as easy, as “nobody wanted to do solar. Cuz solar was a lot more expensive than wind” (Sloan 2021). And, at the state level, in Texas, the only way to generate a lot of interest was to show people the money. So Sloan turned to Smitty and they decided to set their sites more locally on Austinites only, “because they have different drivers, and we should be able to open up the solar market in Texas by starting in Austin” (Sloan 2021).

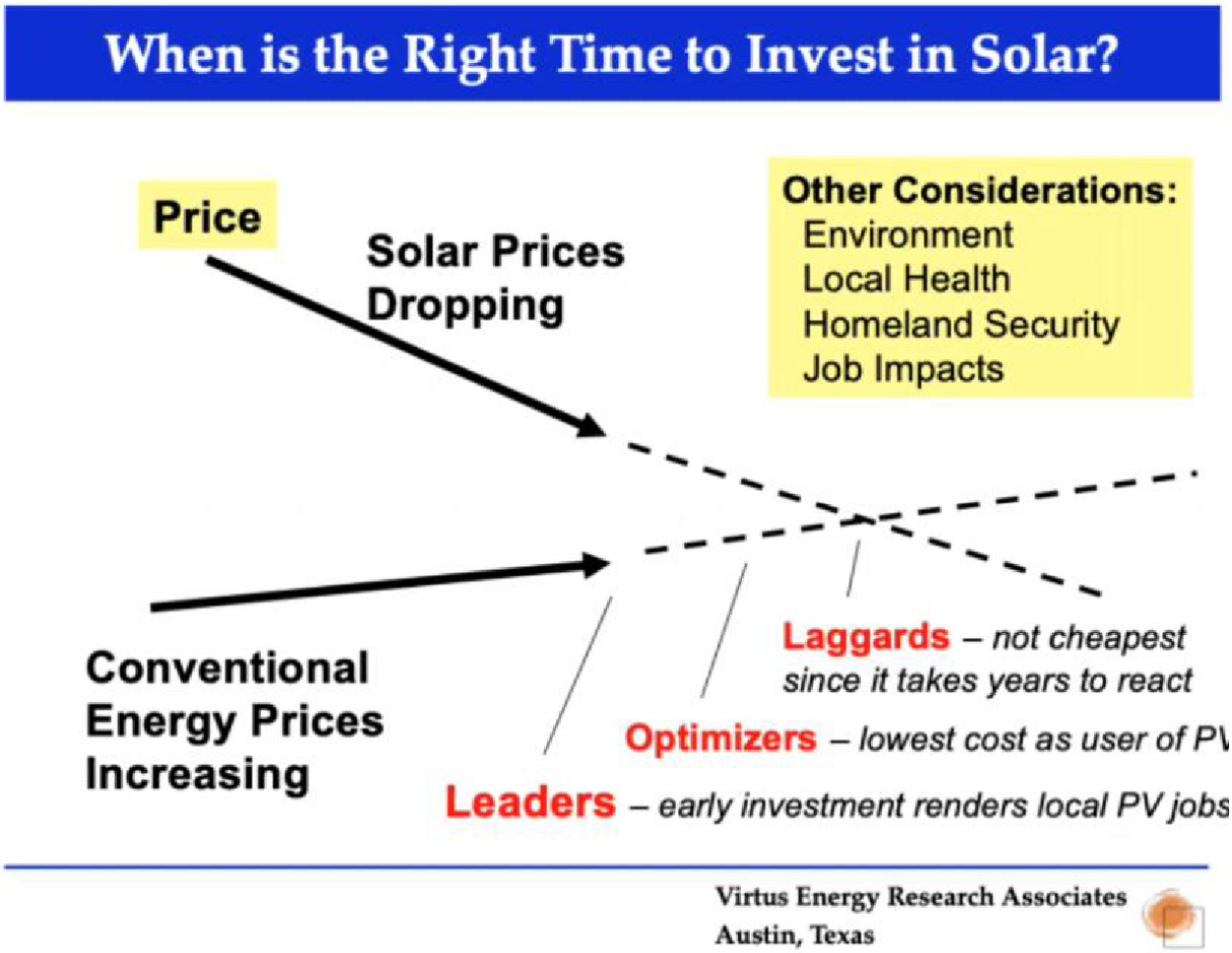

Figure 13: This image is a screenshot, taken by the author, of Mike Sloan's presentation during Solar Austin's Happy Hour in August of 2021. This slide was produced by Mike Sloan of Virtus Energy in an attempt to persuade the Austin City Council to take a leadership role in the development of solar in Texas.

So the two joined up with Karen Hadden of the SEED Coalition and they started up Solar Austin. Their first move was to take a trip to San Francisco where they met up with Dan Sugar, who taught them all about what to push for on local solar. Then they came back and got to work on their local politicians. One of the first things they managed to do was convince City Council that part of their job was to mediate and represent the public's interest in Austin Energy as the public utility, and that included reflecting the city's environmental concerns. "If you want to be a

leader and really, you know, capture the benefits of early investment" you need to get into the industry before the crossover point (see figure 13), where conventional sources rise above the price of solar (Sloan 2021). The candidates running for city council ate this up with a spoon, and they actually started working renewable energy into their campaign: "they [were] basically using our information to talk to people from the public to try to win votes. A lot of the people that came to our educational forum ended up winning" (Sloan 2021).

Years later, in a bid to convince the City Council to go beyond the 2017 resource planning group's renewable energy goals, Smitty recounted some of this history during a public hearing on August 10, 2017:

> "It is because of decisions made by this council about 10 years ago that we now have 1100 people working in the renewable energy industry. It is because of decisions made the last time we did this where we said we want to do a stretch goal of 650-megawatts of solar that we broke the solar floor. We dropped it from 5.3 cents a kilowatt hour to about 3.8 cents a kilowatt hour. When the industry, the generation industry around Texas saw that, it was a 'Katie, bar the door!' moment for good solar sites out in West Texas. And now because of what you did, there are between 14 and 27,000-megawatts of solar under construction."

Figure 14: This image is a screenshot, taken by the author, of Mike Sloan's presentation during Solar Austin's Happy Hour in August of 2021.

Sloan and Smitty went for the powerholders, the mayor and City Council, who are, for all intents and purposes, the board of Austin Energy. "The guy in the white shirt, that is the mayor [Will Wynn]. He was emceeing our event! So this shows you, you know, we targeted relationships with these folks" (Sloan 2021). While Mike Sloan spoke of this as a winning strategy (and indeed it was), it also reproduced a method and style of organizing that had long shut East Austinites out of Austin's environmental benefits. "So, you know, it really was effective in building relationships *with the right people* and we were able to get, you know, the solar rebate program started [and] a big increase in RPS." Once again, Sloan is taking for granted that the "right people" are those that can help you achieve the goals you've already decided upon, rather than putting in the time and effort to seek out partnerships with those who might be marginalized by these efforts, and who may have a vastly different perspective on what these

goals should be. That is, Sloan is revealing a rather pragmatic understanding of the political, where success necessarily indicates that the "right people" were contacted, and that the strategies used to establish these contacts were effective. And, indeed, these sentiments were largely confirmed by their peers and even the media, as "the following year, 2004 Solar Austin campaign got selected as the 'best grassroots effort' by the Austin Chronicle" (Sloan 2021).

5. PLATEAUS OF ENVIRONMENTAL JUSTICE

One of the enduring impacts of Austin's development as a technopolis was the establishment of a tension between Austin's environmental and environmental justice communities. For instance, Kenneth Thompson once told me over lunch, "When you talk about Austin environmentalism, historically environmentalists have been West Austin focused." This is pretty squarely the case. And it's largely due to the fact that, as I discussed in the previous chapter, West Austin is a densely forested and rolling landscape, situated above vulnerable karst formations at the edge of the Edwards Plateau, with multiple springs and caves that support a number of rare and charismatic species. Thus, Kenneth continued, "When I think about Austin and environmentalism, before I got into climate justice, the only thing I could think of was 'the salamander.' But I never felt that our voice was heard in that."

What Kenneth is referring to as "the salamander," here, is a reference to Austin's famous Save Our Springs coalition, an environmental group that formed in Austin in the 1990s, with the specific goal of protecting the city's cherished Barton Springs swimming hole as a space of outdoor recreation. But the group also garnered appreciable public support by centering the plight of the endangered Barton Springs Salamander, whose rare and delicate ecological niche was being threatened by development plans at the time. And while the Barton Springs

Salamander helped the Save Our Springs coalition to gain political prominence in the city, scholars have shown that these efforts to protect Austin's wildlife have often also unduly shifted the burden of Austin's growth to its unhoused population (Tretter 2016) and to communities of color (Walsh 2007, Busch 2017).

The lesser known, but increasingly recognized People Organized in Defense of Earth and her Resources (PODER), by contrast, is a prominent environmental justice group in Austin that formed at around the same time (Walsh 2007). But "PODER," Kenneth noted, "offered a different assessment of environmental justice." Importantly, this latter group actually started out organizing their community, not around the environment, but around the issue of gentrification. In this section, I'll recount the story of PODER's development as an organization and as a structure of power, which is the near inverse of the power relations and political ethics of the more mainstream forms of environmentalism and renewable energy-tech advocacy.

5.1 AWAKENING TO ENVIRONMENTAL IN/JUSTICE

The way Susana Almanza, one of the co-founders of PODER, tells the story, it all started with a conversation about SEMATECH. SEMATECH was a major semiconductor manufacturer that relocated to Austin to form a new consortium with Austin's other big name in microchip technology, the Microelectronics and Computer Technology Corporation (MCC). This was all a part of Austin's larger goal of developing a high-tech manufacturing cluster in the Montopolis community, designed largely according to Smilor et al.'s "Technopolis Wheel" model of development (1988).[47] And, according to Bill Clements, who was Governor of Texas at the time,

[47] See Section Two of this chapter for a more detailed discussion of Smilor et al. and their Technopolis Wheel.

this new partnership marked the resounding success of this model, as it was expected to "make central Texas a world-class research region" (quoted in L.A. Times Archive 1988).

However, not all of the attention culled from this partnership was equally approving. SEMATECH was developing microchips for smart bombs at the time, and this drew attention and concern from a cross section of different environmental and social justice groups throughout the US. Thus, some of these organizations got together and wanted to hold a meeting with SEMATECH on site, in Montopolis. And, when word got around that they were looking for a local resident to help organize it, Susana volunteered to help out (Almanza 2003).

Luckily, Susana and colleagues actually managed to convince SEMATECH to send a representative to the community meeting to start a dialogue. It was during this conversation that Susana first learned about the many negative *environmental* impacts that these tech companies were having on their community, in addition to the more overt economic impacts.[48] Many East Austinites, including Susana, were completely shocked. And then, after the meeting was over, "all of a sudden we saw everybody going back to their prospective, you know, states and organizations and we went like 'wow, wait a minute. Now that we know all of this stuff is here and it's in our community, we have got to do something about it!' And it was then that we formed PODER, People Organized in Defense of Earth and her Resources" (Almanza 2003).

As stated above, in Section 2, Austin's technopolis architects created their model of the "Technopolis Wheel" based on their analysis of Austin's development, but it was also thought to apply well to other similar regions, such as Silicon Valley, CA, Phoenix, AZ, Troy, NY, etc (Smilor et. al 1988). Indeed, PODER also noticed the similarity, and they used their new connections throughout these regions that they developed at this recent SEMATECH meeting to

[48] According to a 1994 study by the EPA, Motorola and Advanced Micro Devices facilities, located in East Austin, emitted a combined 275,000 lbs. of toxic chemicals into the air (Hartenberger et. al 2012).

learn more about the sort of impacts the tech industry could have on the local environment. As Sylvia Herrera recounts, "And we had already made some connection to groups outside of Texas on the regional level and had identified this trend that was happening looking at Silicon Valley and then looking at Silicon Desert in Arizona, looking at New Mexico and then Texas. And we were seeing the trend that the high-tech companies were going to come into East Austin in the guise of providing economic development" (Herrera 2003).

Their community was quickly outraged to find out that the city had plans to turn Montopolis into a new high-tech corridor, which, in their eyes meant more gentrification and displacement. Susana recalls, "we didn't feel that that was appropriate, that we were starting to give high tech facilities tax abatements when we had small businesses here" (Almanza 2003). Such unfair advantage made it to where local businesses couldn't compete. They were being taxed out. Of course, in reply, the promoters of the corridor touted the refrain of "jobs, jobs, jobs." But Susana and her community were not convinced: "Here they were in our communities, yet we were being burdened by all the emissions, the pollution that [was] coming from them, but we weren't working there" (Almanza 2003). She further explained, "when we looked at it we saw that at that time in the early 90's that Austin was like at a three percent unemployment rate. Montopolis was experiencing a 15 percent unemployment rate." So, even after almost a decade of all this tech development all throughout Montopolis, "we were like highly unemployed" (Almanza 2003). Furthermore, the jobs that such firms created often required a lot of education, which meant most East Austinites would not qualify. Or, the only jobs they would qualify for were low-wage and high-risk assembly-line jobs "where you were exposed to all these different chemicals and so forth" (Almanza 2003).

5.2 A NEW CODE: GRASSROOTS FROM THE BOTTOM UP

After working on this issue for a few years, PODER gained their first substantial political victory when they forced SEMATECH to stop using toxic chemicals in their East Austin plant in 1991 (Walsh 2007). This success was then shortly followed by an even more remarkable triumph for environmental justice with the 1993 relocation of the "Tank Farms," a severely dilapidated East Austin petrochemical storage facility that had been leaking harmful pollutants and carcinogens into Austin's communities for decades. This notable success against the petrochemical industry garnered PODER a reputation as a new political force in Austin.

But the sweetness of these tastes of success and new political standing were short lived. It wasn't long after the petro-chemical storage tanks had been removed that another company came in, "using the property to store earthmover, these huge tires, and they started stacking them up on the property" (Herrera 2003). Shocked and frustrated, this led to another watershed moment in PODER's development, when they began to realize that they "had only tackled part of the problem with the tank farm" (Herrera 2003). According to PODER co-founder, Sylvia Herrera, this near instant re-appropriation of the Tank Farm site made them realized that, if they were ever going to make headway in "tackling hazardous facilities in East Austin," it wasn't going to be a site-by-site struggle; they "needed to look at zoning and the land use" (Herrera 2003).

Importantly, it was through their investigations into Austin's history of zoning that PODER and other EJ groups drew attention to Austin's 1928 City Plan, and to the origins of modern environmental racism in Austin. Sylvia Herrera noted that the discovery of this plan was "a major factor" in their community realizing, "Oh, this is where it's come from. This is how we all ended up being in East Austin living next to these hazardous facilities" (Herrera 2003). With

this knowledge, as PODER redirected their attention to other pollutive facilities and industries in East Austin, they also added a strategic focus on zoning. “We then had to educate people on how zoning works, what was the process? [And] get them to the planning commission. Then get them to the city council to down zone it … [from] an industrial zoning to a neighborhood office zoning. … And that’s the current zoning that’s there” (Almanza 2003).

Thus even though PODER’s successes were largely a result of their ability to win over Austin’s other environmentalist groups to their cause (Tretter 2016), their activism was firmly rooted in building power, not by appealing to the top of the hierarchy, but by reducing the vulnerability of those at the bottom. As Susana puts it, “we always believe in education advocacy in action” (Almanza 2003). Thus, PODER’s political strategy wasn’t just to appeal to and win over the power holders, they were instead “looking at our vulnerable populations. We’re looking at populations of children and elderly that are vulnerable populations and—and [their] health problems” (Herrera 2003). Susana talked about how this decision to center the health aspect was also strategic, as it was something people could understand, even if they don’t normally think about the connection between health and their environment. “And one of the [reasons why] we’ve been looking at the whole health issue [is] because people understand health. They might not understand a lot of issues but health is something everybody understands. If you’re sick, you know you’re sick, you know. So health is a real issue to people” (Almanza 2003).

That said, PODER’s education campaign entailed educating the powerful as well. They had to undertake considerable educational work to get the environmental community to realize that people were part of the environment, and that building toxic technology manufacturing plants in areas where lower class communities of color live and work and where their children go to school and play is an environmental issue. By demonstrating that nearly all locations of high

technology manufacturing firms in Austin were zoned so as to be located in non-white communities, they enabled these groups to recognize how the mainstream environmental movement was pregnant with precisely the kind of "whiteness-as-distance" as described by the indigenous activist that Lauren Ross spoke of (see Section 1.6 of Chapter 1).

5.4 SHIFTING BOUNDARIES OF ENVIRONMENTAL AND SOCIAL JUSTICE

Throughout the early 2000's, many of Austin's environmentalists still considered gentrification to be in accordance with the natural or logical development of a city. In their view, East Austin's Desirable Development Zones were both dilapidated and cheap, and therefore the locations most suitable and in need of redevelopment. PODER's response was that environmental racism was the cause of the dilapidation and poverty in the first place. Asymmetrical power relations determine which environmental problems become visible as problems and therein capable of being addressed (Tretter 2016). Beyond even the "city code" as a deutero-level plateau that shapes deutero-learning and planning, there are more fundamental, deutero-level plateaus that shape power and politics. Part of the project of just transition has to involve attacking this asymmetry, not appealing to it.

Thus, more recently, PODER and other climate and social justice organizations have set their sights on tying climate protection to struggles for cultural preservation and against police brutality. My experiences with Austin's Office of Sustainability[49] are a testament to the fact that these decades of grassroots organizing and fighting with the city seemed to have paid off. As Kenneth put it, "This has been interesting because, this climate steering committee, I see much

[49] See Chapters 3 and 4 for a description of these experiences.

more grassroots individuals. And I see people who wouldn't be at the table in previous years of Austin. Surely not the number."

There's also been profound shifts in other organizations, like Solar Austin. Though they originally formed with a narrow goal of jumpstarting solar energy in Texas, in more recent years, the organization has taken on a stronger social and racial equity focus. Some of these more recent projects include hosting educational events like "solar camps" during the summer, and developing solar curriculum for youth of different ages. Solar Austin has also developed and recently launched a paid internship program for college and high school students.

Solar Austin has also worked to increase access to renewable energy through both policy and more directly by arranging resources for "community solar installations." That is, Solar Austin works with local solar companies who provide volunteers and donate their equipment, time, experience, labor, and professionalism towards the installation of solar arrays to provide affordable energy to struggling communities. The first community installation project was located in Community First! Village, a 51-acre master planned community in Austin, Texas that provides affordable housing to formerly unhoused Austinites (Community First! Village n.d.). As one of the project leads, Stanley Pipkin described it, "We attracted about 12 companies to participate, put a reasonably sized system on one of their common buildings, and turned it on. And so there, the Community First! Village is receiving the benefits directly. [It] lowers their costs and it's, and frankly… it's become kind of a billboard for their broader commitment to range of sustainable techniques." Kenneth Thompson followed up from there, noting that one of their current community installation projects has targeted The Children's Haven Association, a traditionally Black, East Austin non-profit organization that supports other local foster care, day care, and foodbank facilities in their communities.

Kenneth described his strategy and desire for the project: “And hopefully what we hope to see is the *ripple effect*, where other members of these communities who have, traditionally, have thought, perhaps solar and renewable energy wasn't in their lane, understand that it is in their lane. And that also, Solar Austin is an organization that will create these pathways for more communities to get involved.”

Under Zach Baumer, the city’s Office of Sustainability has also begun to develop a more earnest approach to environmental justice. For the 2019 climate planning staff, Zach selected two young women of color who had already been working in Austin’s environmental justice communities. And he tasked them with developing new ways of building connections to the local community. As Community Engagement Specialist, Celine Rendon reflects “I am kind of new to this world too, but it is crazy to think we haven’t been thinking in this way before, from like a city planning side. Even though community members have fought over, and over, and over that these are real issues that they are prioritizing… ‘listen to us, like we’re telling you this is hurting us, this is violent’ over and over.”

6. ENVIRONMENTAL JUSTICE IS AN UPHILL BATTLE

When asked if there was something he’d like to say to the next generation of environmental and renewable energy activists, Roger Duncan framed environmentalism in a rather dialectic fashion: “when I’m teaching a class sometime and talking about environmental issues, we got to realize that there’s no perfect solutions and that the solutions we have today are creating the problems of tomorrow.” His example was the fact that coal, the electric grid, and the internal combustion engine, were once the cleaner, sustainable solution to the problems of the day: 1) the decimation of our forests for heat and fuel, 2) the decimation of the whale population which caused a shortage of oil to lubricate machines and to fuel our light system, and 3) the problem of the

horse, whose manure polluted city streets and air, and limited the growth capacity of cities. Duncan continued, “We need to recognize that when we convert to a new solution, that it seems to be the clean solution, it’s not going to be a hundred percent solution. There will be problems created from that as well that we’re just not dealing with yet because we hadn’t reached the magnitude of the deployment of that” (2018).

Duncan is making a valid point. It’s important to recognize and expect that renewable energy will produce (and already is producing) its own environmental problems. Utopia is off the table, all we have available is staying with the trouble (Harraway 2016). In fact, I think it could be useful to broaden his overall point, beyond the domain of the environment, to the fact that any solution (technological, political, ethical, etc.), once it gains a position of dominance, will inevitably marginalize, exclude, or suppress what falls outside.

When social movements mobilize, they often mobilize *against* a pre-existing social force that they find unacceptable. And in doing so, there is often a sense of urgency on the matter, a sense that what has to happen has to happen as fast as possible. There is also often a recognition that the struggle will be enduring, going through many permutations, and taking on shifting senses of urgency and laxity. In struggling against an opponent, you are also struggling against the field of which that opponent was a part. And, in the process, you begin to acquire deutero-learning of the context of that struggle.

This deutero-learning can absolutely make your political practices more effective, as can be seen in PODER’s realization that, rather than the Tank Farms, the City Code was their true nemesis, as it had enabled and encouraged the location of these toxic facilities. Attacking the code, rather than the facility, would get closer to the source of the pollution. This deutero-learning is both inescapable and necessary for advancing any political cause to a

significant degree. However, in the process, the radical openness of the movement begins to close in on itself. The context begins to adapt to your strategies, just as the strategies affect the context. There is an ever present potential for the movement to no longer be perceived as a threat at all, becoming inseparable to the context. This is both the success and the failure of the movement. There is no movement that can succeed without also failing.

6.1 THE FORECLOSURE OF ALTERNATIVE RENEWABLE FUTURES

The undercurrent failures of successful social movements can be seen in the development of the renewable energy movement. The renewable energy movement began with a radically open future. As such, however, it was equally radically underdeveloped. Those who took it upon themselves to advocate for renewable energy did so by appealing to the structure of the historico-political context at the time, i.e. to the desire for energy independence and security, for cheap and abundant energy, for clean energy that would reduce local air pollution, and for good, "home grown" jobs. All of these special interests were mobilized in order to carry the renewable energy movement along. However, each move along the way, the alternative steps were precluded, certain interests were marginalized. And yet, with each success, the primary architects were further convinced that they had made the right move, and they further developed their ideas about how the game is played, at least in Texas. All the while, the game was changing under their feet.

A common refrain amongst the early renewable energy players in Austin was that the Texas politics used to be more reasonable, both because it was a "two party state," which enabled a maneuvering of the democrat-republican split to get compromised-yet-successful versions of renewable energy regulations through. And also, the older generation remembers a republican

party that was less reactionary towards renewable energy and the environment. It's tempting to see the deterioration of Texas politics as happening alongside, or outside, or apart from the moves made by these individuals. But to tread that line reproduces the kind of "divided" and "categorical" thinking that this dissertation's ecological approach is trying to resist. There is an outside, but it's not inhabited by your opponent. The outside has nothing to do with opposition. It is a pure uncoded field of forces. The idea of the "right" and the "left" that has guided so much of western liberal politics from its earliest beginnings is part of the epistemological machinery that must be undone. Not because it doesn't exist or is ineffective, but because it is all too effective. It shapes our thought too well.

6.2 PODER AS A NEW CENTER, AND A NEW MARGINALIZATION

This damming effect of success can be observed in the case of PODER and in Austin's environmental justice movement, perhaps most obviously, in the disparity between the record of PODER's role in Austin's environmental justice, as a predominantly hispanic organization, and the relative erasure of the role played by Black organizations, like the East Austin Strategy Team (EAST). There is a sense in which this erasure is tied to PODER's success as an environmental justice organization. Which is not to disparage PODER's more than admirable endeavors, and the painstakingly careful work that its members have undertaken go about environmental justice organizing in an equitable and inclusive way. But just like the successes of the renewable energy advocates, PODER's successes were not made without foreclosures or marginalizations.

This is not to claim that PODER or its members have, in themselves, erased Austin's Black community's involvement. Just like I wouldn't claim Michael Osborne or Smitty are responsible for the right's fairly radicalized opposition to sensible climate change policies.

Indeed, Susana even regularly credits PODER's work on the Tank Farm as a collaboration with the EAST taskforce, and with Ron Davis, who was at the front of that organization's leadership. And yet, PODER, as an organization, has survived for decades and continues to thrive, living on in the lineage of new activists being trained and passing through their organization. EAST, by contrast, only lasted for two years, from 1995-1997. What is the reason for this disparity?

Kenneth Thompson was the first person to draw my attention to these racial differences, situated within Austin's EJ movement. Importantly, and this is a testament to Thompson's character, this was mostly noted in a positive light. For instance, he was the first person to enlighten me of PODER's strong impact on generations of EJ Activism in Austin.

> "And the beautiful thing about Susana, right in that room [referring to the Climate Equity Steering Committee], you can see some of the tree branches, you can see some of the generations. You can see Celine, and you can see [interruption in the recording], you can see Rene, you can see Phoebe, but they all have done some work with PODER. So, one thing you can see is her generational connection, you can see, I think you said *the ripple effect*."

Later in our conversation, however, Kenneth repeated this observation, but this time with a different tone:

> "But I think another thing that you see here that's missing is an African American galvanization around the issue. I mean, cuz you can look and PODER and you can look at Susana, and you can look at all my hispanic and latin brothers in terms of their ripple effects, but I think, what's missing… has always been missing is that same cohesiveness in the African American community."

Intrigued, I asked him to tell me a little bit more about this, and about why he thought this was the case. This was his reply: "The thing that I would say that Austin is missing is what I call a black center. And I don't mean a physical place, right? To some degree. But I don't think that Austin has a place where black folks can go and put a plan together and try to execute it to maximize their existence." Kenneth elaborated:

"I'll give you two classic examples. When you go up to 11th street, we have the African American Heritage Center and you also have the African American Chamber of Commerce. Neither one of those places are built big enough that you can have a meeting in them. Now when I go to my… when my Asian brothers, if they want to go and meet at the Asian center, there's plenty of room for me. There's plenty of room to have a conversation right? If I want to meet with my Latin brothers, my hispanic brothers, I can go down to the Barrientos Complex. So, if you think about finances being one of the key cogs in your community, well if you have a center built that says you are about economic development but hell you cant have no meetings up there… For instance the African American Resource Quality of Life Commission, the first that exists, they don't have a home. They have to meet wherever a building, facility is available for them. Now you talk about an injustice. I'm the first one, but yet there is not a sole place, there's not a place for me to call home. … And so you look at how those things are set up. That's not done unintentionally. I mean, you know, and so, and think about the power that again, if we had a place where there could be a black center, where there could be a group of black folks [who] can actually have a conversation, just like anyone else."

6.3 THE INTERNALIZATION OF ENVIRONMENTAL JUSTICE

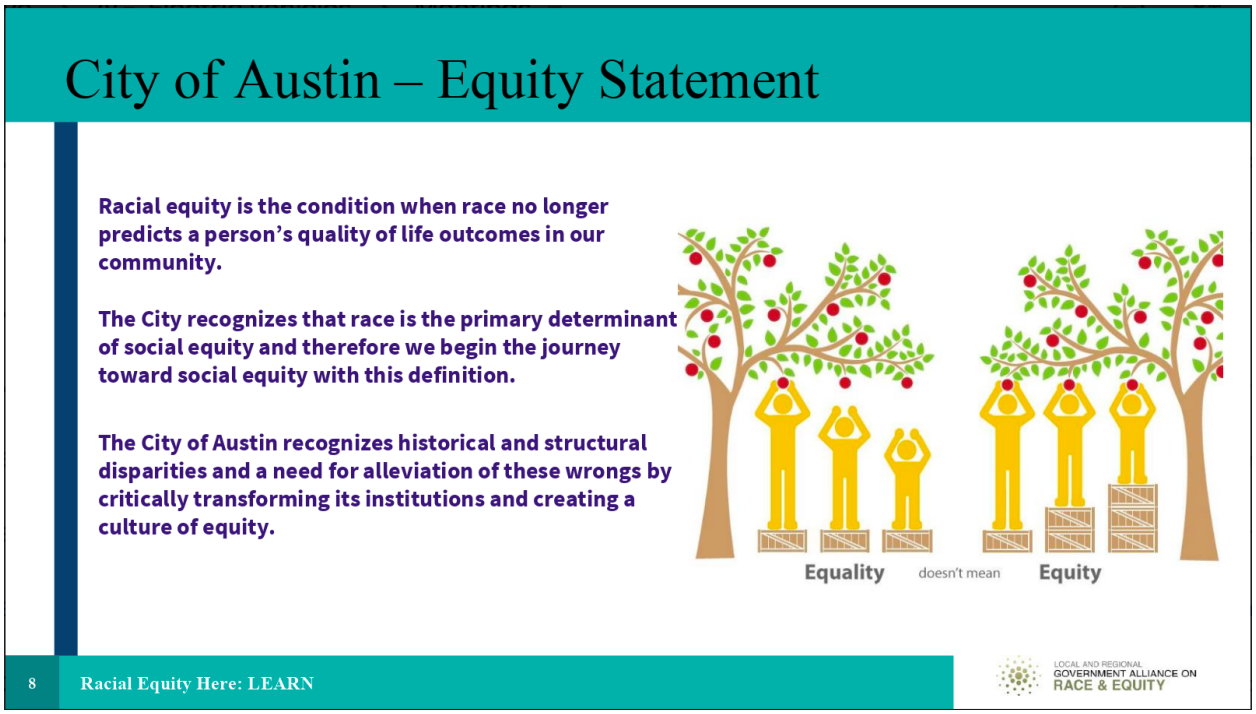

Figure 15: This image is a screenshot of the "go to" slide for the City of Austin's Office of Sustainability whenever they would introduce their conception of equity.

The force of Kenneth's last line here, "just like anyone else," really sends his message home. And the force of his critique, here, is rendered all the more potent when you recognize that, even those departments and organizations who seem to be putting forth sincere efforts to address racial inequities in Austin, are reproducing contradictory, or confusing narratives about what antiracism is and what it looks like. Take the above image (figure 15). The contrast between text and image in this slide bears a symmetry to the dissonance between the City's actions and the national discourse on Austin. Austin's progressive reputation simply does not align with the lived experiences of many of Austin's black and brown residents.

When I asked Kenneth his thoughts about this image, his reply was "Right, like I need help, right, and so who does that really make feel better about that, right? … when they put that

thing together, they probably thought, 'it looks good' and it probably gave them the responses they thought they was gonna get. But if they did go out and add more people and add some deliberative thought to those things, right, then perhaps someone'd say, 'Hey man, wait a minute, you're makin me feel like I'm in need all the time.'"

Listening to critiques like Kenneth's helps to illustrate how this sort of superficially progressive image actually participates in the erasure and exclusion of black experiences. This image does so in the following ways: 1) the visualization seems to suggest that black people need "more" assistance to create an even playing field, rather than simply taking away or offsetting the present and historical structural barriers to self-determination; 2) the metaphor of height (a "natural" difference in ability) is unfit to represent these structural disparities in the quality of life between Austin's black and white population; and 3) it is simply inappropriate to represent disparities that result from life-course changing, structural violence with primary colored boxes, apples, and stick figures.

Attempting to make Austin residents feel more comfortable with their City's racist past and present, while maintaining the city's progressive reputation may seem quite reasonable, but the dissonance between that representation and the situation of the city's black population has detrimental effects on the psycho-social dynamics of local black families. It presents young black folk with a double bind. They are being excluded from a conversation about inclusivity. I'll quote Kenneth again, "Two things happen, we start to feel like, first of all, that our voice doesn't exist, right? And then you start trying to figure out, to some degree, why should you get involved? Why should you get involved when it appears that those who should be the architects of fairness, right, are still imbalanced with their media and with their messages? … And so, when you have

those things happen, right, then it can zap someone's energy and their willingness to give to a system that they see is already untruthful."

CONCLUSION: THE QUESTION OF THE QUESTION

In this chapter, I have argued that the question of "just transition" alone, while timely and valid, moves too quickly. It must be supplemented by the more fundamental and deeply problematic question of how to adequately and ethically pose this question in the first place. Thus, taking a page from Foucault, this chapter focused on the conditions that have made the problematic of "just transition" possible, asking how the systems and assemblages that have produced Austin's social, environmental, and ecological problems have also enabled and shaped the way people recognize, conceive, and work to resolve these problems.

This "question of the question" of just transition, however, is problematic because it places the researcher in a double bind. That is, it asks of the researcher two questions, posed at different scales of attention, that contradict each other: 1) How do we transition to a more just and sustainable society? 2) How do we ensure that this transition to a more just and sustainable society is itself just and sustainable? Question 2 here, assumes and requires the positing of question 1 first, as its object of reference and therefore a precondition for its own positing. Thus, in a logical sense, Question 2 must necessarily come after and follow from Question 1. On the other hand, Question 2 must also be answered before the first can be adequately posed and pursued. That is, methodologically, Question 2 should come first. So, where to begin?

Though analytically undecidable, this philosophical trap has a pragmatic answer: we inevitably start from the middle, as any "new" question is but a derivative and diversion from a

previous question, as any beginning is but a departure from that which has always already begun. As such, the utility of the "question of the question" lies not in its resolution (it cannot be resolved in any straightforward way), but in its endless repetition. The question of the question is posed such that the pursuit of the one necessarily changes the context and the framing of the other; it is a relay or a correspondence, one in which the question is always changing and the answer is always deferred.

This epistemological intervention into the just transition discourse imitates the historical and cultural interventions through which the question of "just transition" arose in Austin. That is, like all thought, it came from an encounter with thought's outside.[50] Less abstractly (though still abstract), Austin's environmental justice movement emerged in response to the socio-environmental and socio-technical issues that the dialectical opposition between Austin's developers and its environmental bloc had produced, but that had gone unrecognized. And so the question of justice, within the domain of environmentalism, emerged from a critique of "smart growth" as a regime of divisible governance, which merely redistributed the burden of development across the scales and systems of Austin's energy ecology, relocating pollution, displacement, and subalternization to spaces and scales that lay outside the hegemonic figures of liberal environmentalism.

PODER (People Organized in Defense of Earth's Resources), one of Austin's earliest and most prominent environmental justice organizations, formed through an encounter of and resistance to this redistribution. Through this practice of resisting, they began to recognize the need to search for and develop a new ethico-epistemic infrastructure, a new way of punctuating

[50] "Thought is entirely reliant on contingent encounters, which is to say, on events. Its necessity lies in its being forced by an event, which is to say by an encounter with the world, with something that does not depend upon us. Thought always implies a forced movement, which occurs when we are made the patient of a sign that threatens to throw the coherency of what had up till then functioned into crisis" (Aarons 2012, 6).

and scaling experiences, to render visible what had long been invisibilized, to render sayable what had long been left unsaid. In their words, they worked to re-establish the connection between humans and the environment that Austin's Western and liberal approach to environmentalism had precluded.

In forming and enacting a mode of resistance to the City's dialectic of development and environmentalism, the EJ movement has effectively reconfigured the dialectic, shifting its poles of opposition from economic development and environmental conservation, to that of social justice and ecological sustainability. However, after having enacted this new dialectic for 30+ years, new compromises and adaptations absorbed the alterity of the movement's politics, ethics, and epistemology. This is, of course, the goal and the intention, as it has opened up new potentials for more equitable forms of life and life-giving forms. That being said, should we become overly self-congratulatory, it also creates the risk of losing sight of the new forms of alterity and marginalization, thus the question of the question of justice persists.

CHAPTER 3: EPISTEMIC ECOLOGY

"The Working Group believes this 2030 Plan is groundbreaking in its approach and can serve as a model for others in achieving immediate, large-scale environmental benefits and reducing emissions, while maintaining affordable electricity rates."

- Resource, Generation and Climate Protection Plan

"This plan, the discussions leading up to its formulation, and hopefully how it gets implemented just feels different. Our vision is that this plan translates to a broader shift in Austin City planning to cultivate better collaboration between the City and community and include equity at the core of every City process."

- Climate Equity Plan

Throughout the fall and winter of 2019, both Austin's Office of Sustainability (OOS) and Electric Utility Commission (EUC) were in the process of updating the City's two major environmental protection and renewable energy transition plans: the Resource, Generation, and Climate Protection Plan and the Climate Equity Plan. Austin's Resource Planning Working Group (RPWG) and Climate Equity Planning Committee (CEPC) are the primary mechanisms by which the municipal government incorporates the community into its climate protection and renewable energy transition planning process. Much of my early fieldwork in Austin was spent conducting participant observations during meetings, workshops, and other such events associated with these planning groups and processes.

By early 2020, both planning processes were coming to a close, and drafts of the new plans began making their way through the approval process. Differences in the level and character of community involvement between these plans and planning processes were palpable and often drew notice. By the approval stage, the relative disparity of concern for equity throughout the RPWG process had drawn considerable criticism from the community and from city commissioners alike.

Despite these differences, however, both plans were ostensibly reviewed as significant and positive turning points in the history of Austin's environmental protection and energy transition planning. For instance, during this iteration of the RPWG, the utility had come up with an entirely new strategy for limiting carbon emissions through the development of a "carbon cost adder," which, in theory, *reduces the frequency* at which Austin Energy runs its dirtiest power plants. This was seen as a novel alternative to the standard approach of simply closing down these carbon intensive plants completely, which, in the eyes of the utility, reduces their flexibility and increases their financial risks during "high pricing events." Thus, in the RPWG, the rupture was conceived in terms of their development of more affordable and flexible strategies of carbon reduction. This strategy, however, also entailed shifting more control and authority from the community to Austin Energy, as the decision of when and how to run this carbon cost adder would be at the utility's discretion.

The CEPC, by contrast, cited their deeply community-based, and equity centered approach to planning as a turning point in City-community relations. That is, they placed the rupture, not at the level of the current governance regime's carbon reduction strategies, but at the level of styles and strategies of environmental governance itself. The Office of Sustainability spent considerable time and effort to establish new, anti-racist planning tools and infrastructures,

even going so far as to collaborate extensively with long-established critics of the municipal government throughout the entirety of the planning process. One of their continual commitments in this process was a refusal to extract and abstract "carbon emissions" from their context. Thinking of carbon reduction in terms of carbon accounting treats all forms and instances of carbon emissions as equal, simplifying the choice between forms of carbon reduction by framing it in terms of highest quantity for the lowest cost. However, this abstraction of quantity from context neglects the fact that different forms, methods, and locations of carbon reduction have tremendously different qualitative impacts on particular communities and ecologies. That is, while carbon reduction has the potential to be equitable, it also has the potential to reproduce and exacerbate extant social and environmental injustices. Commiting to *equitable* carbon reduction, the CEPC stressed the way Austin's traditional, abstracted approach to carbon accounting was part of the liberal environmental governance regime that needs to be rethought.

This chapter considers the way different data ideologies, rhetorics, discourses, and modes of expertise contributed to the differences both within and between these two planning groups. In doing so, however, I am wary of reproducing a narrative arc where the noble protagonists have the correct values and ideas that, if only the antagonists could be cajoled into adopting, the conflict would resolve into a happy ending. This is a simple and pleasant story; one that also performs familiar political work, galvanizing support for one approach against another. But, in what proceeds, I will be arguing that this arc is, itself, a petro-ghost of sorts, one that continues to plague and inhibit our capacity to organize post-petro societies.

I will distinguish between dialectical progress and plateau-induced deterritorialization as two orientations towards producing knowledge and organizing social change that lend themselves to very different forms of energy transition planning and practice. Building off of the

work of Howey and Neale (2022), I will also use the concept of divisible governance to consider how artful arrangements and framings of dialectics and plateaus, in combination, can create complex representations of inclusion and equity that actually forestall the development of more meaningful forms of energy democracy. As these authors write, divisible governance "appears to be reducing environmental harms by attending to risks that are specific, local and technical, while legitimizing the acceleration of those harms on a global scale" (2022, 17). Building from this insight, I consider how the division of these planning processes into more and less equitable forms, facilitated by technostrategic languages, and justified by technocratic expertise, allows for "ruptures" at one scale to fold, dialectically, back into an overarching system of divisible governance that reproduces the same technocratic structures that enable and justify the social and environmental injustices the plans are represented as seeking to resolve.

This discussion contributes to critical studies of scientific evidence and expertise in an analysis of the processes by which different collectives of clean-energy practitioners produce, evaluate, and transform data into evidence so as to establish authority for certain views of just and responsible energy transitions. I use this study to develop an ecology-assemblage approach to energy expertise that, influenced by post structural and feminist epistemology, STS and anthropologies of science, and the activist hermeneutics of racial capitalism and critically engages traditional approaches to scientific appeals to authority.[51] The point here is not only advocacy for a more ethical approach to publicly engaged and scientifically sound transition planning. Rather, following the lead of many of my interlocutors, I argue that something like an

[51] This chapter also owes a particular debt to Dana Powell and her critique of the speciously democratic process by which developers sought the approval of a 1500 MW coal power plant that was to be located on Navajo land in San Juan County, New Mexico. Powell uses the diverse testimonies given during public hearings on the matter to tease out distinctions between technical, practical, and ethical modes of energy expertise. She also provides a complex analysis of the way these different ethico-aesthetic and rhetorical styles intersected and resisted each other, producing unexpected political and subjective effects that "enlarg[ed] the public challenge to promises of a coal-centered future" (Powell 2017, 186).

energy ecology approach to transition planning will be imperative to our ability to transition justly, effectively, and at a responsible rate to ward off the worst of climate change.

1. THE "SWIMLANES" OF DIVISIBLE GOVERNANCE

I first learned about Austin's community climate plan revision process at the First Unitarian Universalist Church of Austin, where the Austin-local branch of the national 350 environmental organization held their monthly meetings. It was early October of 2019 and I had just begun my fieldwork in Austin by attending the monthly meetings and events of all the environmental organizations that I could. As was common, the meeting began with Brent Lyles, who was president of 350 Austin at the time, making a round of announcements. That night, Brent included news that Austin's community climate plan would soon be undergoing its first revision and the City had reached out to their group in hopes of recruiting volunteers to serve on the plan's steering committee.

After the meeting, I approached Brent to introduce myself and my research and to notify him of my interest in participating in the climate plan revisioning process. His response was enthusiastic and, despite being my first meeting in attendance, he offered to recommend me as a volunteer. Brent asked that I follow up with him through email and that he would make the necessary connections with the city from there.

Soon after, Brent put me in contact with Zach Baumer, Austin's Climate Program Manager in the Office of Sustainability. Needing to be slightly more restrictive than Brent about who and how he recruits volunteers, Zach asked for a bit more information about what I was looking for in the process, what I had to offer, and where I think I might be the most benefit to the group. I told Zach that I was in Austin conducting research for my dissertation on energy

transition and let him know about my background in environmental anthropology and in the anthropology of science and technology. Zach's initial response was telling of the way the city structures its departments and how that impacts the climate planning processes: "The EUC / Austin Energy resource planning effort is probably *more in your lane*, but I think participating in our process would be good for you as well" (emphasis added).

As I will be detailing throughout this chapter, this language of "swim lanes" or, in the more aggressive version, "stay in your lane," was considered to be very important to Austin's energy planning. This divide was especially salient when it pertained to the division of labor and authority between the two planning processes on which this chapter focuses: 1) the Resource Planning Working Group, hosted by Austin Energy and the Electric Utility Commission, and 2) the Community Climate Plan (later renamed the Climate Equity Plan), hosted by the Office of Sustainability. The Office of Sustainability was notable for the open call for participation, and deep commitment to diversity and equity throughout the design of the planning process, including the freedom for planning participants to think outside the box and experiment, to bring qualitative data as well as their own personal, lived experiences to the table as valuable information and perspective. The Resource Planning Working Group, by contrast, relied on restricting participation to a select few, whose authority and validity was rooted either in their "expertise" or in their role as "representatives" of certain sectors of the Austin community. The kinds of data considered were also restricted to more quantitative studies and analyses, which could be incorporated into economic modeling and scenario building.[52]

The first meetings of both the Resource Planning Working Group and the Climate Equity Planning Committee and Advisory groups worked to place these planning processes in both

[52] This is not meant to disparage quantitative analysis, which will certainly be imperative to the planning and implementation of just transition efforts. Instead, what I problematize are data ideologies that devalue the consideration of data or variables that cannot be easily incorporated into quantitative models.

historical context and in relation to each other and to other concurrent planning processes. While there was some mention about other plans (i.e. zero waste, land use, mobility, public transportation) there was a whole slide and discussion that emphasized what was appropriate to the Climate Equity Planning group (originally titled the Community Climate Plan) and the Resources Planning Working Group. It was apparent from both CEPC and RPWG meetings that this division was fundamental to their approach to climate protection planning.

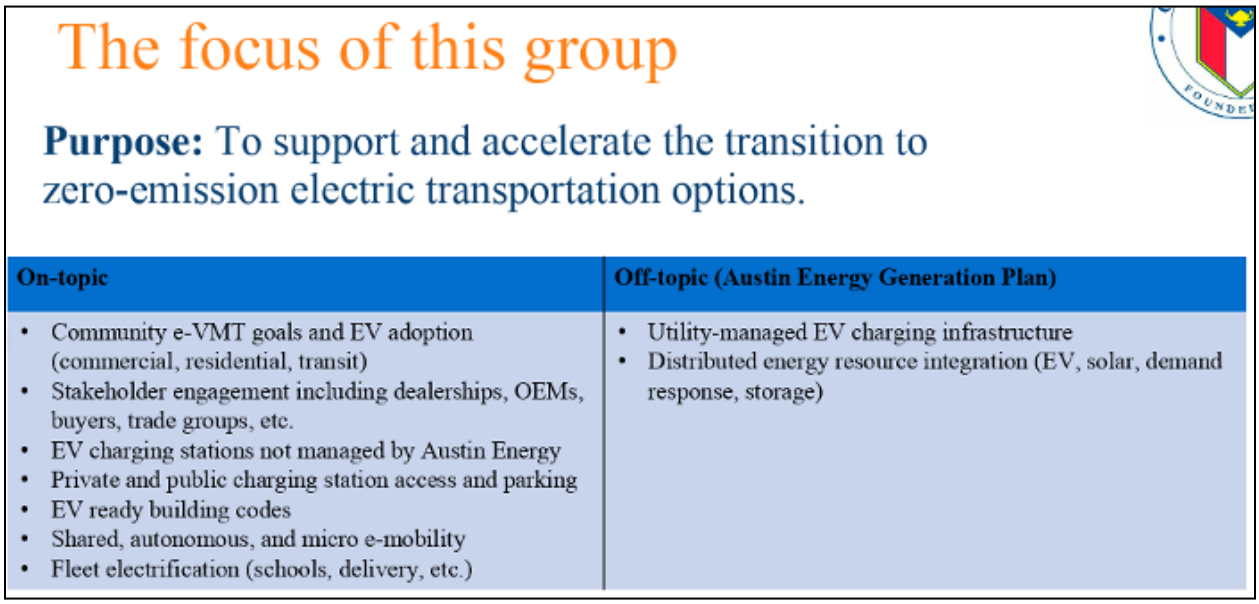

Figure 16: This slide was taken from the presentation shown during the first meeting of the Office of Sustainability's Electrification of Transportation Advisory Group Meeting, which was a subgroup involved in Austin's Climate Equity Planning process.

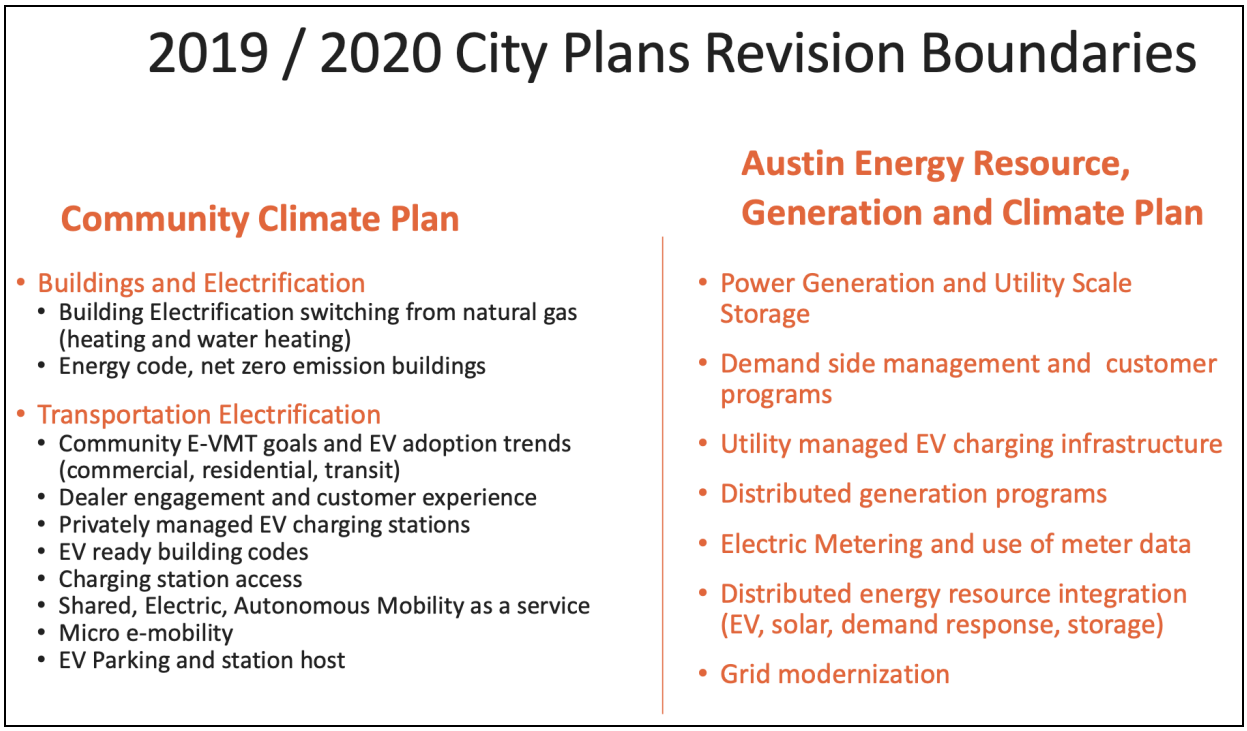

Figure 17: This slide was shown during the first meeting of the Electric Utility Commission's Resource Planning Working Group, which informs the development of Austin's Resource Generation and Climate Protection Plan.

The origins of this split date back to the creation of the City of Austin's Office of Sustainability, which was proposed and approved during the 2010-2011 budget process. Before this point, Austin Energy and the Electric Utility Commission were in charge of implementing the City Council's climate protection and energy transition goals, which date back to 2007, with the council's first Climate Protection Resolution. In December of 2010, as the City's Climate Program was in the process of being transferred to the newly established Office of Sustainability, Zach Baumer was hired on as the office's Climate Program Manager. With this change, Austin's Climate Protection Program was transferred from the public utility's responsibility to that of Zach and his team, initiating a split in energy transition responsibilities between energy resource planning (managed by the EUC) and community climate planning (managed by the OOS) that persists to today.

In this chapter, I will be interpreting this structural division and the differences between these planning processes in terms of what Howey and Neale have called divisible governance (2022). In their words, divisible governance "involves the fragmentation of environmental risks between temporal and jurisdictional categories, allowing interested state and nonstate actors to superficially appear to protect the environment while actually deferring, forestalling, or eliminating their accountability for the consequences of extractivism" (Howey and Neale 2022, 5). While their focus is on the role such temporal and jurisdictional divisions play in making environmentally harmful development projects appear to be ecologically sound, by bringing their concept into dialogue with contemporary work on racial capitalism, I show how divisible governance is also fundamental to the reproduction of racial difference and structural inequality. In other words, in this chapter, I will demonstrate how the fragmentation and arrangement of space, time, and expertise, supplemented by certain discourses, data ideologies, and rhetorical strategies, can be used to develop a form of exclusion that represents itself as inclusivity.

1.1 THE RESOURCE PLANNING WORKING GROUP

The first planning task force took place in 2009-2010. And according to the 2010 Resource Generation and Climate Protection Plan, which was the first of its kind, Austin Energy committed to updating this plan every 2 years. However, the next planning *taskforce* wouldn't take place until 2014, with a new, updated resolution requiring that the taskforce be subjected to the Open Meetings Act. Accordingly, the 2014 taskforce has the best documented track of the planning process.[53] Originally, the working group was composed of one member of the Electric

[53] In an interview with Susan Partain of the American Public Power Association, Austin Energy's Vice President of Market Operations and Resource Planning, Erika Bierschbach, argued that the working group structure enabled greater participation than did the former Task Force as it "allows us to tap into parts of the community we wouldn't be able to otherwise" (Bierschbach 2019). But it is unclear how this is the case. One clear difference between the

Utility Commission, one member of the Resource Management Commission, and 7 other community members appointed by the Austin City Council. After 2014, however, the City Council transferred the responsibility for overseeing the Resource Plan revision process over to the Electric Utility Commission.

The 2017 and 2019 Resource Planning Working Groups were co-hosted by the City of Austin's Electric Utility Commission and the City's public utility, Austin Energy. The working group is chaired by the chair of the Electric Utility Commission, who works with Austin Energy and the Resource Management Commission to recruit the rest of the members of the working group. According to the working group's charter, "The Resource Planning Working Group will provide leadership and guidance on technical and market issues to meet environmental, efficiency and affordability goals established by the Austin City Council" (2019). The charter also states that the working group is committed to "[a]n open and transparent process that represents the diverse interests of the Austin community" (2019). However, the form of community representation and input into the planning process differs drastically from the CEPC. This is, at least in part, because the public utility is not a branch of municipal government. Rather, it is a non-profit, the board of which is Austin's City Council: "As a community-owned utility, we're a not-for-profit enterprise of the City of Austin working to make sure we can meet and exceed the needs of those we serve" (Austin Energy 2020).

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original Task Force and the current Working Group, however, is that the former was held accountable to the Texas Open Meetings Act, while the latter is not. In fact, the original task force was created in order to ensure these meetings would be subject to the open meetings act, to better allow for public participation. Laura Morrison, a city council member and co-sponsor of the resolution that created the task force, was so concerned that the force should be open to the public that she made sure to include a provision stating that the task force would be subject to the Open Meetings Act, even if it seemed redundant (Austin City Council 2014; See sections 05:27:07 - 05:31:31). However, in October 2015, after the first Resource Planning Task Force was disbanded, the Electric Utility Commission changed its bylaws to establish that "The Electric Utility Commission will have no committees." The change in the bylaws also established that "any group that is not a committee" will be considered a "Working Group," thereby eliminating the notion of a Task Force. Importantly, the "Working Group" would operate in much the same way as the former taskforce, except that "Working groups are not required to post their meetings in accordance with the Texas Government Code Chapter 551 (Texas Open Meetings Act)" (Austin Electric Utility Commission 2016).

As I discussed in Chapter 1, having a municipally owned utility offers notable advantages, including the ability to direct investment in greener fuel resources, creating a budget that appropriately prioritizes maintenance of infrastructure, and developing more progressive pricing structures that help make energy more affordable for limited income communities. Generally, given the need to operate within the sphere of market exchange, the latter focus on pricing has been the primary way Austin Energy has attempted to operate more equitably, offering both payment assistance and other forms of energy assistance.

The Utility's discourse, which focuses on the technical and economic determinants of energy transition, seems more dominant than the more community-oriented plan. The Resource Generation Plan actually "has teeth," as my interlocutors liked to put it. That is largely because they generate their own profits and can decide when and how to re-invest them, with the City Council's approval, of course. The Office of Sustainability's plans, by contrast, are more like recommendations. And funding and people power for their implementation are more often left in question.[54]

1.2 THE CLIMATE EQUITY PLANNING COMMITTEE

In 2014, the municipal government set a new climate goal to achieve community-wide, net-zero greenhouse gas emissions by 2050 and the City Council tasked the Office of Sustainability with developing a comprehensive city plan for achieving this goal. A year later, the City adopted its first Community Climate Plan in 2015, which developed specific interim goals that were threaded into strategies for achieving this long-term goal of net-zero by 2050.

[54] The OOS is financed through taxpayer dollars that are allocated by the City Budget. From the 2020 Budget: "The Office of Sustainability aims to achieve community-wide net-zero greenhouse gas emissions by 2050 and promote a healthy and just local food system, resource-efficient strategies for municipal operations, tangible projects that demonstrate sustainability, and a resilient and adaptive city ($831,000)."

The dual mission of the Office of Sustainability is to achieve community-wide, carbon neutrality (and eventually negative emissions) both as quickly as possible, and in the most equitable way possible. Zach emphasizes the importance of climate planning by noting how the impacts of climate change are already affecting the Austin community and will only get worse. Meanwhile, the state and federal government had yet to take any meaningful action to prevent or attenuate even the most severe impacts of climate change. Secondly, the office is equally charged with achieving racial equity, conceived of as "the condition when race no longer predicts a person's quality of life outcomes in our community" (Office of Sustainability 2019, 8).

The Office of Sustainability is actually quite small and fairly cohesive. It is headed by the Chief Sustainability Officer, Lucia Athens. Under Lucia Athens, Zach Baumer serves as the Climate Program Manager and is charged with the planning and implementation of strategies to meet the City's goal of net-zero carbon emissions by 2040. Edwin Marty serves as the Food Policy Manager and oversees efforts to make Austin's food system more sustainable and equitable. My attention and involvement with the Office of Sustainability was firmly located within the climate programming wing, headed by Zach Baumer.

The OOS is primarily in charge of the climate protection planning and management but, wrapped up in this are concerns for developing a healthy and equitable food system, an air quality monitoring system, and by developing/incentivising green businesses. Much of this work goes into the development and writing of the community climate plan, but the OOS website also has a number of resources that discuss energy conservation and renewables, ecosystem and environmental services, recycling or circular economy, equity and livability, grid innovations, food and health, green building infrastructure, mobility, and water conservation. The OOS also

gives many, many talks, both to other departments, boards, and commissions within the city, and also to the public.

The OOS sees itself as one of the vanguards of equity within the City. It also appears that other departments and commissions agree as, at the presentations I observed to other city departments, they were impressed with the results of the equity planning process and outcome. As I began writing up this dissertation, in 2021, I began observing how the OOS had begun using this reputation to compete for funding to get this plan implemented and, in particular, to keep funding for public engagement through programs like the Climate Ambassador Program, throughout the implementation process. The way they see it, maintaining these conversations is the only way equity will be achieved.

The first edition of the community climate plan made headway on developing the necessary expertise and laying out some logistics for meeting the City's short- and long-term goals. They also set out producing and gathering data on what could be done and what was already being done in terms of climate protection. Where the plan was lacking, however, was in consideration of equity. As Zach later reflected: "It became clear, not only from our stakeholders but from city commission members as well as our equity office, that we couldn't create a plan that focused on climate change in the City of Austin without addressing inequities."

As I will detail below, the Office of Sustainability spent considerable time and effort to establish new, anti-racist planning tools and infrastructures, even going so far as to collaborate extensively with long-established critics of the municipal government throughout the entirety of the planning process. The office of sustainability has a strong discourse centered around equity. By the end of this chapter, it should be made evident that the epistemic ecology of the CEPC differs substantially from the RPWG, through the former's dedication to developing channels of

communication and influence that have attempted to reshape the office's planning logics away from technocratic logics to an ethics of social justice.

2. DOUBLE-BINDING THE PLANNING PROCESS

One of the prominent ways that the community oriented planning processes of the CEPC were contrasted from the RPWG was their use of space and time. In his poignant analysis of time as ideology and an instrument for the implementation of ideologies of racial differences, Damien Sojoyner argued that "on one hand [time] functions on the meta-level of structural imposition to buttress grand narratives of the state; however it simultaneously works to reinforce the mythical power of the individual" (2017, np). In other words, social time is structural time, while ideological time is radically unstructured.

The quotidian experiences of Austin's more privileged residents differ from their marginalized counterparts by the way in which they are caught in different webs of spatial and temporal constraints. However–and this is the brilliance of Sojoyner's critique–this difference in levels of spatio-temporal constraint is represented back as a "lack of desire, will, or internal fortitude to change their circumstances in the present moment" (2017, np). Understanding this contradiction is essential to one's ability to understand the way strategic forms of openness and inclusion, situated within an encompassing and conservative regime of divisible governance, can function as a particularly insidious form of exclusion through represented inclusivity.[55]

RPWG meetings were hosted at Austin Energy's Town Lake Center office building, which is fairly central to the city, being just south of the Colorado River across from downtown.

[55] See also Melamed's analysis of how state-recognized anti-racisms simply reproduce and reform modes of racialization, the latter of which "naturalizes the privileges of those who benefit from present socioeconomic arrangements and makes the dispossessions of those cut off from wealth and institutional power appear fair" (2011, 2).

Two hour meetings took place at 4pm every other Thursday throughout the course of the six months of discussion and planning, from September 2019 through to March of 2020 (taking the month of December off).

The CEPC, by contrast, was located in dispersed locations, throughout the city, according to the spaces most accommodating and convenient to the group members. For example, while the Electrification of Transportation advisory group that I was asked to join–which was composed of Austin Energy staff, and other members of Austin's technically trained and sophisticated experts on electric vehicles–met downtown at Austin Energy, just one building over from the RPWG meetings, the Steering Committee often met at local libraries in and around East Austin. And for all of the Advisory Groups and Steering Committee meetings, recruitment efforts and notifications were shared widely and anyone was allowed to attend the meetings or even participate in the discussion.

The difference was also palpable in regard to the arrangement of the rooms. The RPWG was hosted in a rather small and intimate room, oriented in a way similar to that of a seminar or small conference room. There was a central table with just enough chairs for the working group members. Guest speakers and interested community observers (such as myself) sat in the chairs that lined the back wall and far sides of the room. This arrangement created a set of concentric circles, dividing the meeting's attendees into participants and spectators, much like the stadium seating of sports venues. Attention is directed to the participant's actions taking place at the center, while spectators lined the perimeter. During the first RPWG meeting that I attended on October 10, 2019, however, there actually were no extra chairs for non-working group members to sit, and the meeting was delayed as Austin Energy staff went to find and bring in more chairs for community members. This general orientation was starkly different from other publicly

accessible meetings, such as that of the Electric Utility Commission. In the latter meetings, Commission Members sat as if on a panel, one that faced an audience of chairs for the public to sit.

The spatial arrangement of the RPWG meetings also went a long way to influence and shape the behaviors of attendees. The RPWG had few explicit rules of engagement, but one rule was clear: attendees that were neither Working Group Members or Austin Energy Staff were not welcome to participate in the discussion. To my knowledge, however, this rule was never explicitly stated anywhere on paper, nor was it ever voiced unless it was transgressed. Indeed, the "Goals and Rules" section of the Working Group's charter only ever states the following: "Citizen's Communication [will be] held during the first 15 minutes of the second scheduled meeting each month." In reading this document, one would simply have to infer that this rule precludes all other forms or times of community participation. Remarkably, however, it was only on rare occasions (twice in all the meetings I attended) that a community member spoke out during the regular discussion period of the meeting. After which Cary Ferchill, who was chair of the working group, politely informed them that participation in the discussion was limited to working group members and Austin Energy staff.[56] Thus, I would argue that the spatial arrangement itself encoded the difference between participants and observers. And the familiar spectating position offered to the public proved remarkably sufficient in communicating the difference between who was elected to talk and who should remain silent.

[56] Both instances were handled rather similarly. In the first instance, on October 24, 2019, David Tuttle, who is a member of the EUC, asked a question about the viability of Electric Vehicle batteries serving as Demand Side Management assets. There was a short silence, after which Cyrus responded with, "Why don't you ask one of us the question and we will formally submit it?" And Cary then followed, "Persons not on the committee cannot ask questions. But, you are on the EUC, you can talk to Babu offline." [crowd chuckles]. The next interruption was made by a 350 member. He was contradicting Erika Bierschbach's assumption that renewable power would increase customers' bottom line. He, unfortunately incorrectly, cited Georgetown as a case where a utility's Power Purchase Agreement for 100% solar energy did not cause customer bills to increase. Cyrus smiled and corrected him, "Bad example… Their rates went way up." And Cary once again followed: "We have a rule, that the spectators cannot ask questions."

Every other meeting, however, the Working Group allotted at least 15 minutes for "citizen's communications," in which any member could speak for up to three minutes. In Susan Partain's discussion of Austin Energy's working group for the American Public Power Association, she describes the citizen communication as follows: "participating in the working group is a hefty commitment, as members have to be available for regular meetings that can take several hours and happen two or three times a month over the course of four to six months. For customers who want to be engaged in the process but cannot make that time commitment, some working group meetings allow 'citizen communication' time for customers to ask questions or provide feedback on the plan components" (Partain 2019, n.p.). However, this makes it seem as though the utility actively listened to and engaged the citizen speakers during this period, which was not the case.

2.1 STATIC: EXCLUSIVE REPRESENTATIONS OF INCLUSION

From its placing and timing in town, to the allotments for public comment and the spatial arrangement of the room, the RPWG is a paragon of exclusion through representations of inclusion. And this largely resulted in the RPWG clearly not adequately representing Austin's communities of color. This issue was raised, quite publicly, by Resource Management Commission member (RMC), Nakyshia Fralin.

This all took place during a heated discussion between the EUC and the RMC, which had been convened to discuss the RPWG's recommendations and approve them as the EUC's 2019 Resource, Generation and Climate Protection Plan. Many RMC members had raised doubts about the planning process of the RPWG and its implications for social equity. Nakyshia, one of these critical RMC members, put the question bluntly: "Basically what I'm asking, were there

people of color at this meeting?" Cary Ferchill, who chaired the 2019 RPWG, responded affirmatively, "The answer is yes. Unfortunately, not all as long as I would have liked to have had them." What Cary is politely referencing here is the fact that, though three of the RPWG's 12 members listed were, indeed, people of color, two of those three missed the vast majority of the meetings.[57]

> "Luis Rodriguez was there. I mean, he tells me he's Hispanic. I believe that's the case. He runs the Hispanic Chamber of Commerce here in Austin. And Tam Hawkins, who runs the Black Chamber of Commerce in Austin. She was a member. She wasn't able to… [she is] a single mom [who] had some issues that made it impossible for her to continue to attend, but they were recruited."

On top of the tokenism that's readily apparent in Cary's response, there is a more insidious example of the way, as Sojoyner argued, space and time can function as means of exclusion. That is, Cary understood and framed Tam Hawkins' inability to attend these meetings as related to her own unique situation, as an individual. And, though this inability was not exactly described in terms of "a lack of desire, will, or internal fortitude," it nevertheless completely ignored the fact that these meetings were hard for most people to get to. But, instead accounting for these constructed barriers to community participation, Cary's response focussed on how difficult the task was that *he was given*, to represent Austin's community; which, he argued, is more difficult than you might think. "You know, some groups just naturally have to be on there," referring to industry, small business, residential, low-income groups that represent Austin Energy's customer base. "You know, we have to have them reflected at the table." And Cary explained that he was really just trying to keep the size of the group from becoming unwieldy: "We were trying to have a group originally of like 12 people. I mean if committees get too big, they just can't be very useful."

[57] Indeed, even though I missed the first two meetings of the working group, I did not see these members attend any of the other eight meetings where I had conducted participant observations.

Other members of this meeting suggested that the issue was precisely that Cary had attempted to recruit and organize the group himself, without the aid of Austin's newly established Equity Office. But, as it turned out, he had consulted with this office; but their recommendations just didn't really align with the schedule and structure that Cary had in mind. "I actually did work with the equity office on this, OK, and it was not a particularly successful process, and some of that might have been timing." That is, Cary had already conducted a considerable search for participants before reaching out to the Equity Office. And, in response, they had apparently told Cary to "Stop. Go back, [and] find 18 people from the community, in addition to the dozen that we already had." And, from Cary's perspective, "it just wasn't practical. I mean, and that was after me spending quite a bit of time on my own trying to get members. Yeah, so it wasn't very successful."

What becomes apparent from this rather revealing discussion are some of the more subtle ways the principles of environmental/energy justice can be resisted from *within* the very processes that were developed to see these principles fulfilled (Harrison 2019). As Jill Harrison notes, a lot of times EJ principles become simple "boxes" to be checked off. And, as Cary put it, even if one's attempt at "checking off" of the EJ box "wasn't very successful," they can feel satisfied with the attempt (Harrison 2019).

This sort of "A for effort" mentality and approach to environmental justice has tremendously negative effects, on top of the missed opportunity for achieving actual justice. That is, much like the City of Austin's "Equity Statement" slide (discussed in Chapter 2), this more insidious form of exclusion, that represents itself as inclusion, creates epistemological static (Adams 2018) that undermines the functioning of (and the public trust in) democratic processes and infrastructures. Or, as one of my interlocutors, Dr. Tane Ward, put it: "you know, 'yea, if I

talk about anti-racism, I don't have to fucking do anything.' When in fact... they're really promoting the continuation and even the augmentation of racism in terms of how resources are distributed."

3. DEUTERO VS TRITO EXPERTISE

At a different level, beyond the more structural restraints of space and time, another dynamic that was often cited as putting a hamper on inclusivity was the complexity of the matters at hand and the need to have basic understandings of energy and electricity infrastructures. For instance, according to Erika Bierschbach, the Vice President of Energy Market Operations and Resource Planning at Austin Energy, "Reaching out to everyone, getting everybody's input, comes at a price … You need to have a base level of education, but you can't do that for everyone in that short period of time. That's why we try to get people in the working group that have a good base of education [and who] can bring perspectives to the team" (Bierschbach 2019). In part, this perspective reflects Erika's position, the intersection of ethical plateaus that command her attention and set her obligations, as well as her expertise.

3.1 LEARNING THE LINES OF DIVISION

Erika has a bachelor's degree in French and economics, which she studied at Texas A&M University. Since then, she has acquired over 25 years of experience in energy markets and economics, largely working around financial risk management strategies. Her initial interest in energy took place after the 1992 FERC Order 636, which opened up the natural gas industry to competition. This sparked Erika's interest in the nascent natural gas futures market. She came to

Austin Energy in 2001, after gaining experience "on the trade floor," working for Enron Capital and Trade and Duke Energy Trading and Marketing. "When I moved to Austin, public power was dominant and I was introduced to many new aspects of the business, renewable energy being one of them" (Bierschbach 2021). Her current role at Austin energy is to plan and manage Austin's power portfolio in the ERCOT wholesale market. In other words, she is in charge of acquiring the assets and/or contracts that supply Austin with the electricity that the utility then sells to their customer base, and this includes Austin's growing interests and investments in renewable energy. As she explains it, "Austin Energy had been working with the city's Office of Sustainability on ways to meet our customer's and Austin citizen's environmental goals. My team's expertise is in finding market-based solutions for these types of complex issues" (Bierschbach 2021).

Erika sees the public and her responsibility to the public, predominantly, in terms of meeting their desires as a customer base. Her expertise and experience involves learning and adapting to changes in market structures, so as to better adapt and manipulate revenue-producing assets for desired ends. However, this necessarily entails a normative position, both in the sense of accepting the current state of the market as determining the rules of the game and in terms of meeting the normative desires of the customer base. As customers, the role of Austin's public is to inform the utility of the kind of power they want and what they are willing to pay. And it's the utility's job to fulfill those desires. In Erika's words, "We're here to serve our customers, and our job is to deliver the product that they want. And it is our job to be able to digest all of those wants and deliver a product that meets the most of those needs as possible" (Bierschbach 2019). And while Erika values Austin as a unique utility customer base, due to both their stake in this process, "there are a lot of really passionate and engaged customers that we really get a lot of

very good information from" (Bierschbach 2019) and due to their flexibility, "We can try different ideas because our customers are willing to pay the premium" (Bierschbach 2021), she also recognizes the limits, "they are willing to pay a premium, but they expect fiscal responsibility and prudent risk management" (Bierschbach 2021). In the end, Erika tends to frame the community planning process in the style of market research, where their job is to develop an appreciation of the diverse positions and values of their customer base that they figure out how to please, through the structures of the market, to the best of their abilities.

Erika's conception of community participation differs starkly from the perspective of Karen Hadden, who was a 2019 working group member and former chair of the 2017 working group:

> "I'd like to add just a thought to the discussion, is that, you don't have to be an expert to serve on this group. The viewpoints of every customer of Austin Energy are important, and maybe it would be a steep learning curve for people who haven't worked on energy issues before, but that does not mean that their viewpoints and their opinions and their thoughts are not valuable. And in fact, we might be missing some valuable fresh ideas and input by being less diverse than we could be. So, I think it's really important that we move forward to include members of the community, despite not having credentials of some kind, you know all voices matter here. This is a community utility."[58]

3.2 LEARNING TO SHIFT THE LINES

Trained as a biologist at the University of Texas, Karen developed a strong relationship to the Texas Hill Country and its diverse micro-ecosystems. Her training involved many extensive hikes through various nature preserves, learning to identify local flora. "[A]nd what I learned from that process was that if you know the plants and you know about them and then you go for a walk, it's like seeing your friends" (Hadden 2018). She went on to be a middle school and high

[58] Quoted from the joint EUC RMC meeting on March 9, 2020 (See minute 46:50): https://austintx.new.swagit.com/videos/03112020-623

school teacher for 14 years, bringing her knowledge and passion for nature and learning outdoors to her students. Reflecting on this experience, she talked about the way high school students are often capable of much more than we give them credit. For example, Karen took her students on field trips, providing them with a key to local flora and tasking them with identifying plant varieties on their own, "And that's something that usually is taught at the college level and I found that the high school kids were really quite able to do that if somebody would take the time to show them" (Hadden 2018). This faith in people's capacities to learn and perform continues to show through in Karen's activism and role as a city commissioner.

Throughout her time as a teacher, Karen was also active community organizer and environmental activist. These passions, however, were relegated to her spare time, until she took a job with the Texas SEED Coalition (Sustainable Energy and Economic Development). This new role came with new organizational and knowledge challenges, which, in a way that lives up to her above-stated stance on community participation, she took on and addressed as they became necessary. In part, this included the need to become both a "mercury expert" and an amateur attorney in order to head up the SEED Coalition's battle against new coal development in Texas. With only minimal legal counsel, she and her team put together a successful case on their own, "which was incredibly challenging because that—as a non-attorney, I did not know what was going on and we were just trying to figure it out as we went" (Hadden 2018). And, as she notes, not everyone appreciated this kind of uncredentialed approach to self-learning as, in court, some "were laughing about [her expertise], going 'expert' because I did not have PhD after my name. But I think I knew just about as much about mercury at that time as anybody else and so—so the judge said okay" (Hadden 2018).

Karen's more inclusive take on resource generation planning is, in part, reflective of these experiences as a teacher and community organizer, experiences that testified to everyday citizens' capacities to learn and adapt to new circumstances, and quickly become effective advocates for the issues they know and care about. "That's been a lot of this work is that you dive in full blast. You do it with all you've got and then you just do everything you can, adjust to the changing circumstances, and try to make it work and learn as you go" (Hadden 2018). The way Karen speaks about the Hill Country and about the plants she came to know and love, you can easily recognize her activism as a reflection of her passion for the environment. But, her environmental goals and strategies are also about community building and empowerment, which are deeply informed by her years of teaching. "And I really do think that if you educate people and—and yourself, and you give people the tools to work with and let them know about opportunities, you can change almost anything. … Never rule anyone out that could be your ally. And it works. And so organizing is super essential" (Hadden 2018).

3.3 REACHING FOR TRITO-EXPERTISE

The stark differences between Erika's and Karen's stances on community participation could be framed in terms of different values or, even more critically, in terms of their character. However, they also correlate with the different kinds of deutero-learning they have acquired through time and how this has opened up or delimited their capacities for trito-learning. These deutero-learned forms of expertise also reflect the arrangement of ethical plateaus, or the precise articulations of technologies, communities, and institutions that Karen and Erika are beholden to, which shape their thought and perception.

Erika's formal training in energy economics and position as a utility employee influences the way she frames community participation in terms of economic transaction: "getting everybody's input," and the language used here is pertinent, "*comes at a price*." That is, Erika's particular expertise in energy markets, in developing sophisticated modes for weighing costs and benefits, is folding back onto itself, shaping her very notion of expertise in general. In Erika's view, then, expertise requires specific inputs in the form of training, in order to develop the correct styles of thinking, where the expert proves themselves according to an established standard, having learned the factors at play within a specified domain and how to navigate the tasks at hand. Karen's understanding and investments in community organizing, by contrast, reflect an appreciation of the kinds of uncategorized skills and knowledge that different groups and individuals might bring to any planning process. As a teacher, her expertise, in part, directly pertains to managing diversity, which she sees neither as a risk, nor merely a responsibility, but an asset in itself.

To put it differently, and more precisely, Erika relates to expertise, quantitatively, as an amount of knowledge to gain or as a threshold to be crossed. As a result, from this view, increasing community participation increases the chances that the included persons will be found lacking, where bringing them up to speed would drain the planning process of valuable time and resources. Karen, however, tends to relate to expertise, to her own as well as that of others, less quantitatively and more qualitatively. That is, she understands expertise in terms of the precise skills people have developed to navigate their unique situations and struggles, and values the transference of those skills to new domains, such that "we might be missing some valuable fresh ideas and input by being less diverse than we could be."

That said, there is also an important difference between these two in terms of their structural position, which creates different political pressures and encourages different kinds of ethical and pragmatic reasoning. Though a paid environmental advocate, and therefore beholden to the public in a certain way, Karen is not beholden to the public as a customer base. This offers her the opportunity to develop allegiances and responsibilities that eschew market logics and follow more communal lines. There is more leniency and less risk from Karen's position, which enables her to take the added risk of opening herself up to different ideas and inputs. This also enables her to value diversity, even with the added time and effort it requires. Erika, by contrast, has, as her vocational responsibility, the task of marketing a product to maximize the satisfaction of her customers. As she puts it, "There are different needs and wants — that's just normal" (Bierschbach 2019). And she understands the RPWG as a way to "represent" these different needs and wants, so that the utility can get a better sense of where the common ground lies, and therefore how to come to a working compromise between them.

Importantly, these two modes of expertise differ dramatically in their capacity to recognize and address petro-ghosts. To think in terms of these ghosts is to recognize Foucault's framework of savoir-pouvoir, which Spivak pithily describes in the following way: "if the lines of making sense of something are laid down in a certain way, then you are able to do only those things with that something which are possible within and by the arrangement of those lines" (2009, 34). The process of deutero-learning is the process of creating, adopting, or adjusting these lines. And the technocrat, so long as they remain technocratic, is limited to learning at this deutero-level, limited to learning and perfecting the capabilities opened up by the current system of divisions.

The kind of expertise that the utility and its representatives valued was firmly technocratic and dialectical.[59] The market and the utility's tools of analysis are technologies which they can use to understand, accommodate, and resolve the differences in desires between Austin's diverse communities. Their expertise, then, lies in the use of the market as the measure for resolving these differences to identity. Karren's expertise flows in the opposite direction. She brings difference in to help unsettle established ways of thinking about energy and environmental problems. In this sense, Karen's expertise is more inclined towards trito-learning, as she sees community involvement as an infrastructure to repunctuate the context in which she (and her colleagues) have come to deutero-learn. That is, while Erika is concerned to work within (or even across) the confines of extant unities (i.e., disciplines, sciences, domains of objectivity), through which she has come to define herself and her knowledge and expertise. Karen is better able to employ differences in order to break open these unities by producing and tracing the different, transversal lines that cut across them.

4. RESOURCE PLANNING & TECHNOSTRATEGIC DISCOURSE

Despite there being appreciable differences between the working group members, relations between them (at least at the surface) appeared to be civil. The period before the meetings began was usually characterized by handshakes and polite conversation, small talk filling the silence while everyone waited for the regular attendees to arrive and get situated. In the heat of discussion, however, the tensions between factions were a bit clearer. Disagreement was

[59] Early on in the planning process, near the end of a discussion of the working group's goals, Cary Ferchill stated the following: "We need to be looking at this as big mandates. Like getting to 100% renewable or zero carbon by a certain date. Not 'let's add this plant, by this date.' We want to give big demands to the staff, and let the market figure out what we need to get there. We need to give big demands, broad directions."

common, but without the acerbic edge that often comes from being caught off guard. Indeed, surprise positions were rare, as it was clear that most working group members and participating staff of Austin Energy were at least moderately acquainted, and had general ideas about where everyone stood on the issues at hand.

Discussion in the RPWG, however, was fast paced and, more often than not, steeped in jargon. I often found myself not understanding what was being said and simply taking notes and pinging myself on what to look up afterwards. Many of my fellow companion observers were in the dark as well. In fact, it was a common question, "Are you understanding any of this?" Sometimes the intent of this question was to establish solidarity, as in, "Do you understand this? They should make this more accessible." Sometimes, however, it was asked in a way that I was meant to prove that I was actually able to follow, in order to test or challenge me and my ability or right to conduct this study. Many of the environmentalists–and especially the younger crowd–who attended these meetings were expected not to know what was going on. Thus, some of the more established energy actors wanted to know if they could lump me in with them or not.

4.1 ERASING THE VICTIMS

Near the tail end of the cold war, Carol Cohn conducted a study on how such technostrategic languages can serve to insulate technocratic experts from considering the human impacts and wider implications of their work. She rooted this incapacity in "the distance afforded by [the language's] abstraction; the sense of control afforded by mastering it; and the fact that its content and concerns are that of the users rather than the victims of nuclear weapons" (Cohn

1987, 787).[60] Cohn coined the term "technostrategic" to describe the way this language developed around and along with and in response to the particular risks and affordances of nuclear weapons technology, and how both the technology and the language together shaped the strategic thinking of defense experts.

In my observations during the RPWG meetings, I noticed how the language and technologies of the grid and energy market had a similar insulating effect. In and through this discourse, the working group members and planners, and even Austinites more generally, were structurally positioned as either the *producers* or the *consumers* of technologies, but never the *victims* of the side effects of this energy-use. That is, even when equity was brought into the discussion of energy planning, it was always framed in terms of making sure that the environmentalists' desire for renewable energy was not impeding Austin Energy's ability to provide affordable access to electricity for low-income customers. One of the sessions of the RPWG was devoted to the topic of affordability, and I'll quote some of this discussion at length.[61]

> Bob (Low-Income Advocate): I have two priorities: 1) increase renewables, but even more, 2) make sure we don't leave out lower income communities. These priorities don't necessarily align. Anything you can do to give us metrics to help us accomplish these two things and to communicate it, to keep track of these variables. But we have to focus on those two things.

[60] "Structurally, speaking technostrategic language removes them from the position of victim and puts them in the position of the planner, the user, the actor. From that position, there is neither need nor way to see oneself as a victim; no matter what one deeply knows or believes about the likelihood of nuclear war, and no matter what sort of terror or despair the knowledge of nuclear war's reality might inspire, the speakers of technostrategic language are positionally allowed, even forced, to escape that awareness, to escape viewing nuclear war from the position of the victim, by virtue of their linguistic stance as users, rather than victims, of nuclear weapons" (Cohn 1987, 706).

[61] These are copy of my field notes taken from the RPWG meeting on October 24, 2019. They are not perfect quotes, as I was keeping up with a fast paced conversation by taking notes on my laptop. Some phrases were edited for clarity. However, I stayed as close to the exact language used as I could.

> Mark (Austin Energy CFO): This gets into the problem with using averages. Multigenerational homes built in the 1950s in the center of town use much more energy than a single-family house downtown, on the water. But we still measure both the same way, through averages. Low income neighborhoods near the water also use less energy than others. But we use the same affordability programs for both.
>
> Ruby (Low-Income Advocate): How do we take all this information and try to come up with equitable rates?
>
> Mark: ...I'm going to need more than a few minutes. [Crowd Laughs]. We are working on our next rate review. Doing a lot of data mining, Customer Assistance Program data, etc. Data scientists are trying to come up with a better rate design. But I am focusing on affordability and the resource plan here. So, my point is that almost anything is "affordable" using this 2% model.

What Mark is referring to here are the two "affordability metrics" that were set by the Austin City Council back in 2014. Three years earlier, in 2011, the Austin City Council had been put under scrutiny by the Texas Legislature, who had criticized the way they were running Austin's public utility. The State argued that the City Council was letting their climate protection planning raise the cost of electricity increase beyond reason, i.e. that their environmentalist values had impeded their ability to run the utility responsibly. In response, the City developed two new metrics that would keep their transition planning in check, calling for "Austin Energy to operate so as to control all-in (base, fuel, riders, etc.) rate increases to residential, commercial, and industrial customers to 2% or less per year, and to maintain AE's current all-in competitive rates in the lower 50% of Texas rates over all" (Austin City Council 2014).

> Mark continues: … What we are trying to do is avoid carbon. What methods do we have that get the lowest cost per ton of carbon avoided. At some point, we need to establish a hurdle rate. For instance, storage. Currently battery storage technology is at $850/kwh of storage. That is too high. But once we get to $200,

that might be low enough. So, set a hurdle rate at $200/kwh. That makes sure we are avoiding carbon at the lowest rate.

…

Mark: My point is that our energy burden is doing well. But, we need to do everything we can to achieve the lowest cost-per-ton of carbon avoided. We need to set hurdle rates to plan on what we do next time.

…

Bob: If our rate was at 50.1% of ERCOT, is anyone getting beaten up on that?

Todd (Industry Advocate): not yet... that's a good rate.

Mark: We are in a good position. We are in a better position than the Retail Energy Providers.

Cary (Austin's Electric Utility Commission Chair): Couple observations. One, these are affordability "goals." It's not like a bomb goes off at 51%. No catastrophe occurs if we don't meet them. They are there to guide us. Secondly, even having set those goals a number of years ago, they are not really the cause of where we are now. Renewables have come down and gas has gotten high, by chance. That is the reason we are in our situation. We would have superseded the 2% so many times and we would have likely abandoned the goal. We have stayed within the realms because we didn't do anything crazy. Well, that and good fortune in the market. The point is, at this time, the 2% rate compounded now, at this time, probably should not be our affordability goal. Which is to say that we shouldn't let that measure impact our investment decisions. Affordability is something different than bumping up to that 2% mark. We need to make investments wisely. If you can make carbon goals cheaper one way than another, do that.

A lot of what we are talking here about is rate adjustment, not generation planning. No matter what we do here in resource generation, rich people have less trouble than poor. So, equity is more of a rate issue, it's not so much how much energy costs. Absent doing something insane…

…

> Cary: Second point... honestly, unless we do something crazy we are going to fit within all the affordability metrics that are on the table. The nice thing is, nature and markets are still cooperating with us.

This discussion primed the pump for later debates about the RPWG's eventual recommendations to the City Council. What I want to emphasize here is the way that equity was equated with affordability, and vice versa. To be fair, part of the reason why equity was being discussed in terms of affordability would be rooted in the fact that Mark's presentation was actually about *affordability*, and not *equity*–i.e. if the presentation was on equity, perhaps other ethical concerns would have been incorporated or at least brought into the discussion, but there were no such other presentations. The problem with this adequation is the way it frames all forms and instances of carbon reduction as equal in all terms except for cost. For example, while Austin Energy's Fayette coal plant and Decker gas turbine facilities were commonly referred to as its worst offenders, in terms of carbon emissions and climate change, the impacts of these facilities on local environments and communities was never brought up or accounted for. In other words, equity was seen in terms of Austin Energy's customers, rather than in terms of the ecologies and communities that suffered the consequences of their smoke stack emissions most directly.

This blindspot only became more evident as time went on and the RPWG began to sharpen their carbon reduction strategy for the next rendition of the Resource Generation and Climate Protection Plan. The group had been deliberating on a number of scenarios to consider running to get a feel for their recommendations. In the first meeting after the holidays, Erika presented her staff's findings regarding each scenario. The details of the scenarios were not given, due to proprietary concerns. Instead, red, yellow, and green were used as codes to mark the scenarios acceptability. After running through each scenario that the group had come up with,

it was decided that all were inadequate in one way or another. However, the staff came up with their own scenario, developed from the ideas of Matt Weldon, a local environmentalist who was also an EUC commissioner at the time. They named this 10th scenario REACH.

The next two meetings were held as opportunities for the working group members to ask questions about their scenarios and about the REACH plan. In what follows, I'll provide a sample of that discussion taken from the RPWG meeting on February 13, 2020, which will enable an understanding of the REACH plan and the technostrategy behind it.

> Mike (Austin Energy Director of Energy and Market Operations): … This plan would yield a 36% reduction in carbon priced at $3/ton in lost revenues. A 100% reduction of carbon would cost us $111/ton.
>
> Marty (local energy lawyer): How would it cost $111/ton?
>
> Mike: We took the net revenue from last year and eliminated it, and then took the emissions in tons to get the $111/ton.
>
> Kaiba (President of Solar Austin): Can we see that data?
>
> Erika: We need confidentiality about how we dispatch our units. Want to be able to reserve our strategy. We don't want to have it be disrupted by having others change their strategy for operating in the market as well.
>
> Mike: We utilized the EDF's Social cost of carbon at $50/ton.
>
> Marty: So each unit has its own unique carbon cost adder?
>
> Mike: Yes. We look at the carbon intensity of each unit and weigh it against how dirty ERCOT is. We take the difference, which is how much carbon is added to the system [from that asset]. So [the] Sand Hill [facility] is less than Decker, is less than Fayette.
>
> Cary: Here's how I have started to think about this: The problem we're faced with is, if we deal with carbon by turning off the units on a schedule. And add this plant on the schedule. And oh my god, things could happen that could wipe us

out. Ok, … what can we do? Start with how much money we can spend on it. And then move forward with how much carbon we can get rid of.

Todd: But even if you decide that 80% of the time your unit is shut off… There is an average carbon dispatch in ERCOT. So, this could negatively impact the carbon emissions, system-wide. There is a factor in there to consider.

…

Cary: What you're talking about is asset substitution. If we turn off ours, who turns on? Well... Can't really tell. You can kind of look at the stack. You can guess, it will be one of these multiple stacks. So, for all we know, turning off Fayette brings something else on that is real bad. The problem… That's the problem with everything we are doing. You cannot address ERCOT with your own dispatch. All we can control is what we are producing.

Todd: So the model has an average carbon intensity. But the model doesn't factor in the probability of substitution of other carbon units?

Babu (Austin Energy Market Analysis and Planning Manager): No, we have no control of that. That is in the ERCOT market.

Mike: but …

Kaiba: If we reduce our carbon production now, it might fire another more pollutive facility. But it might be a market signal and make ERCOT green up over time. Also, is this glide path real?

Mike: ...it could be very real, but it's hard to predict.

Kaiba: So, what would be the commitment? To reduce by 30%, along this line.

Mike: Yes.

Al (350 Austin Volunteer): 30% decrease or faster within the 2%, right?

Erika: Yes. But that gets harder as the number lowers. As our carbon assets run less and less and less.

Al: The big value is getting rid of Fayette quickly.

> Cary: Yes, and how cheaply we could do that. And once that one goes, you move on to the next, and so on.

The language used in this discussion positions the planners as the users of fossil fuels, rather than those who were dealing with the pollution they produce, rather than those who deal with climate change. Even when they considered "equity," it was in equitable "use" of fossil fuels. There wasn't a consideration for which of their assets were harming local people and populations the most. It was only ever some vague sense that carbon is causing climate change and more extreme weather "for all of us."

A striking moment in this conversation comes when Todd raises the issue of asset substitution, noting how it is not exactly clear that shutting down, even Austin Energy's worst offending resources has a "net" benefit for Texas. To this, Kaiba responds by suggesting that it might send a market signal, which could end up greening the grid over time. That's not a bad play, in this context. But, once again, it is evidence of the technostrategic language at work.

Kaiba, who is an astute environmental justice advocate, adopted a way of thinking and speaking that focused on the producers and the consumers of fossil fuel and renewable energy, rather than recentering the conversation to the people of La Grange who have had to deal with decades of toxic smoke and coal ash, who bear the most weight of Austin Energy's worst polluting energy facility.

This is strikingly different from the logic shaping both power plant retirement decisions and renewable energy advocacy outside of this context. Take this quote, taken from an interview with Susana Almanza back in 2003, when Austin's controversial Holly Power Plant was still running. Susana's focus was strictly on the victims of this plant in forming her rationale for

closing down the Holly Power Plant in East Austin, in refutation of the City's plan to shut down the older Seaholm plant downtown:

> "that's been what we see as a very racist decision … We said no, leave *them* open and take *us* offline. Nobody lives over there at the Seaholm and you can, you know, sell your excess revenue if you want to over there. We have people who are living all around [the Holly Power Plant]. We're taking on the burden of the whole city, but we're not receiving the benefit. … So I think we still have a little ways to go on that and we're going to need a lot of help and I think that one of the answers is solar energy. You know, now that the city has really … [started] looking at solar renewable energy, that that's a real answer and that they don't need the power plant." (Almanza 2003).

Or, for a more current example, take 350 Austin's "Close Fayette Campaign," of which RPWG member, Al Braden, is a prominent member. This campaign is about much more than a concern for the unit's impact on global climate change. In a letter that was sent to the City Council on March 17, 2021, 350 the focus was, once again, squarely on the people living near the plant and directly suffering from the toxic pollution:

> "It is time the City of Austin stand up against the poisoning of families and kids in Fayette County. The Fayette Power (Coal) Plant (FPP) is jointly owned by LCRA and the city of Austin. … Texas produces 1/7th of all the carbon emissions in the U.S. The FPP is one of the largest producers of carbon emissions in Texas. Children absorb lead at a rate of 4 times of adults. There has been no testing for lead in the groundwater at the Fayette Plant or in the surrounding communities. For five years, 350 Austin has asked, testified, met with City of Austin and LCRA officials to get them to stop the atmosphere and water poisoning of La Grange and Central Texas."

For one last example, I'll return to an event that I cited back in Chapter 2, where Kaiba White had helped organize and MC for a rally held to pressure the City of Austin to adopt stronger climate protection goals. My reason for doing so is to point out the fact that Kaiba White is more than aware of the fact that Austin Energy's equity issues are wider than just their rates, or their contribution to global climate change; rather, their fossil fuel assets impact

people's daily lives. And this is readily apparent, in what follows, when Kaiba introduces Richard Franklin, emphasizing his work to protect Dell Valley resident's living near Austin Energy's Sand Hill Power Plant:

> "We're gonna move forward with Richard Franklin, who is creator and president of an educational non-profit called Youth Unlimited. He works to find educational and social alternatives for at risk students. And serves on numerous boards and commissions, including the Dell Valley School board. And I will remind you that Dell Valley is the location of one of our natural gas plants. This is the city of Austin…"

As Richard began to speak, he got right to the point, explaining how Austin Energy's Sand Hill Power Plant is making him and the rest of his community sick in ways that they feel and that they live with every day, but that they can't explain or fully understand. "I wanna talk about, specifically, the power plants that are in eastern Travis county, that are affecting the health and lives of our children and our community. … I wake up everyday and have to take a pill of some type to address something that's going on with my body and I don't know what it is." Richard continued to share his story about what it's like to deal, not with climate change, but with the direct effects of the same polluting sources that are causing all the climatic and ecological destruction that other, more distant Austinites are worried about. And after Richard is finished speaking, and he passes the mic back to Kaiba, she follows with affirmation.

> "Spot on! We focus on what an extra ten megawatts, and this and that, and our goals are gonna do to our rates. We're gonna [raise prices by a] dollar a month, or fifty cents a month. How much are people paying in health care costs? What about the costs of homes destroyed? Of lives lost? This is real, and it is happening now."

The point here is that, Kaiba is more than aware of, and concerned about how her energy use, sourced from Austin Energy, is polluting the homes, parks, schools, and bodies of

people, many of them people of color, though in more removed locations. And, outside the context of the RPWG, she's capable and willing to mobilize that information to make a point and to try and advocate for meaningful changes. Thus, this raises the question of why exactly she or her other environmental comrades in the RPWG did not raise these issues in that context?

4.2 GATEKEEPING THE DISSIDENTS

I would argue that an answer can be found in the techno-strategic language that was required of the RPWG's participants, and those participating in energy resource planning discourse more generally. In Cohn's study, technostrategic language also served as a gatekeeping mechanism, in that one first had to master its use before they could gain access to the elite world of defense expertise. As Cohn herself states, "no matter how well-informed or complex my questions were, if I spoke English rather than expert jargon, the men responded to me as though I were ignorant, simpleminded, or both" (1987, 708).

Perhaps the best example of how pernicious the RPWG's technostrategic language can be, both in terms of gatekeeping and of restricting the thought of included members, can be found in the way Citizen Communication was administered and received. Many community members whom I knew from local environmental organizations would come to speak during this time. Sierra Club, Austin DSA, and Sunrise ATx were some of the best represented among them, but many members of other environmental and social justice groups would also attend. However, it was a rare occasion, indeed, to see these speakers or their comments engaged during the time allotted for citizen communication (or during any other point in the working group meetings) in any meaningful way.

Even the most involved engagements were rather minimal, making the depiction of "citizen communications" as a mechanism for inclusion seem more like a ruse than a reality. Still, the minor differences in the reception of different forms of citizen communication (engaging, clarifying, ignoring, downplaying, or dismissing) demonstrates the way technostrategic languages limit the kinds of expertise, data, and forms of rhetoric that are persuasive, or even tenable, in a given context. In what follows, I will contrast the way in which different kinds of public comments were taken up (or not) by the members of the Resource Planning Working Group during the meeting on October 24, 2019.

In perhaps the most substantive engagement with the citizen speakers that I witnessed, Cyrus once asked for the source of the statistics used by one of the more well-recognized citizen speakers, Paul Robbins. Robbins is a former Working Group member and a well-established environmental activist in Austin (see Chapter 2, Section 3.2). He is also an active historian of Austin's environmental and energy politics. Robbins used his public testimony to distinguish energy efficiency from weatherization, praising the former as an effective environmental strategy. The latter, however, he considered to be a "social" program, rather than environmental. Thus, he was arguing against the use of the city's environmental budget for this "social" program: "Would solar advocates forgo investments in solar and give money to the poor? Would anyone stop running the scrubbers at Fayette and give the money to social programs?" Furthermore, he proceeds to argue that, even in terms of social welfare, weatherization does not provide an adequate return on investment: "It gets a 50 cent return to the home dweller to the dollar invested. It would be more effective to just give the money away." Besides that point, however, his main gripe with weatherization was the "usurpation" of environmental funds for something other than environmental concerns, a process he calls "cannibalization." Instead,

Robbins wants the working group to develop a clear division of missions, arguing for a hard separation between social programs and environmental programs.

In response, Cyrus contested Robbins' claims, citing his own sources where an (un-named) study showed a ".9 kw demand reduction in residential consumption" attained through weatherization. Robbins defended himself, sharing that he sourced his data from "Customer Energy Solutions annual report for 2018" but also that he "has never seen a report that says weatherization ever gets its money back." Cyrus redoubled his argument, repeating that ".9 kw per household seems pretty significant to me," but set that aside to clarify that Robbins's objection "is not weatherization, but using environmental money to fund it?" Paul's final reply was, "Exactly. If you do not cannibalize, and the efficiency budget was not cut, I do not have the same objection. But I also do think the money could be better spent." Notably, Mr. Robbins left immediately after speaking, rather than staying for the rest of the planning meeting's discussion. He was the only citizen speaker to do so.

Robbins was then followed by Robert Hendricks of the Sierra Club. Hendricks spent his time problematizing the assumptions that he saw being baked into the utility's affordability metrics. He contrasts the utility's data, which suggests that the cost of West Texas wind will go up over 30% and solar to increase by 9% between 2023-2030. He contrasts this with ERCOT's predictions that both will actually drop over the same time period. Wind was projected to drop 3.3% and solar 4.4%, which is not a large drop, but it is significant in contrast to the utility's projected cost increases. Hendricks then leaves the economic realm of prices to consider the assumption that the political climate will remain the same amidst the increasing rates of carbon emission-related environmental disasters. By contrast, Hendricks stated his belief that the public will recognize what he calls "the suicidal course" that we are currently on and put pressure on

the federal government to make significant changes, such as a the cancellation of fossil-fuel subsidies, the institution of a carbon fee for energy production, funding research into utility-scale energy storage, and to continue or even increase tax incentives for solar and wind energy. Hendricks then closes by admitting that he can't say for sure what will happen, and therefore, he doesn't know how to address these assumptions in these studies. However, he does want "everyone in the room" to be aware of them.

While, unlike Robbins, no one responded to Hendricks during the allotted time for citizen communication, Cyrus did bring his comments up, briefly, later on in the meeting. The topic of discussion was "affordability," before which Austin Energy had a staff member present on why the current affordability metrics are inadequate for understanding the lived impact of increases in the price of electricity on limited income communities. Near the end of this conversation, Karen Hadden made the point that "There have been times when renewables have lowered bills." To which Erika Bierschbach replied, "we had 1 month in 2013 where it [the utility's solar assets] generated revenue. This year, today, we have had 2 months. So the trend is good, but we need to put that in context." Cyrus responded, noting the information included in their packet for the day, "The two tables with the numbers, year by year, with the costs, risks, and staying below the two percent [increase in rates]. Those were useful. Thank you." He then continued, "[but] this gets back to Robert Hendricks' comment. You may be re-jigging these numbers based on our latest Request for Proposals. Will there be new numbers by the time you run [the resource planning scenarios we put together in this working group] or not?" To which an Austin Energy staff member replied, "Yes, we may be adapting the numbers for these scenarios based on that request."

The final citizen speaker of the meeting on October 24th was Robert Sansouci of Sunrise ATx. Robert began by noting his age, 20 years old, "the youngest person in this room." He then proceeded to reframe the RPWG's work in terms of what it will mean for him and other members of his generation, and for generations to come. He talked about the death and destruction caused by Hurricane Harvey, and by a recent bout of Tornadoes near Dallas, Texas, arguing that these and other climate-related disasters will continue to increase across North America, as well as the rest of the world. He then shifted topics from fast to slow-disasters, connecting climate change to the collapsing of various food systems and to historic levels of economic depression. "This will happen. It is happening. And it is unstoppable to a certain degree. But we will decide how intense it will be."

With this line, Robert shifted once again to discuss a way forward: "Shutting down Fayette [Austin Energy's only remaining coal plant] completely is something we can do that won't break the bank." He ended by appealing to the Working Group members' role as his elders, as the ones who will produce the world that he and others will inherit: "[as you are] deciding on studies and scenarios, think of me and people my age, the children and the grandchildren of your generation. Think of the world you want to leave for them."

The only response that Robert received was from Cyrus who made the following joke: "What if we are mad at our children right now? Just a joke. I'm sorry... Just kidding." I don't want to be overly critical of Cyrus here, as I do believe his intentions were innocent. In fact, he was often the only one making jokes, which he did consistently throughout the planning discussions. And I (among others) appreciated his use of humor for its ability to punctuate these otherwise dry and jargon-filled discussions. However, while this joke may not have been intended as anything more than a non-confrontational way of lightening the mood, it was, in my

perspective, too successful at doing so. Because it worked! Robert smiled and blushed a little as he returned to his seat. Gentle laughter filled the room. I laughed a little myself. It was a clever spin. However, taken in context, it was far less innocent.

This young man was standing in front of a group of experts, knowing full well from the discussions of previous meetings that most of them did not share his outlook and, given the climate of the working group, expecting that they would be less than receptive to his thoughts as a relative "non-expert" on the matter. And still, he was trying to create an encounter. He spoke from a position, not of power, but of vulnerability, in an attempt to shift the frame from a technocratic lens of how to manage costs, to the more kinship-related sense of what one generation owes another. He was explicitly trying to build the tension that Cyrus' joke had cut like a knife. He spoke to unsettle the RPWG members, to make them uncomfortable by showing them an alternative set of values, which he hoped they shared, but from which they had been conditioned to sideline while considering the risks and opportunities of their position and place as the current generation in power.

4.3 LOSING TOUCH: THE PERNICIOUSNESS OF THE DEUTERO

One of the most intriguing, if also disturbing aspects of Carol Cohn study of technostrategic language was her reflexive analysis of its impact on her own consciousness. Over the course of her study, as she began to achieve proficiency in the language of defense strategists and partake in the pleasures of its use, she also began to notice its impact on her at a more deutero-level; she felt herself slipping into a new subjectivity: that of the cool, "rational" defense expert.

> "[T]he better I got at engaging in this discourse, the more impossible it became for me to express my own ideas, my own values. … If I was unable to speak my concerns in this language, more disturbing still was that I found it hard even to keep them in my own head. … I found I could go for days speaking about nuclear

> weapons without once thinking about the people who would be incinerated by them" (1987, 708-709).

Thus, Cohn found herself in an academic and political double-bind. In order to gain access to her interlocutors, she had to learn to speak and think *on their terms*, as well as *in their terms*. But in doing so, she found it hard to maintain the former values and patterns of thinking with which she, herself, identified. As she discussed, though learning this technostrategic language was most often assumed to be an *additive* process—one of acquiring a new skill and competence—in her case at least, it was more-so *transformative*: "When you choose to learn it you enter a new mode of thinking; a mode of thinking not only about nuclear weapons but also, de facto, about military and political power and about the relationship between human ends and technological means" (1987, 716).

This rather alienating experience called Cohn to question her original strategy of trying to out-reason defense intellectuals in their own terms. To a certain extent, such an endeavor had already been precluded in the development of this technostrategic language. According to Cohn, the structure of this language was such that the speaker must always occupy the position of the safe and victorious user of nuclear weapons, that is, rather than the victim (or especially the anti-nuclear activist). Thus, Cohn's work serves as a testament and a warning, for energy and environmental justice actors, of the deutero-impacts of more emic-oriented studies or political strategies of resistance to petro-racial capitalism. Language isn't innocent; the statements distributed in discourse *produce* thought. Be wary. Don't lose touch with the outside.

In the following section, I'll switch things up a bit and discuss the Office of Sustainability's alternative approach: the unsettling of thought by creating new transversal

infrastructures, new modes of connection, across discourses, as a way of multiplying the paths to the outside.

5. ASSEMBLING A PROCESS-ORIENTED DATA CULTURE

In this last section, we'll take a look at the way Austin's Office of Sustainability and its Climate Equity Planning Committee developed new critical and reflexive infrastructures that helped them to intervene and intentionally reshape their own data culture. As I will describe, in 2019, Austin's sustainability office initiated a profound shift in the process of researching and planning climate protection, which included the development of a series of new feedback loops that increased opportunities to recognize and address the process's more exclusionary and problematic data practices as well as their lived effects.

5.1 NEW DATA ACTORS

One of the ways the Climate Ambassador program disrupted traditional climate protection planning was to produce new kinds of data actors. The motivation was to develop a more effective and ethical way of incorporating Austin's diverse communities into climate planning that also respected the appreciable distrust and resentment that many of those community members felt towards the City. Thus, the work around was to recruit diverse members of Austin's historically marginalized communities and train them in qualitative data production and analysis. Celine Rendon, a recent college graduate and local community organizer, was hired to turn these ideas for the program into a reality.

Celine began reaching out to local community organizers and activists to spread awareness about this upcoming opportunity, and she was quite successful in recruiting Austinites who were really interested in talking about climate issues in their community. And, as the commitment would be quite extensive, the Office of Sustainability decided to set aside a budget to pay the Ambassadors to do this work.

Part of their commitment was to hold semi-structured interviews or to host focus groups or to just call people on the phone and ask them what they think about how both climate change and climate protection policy has impacted them and their families. And part of their commitment was to collaborate with Celine in order to analyze this data and report back their findings to the city. Thus, the ambassadors really served as a kind of feedback infrastructure where the Climate Steering Committee could suggest issues for conversation and integrate the Ambassador's findings into the plan, modifying or shape moving the plan in a different direction depending on the kind of feedback that they were getting from community members.

5.2 NEW DATA SETS

The Climate Ambassador Program also produced new kinds of data sets that help unsettle otherwise sedimented beliefs about race, equity, and environmentalism in Austin. In the data collection period, Ambassadors conducted two-five community conversations where they gathered and shared information with their communities about climate issues. In total, they amassed over 50 interviews, which Celine helped them to review, code, and translate into reports that could be incorporated into the climate plan.

One of the more important discoveries of the Ambassadors was the rich set of knowledge and practices that these communities had developed. Take, for instance, this comment by one of

the Ambassadors, Nakyshia Fralin, “It really hit home that they were really knowledgeable about environmental injustice issues, … they just don’t have the terminology to back it up.” Nakyshia continued, sharing how a narrow focus on terminology had historically served as an excuse and rationalization for the exclusion of her community, “And so a lot of times, when I’m in these spaces a lot of my counterparts will be like, ‘well, a lot of black and brown families don’t know, you know, really, what environmentalism is, or, you know that’s why they are not in this space as they should.’ Well, it’s like, they understand how it’s impacting them. Like, when I kinda stripped away the terminology and I was able to get to the root of issues… Which, it is refreshing to me to know that my community knows what’s going on, so they should be in this space and we should make more room for them to give input on certain topics.”

On the other hand, many Ambassadors uncovered a sense of cynicism towards the city’s environmental practices. Kiounis Williams framed these responses in the following way, “Austin is trying to become this eco-friendly city, but, that’s gonna cause more financial issues. And so a lot of people in the community I spoke with felt like it’s just going to cause more problems [for them].” Another source of criticism came from changes in the look and feel of people’s neighborhoods and the increase of police presence that came with gentrification. Celine put it nicely, “These community concerns around safety and development are very much relevant and something that we saw based on [Ambassadors’] reports with communities in [their neighborhoods]. … a lot of people talking about the change of character from their neighborhoods and the [loss of] community connection that is really needed to be a resilient, strong community.”

Thus, the Ambassador program really instilled a sense of the need to consider and support cultural preservation amid the changes that energy transition and climate protection will

require. As previous chapters have already shown, this isn't simply "NIMBYism," the gentrification of East Austin's communities that had accompanied the City's new "smart growth model" brought in real threats of displacement, loss of community, and even increased rates of police brutality. The Ambassador's reports also showed that many marginalized communities are already practicing sustainability in more communal ways that traditional sustainability and energy conservation experts had sidelined. This provided a new frame for understanding resistance to climate protection measures that did not result from ignorance or from unwarranted senses of entitlement.

5.3 A NEW PROCESS ORIENTATION

The last way that Austin's Climate Ambassador Program managed to help recenter climate planning around equity was to shift the emphasis from products to process. As many Ambassadors expressed, this process focus created a real sense of empowerment. Take this quote from Kiounis: "But to actually let us have a voice and take down what we are saying and what we are trying to portray is a big deal and I feel like I learned a lot. And I'm only 24 years old, but I really feel like what I learned I can carry it on into my church and into my community as a new generation." Aside from training a new generation of qualitatively skilled environmental justice actors, the Ambassador Program also empowered the communities that they engaged and talked to. As Chelsea Gomez recounted, "to be a part of a program who gave a voice to people who, at times they were like, I didn't know that my voice mattered, like, I didn't know that my experience was important. And just seeing other people get excited about that and share their experience with the faith that their opinions and their life, it matters. It gave me a lot of hope and I feel like the city of Austin is moving in the right direction."

But the reach of this process-oriented shift was also much wider than the Climate Ambassador Program itself. The reports described above, along with the recursive equity processes that they helped inspire, also reshaped the perspectives and orientations of many environmentalists involved, even those whose careers were well established.

Take the example of Joep Meijer, a prominent and internationally recognized industrial ecologist that had participated in both the 2015 and 2020 planning process: "Related to climate change and advocacy, my approach was always… since the world is so complex I've tried to make it simple by making climate change my priority and I thought 'well, others will take care of the rest.' Well, it turns out, it doesn't work like that, especially when it comes to social justice and equity issues, and maybe even more especially here in the south. … I was wrong in thinking that we can deal with societal problems in isolation, and I will never do that again as an environmentalist that does advocacy."

6. ON DIALECTICS AND PLATEAUS

The modern empiricist conception of scientific knowledge rests on an essential binary opposition between epistemology and ontology, where linguistic discourse, or the realm of epistemology, is thought to be derived from disinterested observations of that to which it is opposed, of materiality, or the realm of ontology (Wolfgram 2016). Gregory Bateson, an early critic of this opposition, argued that the division and purification of mind from matter was not only ill suited for advancing knowledge about the world in which we live, it is also fundamentally pathological. And if left unchecked, it will lead towards social and environmental ruin. He argued, therefore, that the primary step to addressing the multifarious social and environmental challenges we currently face is to change the way we think (1987). Where Bateson is less than clear, however,

is on how this change can be achieved. What sorts of practices, or modes of engagement are capable of making us aware of and also shifting the way that we think?

> "The proposition 'I see you' or 'You see me' is a proposition which contains within it what I am calling 'epistemology.' It contains within it assumptions about how we get information, what sort of stuff information is, and so forth. When you say you "see" me and put up your hand in an innocent way, you are, in fact, agreeing to certain propositions about the nature of knowing and the nature of the universe in which we live and how we know about it." (Bateson 1987, 337).

This, to me, is key, as it implies that the means through which we practice and reaffirm epistemology is, among other ways, in the content of our everyday speech. Speech, or communicative action more generally, both contains and expresses assumptions about the world that are affirmed in the replies and/or the response actions by others who share our same assumptions. "You and I are able to get along in the world and fly to Hawaii and read papers on psychiatry and find our places around these tables and in general function reasonably like human beings in spite of very deep error. The erroneous premises, in fact, work" (Bateson 1987, 337).

In this chapter, petro-ghosts take the form of such "errors," formed in and through the development of governance and planning regimes developed to take advantage of fossil fuels, that travel and reproduce by means of what I have called our epistemic ecologies (see the Introduction), but that reside in deeper realms of subjective internalization. Speech expresses petro-ghosts, but the ghost itself "goes without saying," as Bourdieu put it, "because it comes without saying" (1977, 167). Thus, in this chapter, I have discussed the form, content, and modes of expression that took place throughout Austin's environmental protection and energy transition planning processes, as well as how they were differentially received.[62] I have also supplemented

[62] Data on these meetings were gathered through participant observation, shared notes and conversations with other participants, and through public archives containing meeting agendas, powerpoint presentations, and information packets.

this consideration of the language by which Austinites authorize their ideas about energy transition planning with a consideration of the temporal and spatial structures, the technological infrastructures, and the desires and ethico-aesthetic sensibilities that shape the way we produce and evaluate "good" data.

Feminist anthropologists have developed analytical tools to investigate the plurality and contingencies of projects that culminate in collective existence. I draw particular inspiration from feminist critiques of technocratic approaches to "the economy" as an "accepted and relatively bounded focus of study … characterized by practices and standardizing logics that are assumed to cohere in them" (Bear et al. 2015, np). That is, the reification of ways of thinking through terms like "economic logic," even from a critical perspective, misses the plurality of values, and ways of speaking, thinking, and acting "that exceed formal economic models, practices, boundaries, and market devices" (Bear et al. 2015, np). In my reading, this perspective calls for a new ethical orientation, beyond critique, that is based on the premise of what I call, following Deleuze (1988) and Foucault (1987) encountering "the outside."

This chapter attempts to perform such an encounter by curating the reader's experience of the rhythms emerging through Austin's energy transition planning between scales of education and expertise, of discourse and discursive strategies, and of data cultures and ideologies. More concretely, I contrasted the Austin's Resource Planning Working Group and Climate Equity Planning Group to consider their differential capacities to recognize and unsettle the habits of thought that have shaped Austin's regime of environmental governance. Treating these groups as unique assemblages, I touched on their differential histories, ethics, logics, temporalities, and positions within Austin's overarching regime of environmental governance. In what follows, I'll continue to use this comparison to distinguish the ethical and methodological consequences of

dialectical thought from that of the "plateau," as distinct—but not mutually exclusive—modes of producing knowledge.

"To negate dialectically," Foucault states, "brings what one negates into the troubled interiority of the mind" (1987, 22). That is, dialectics interiorise; they create enclosures, producing knowledge by resolving contradictions internal to a given system of logic and through recourse to that same system of logic. In this way, dialectics are akin to Kuhn's notion of normal science, which always takes place within a given paradigm. In Kuhn's work, the paradigm goes unquestioned, and must go unquestioned because it sets the program for scientific work, it identifies and frames the program to be solved. In that way, the dialectic "add[s] to the scope and precision with which the paradigm can be applied" (Kuhn 1994, 36). Where I stray from Kuhn, however, is in refusing to assume the dialectic as the only game in town.

Kuhn's assumption of the "paradigm" as a single and self-contained frame operating with unchallenged hegemonic standing precluded the possibility of an encounter with the paradigm's outside or, that is, with other more or less compatible systems of logic. Plateaus are defined as such en/counters, where two or more unique systems of logic intersect and are taken, not as contradictions to be resolved, but as potential lines of flight that open up possibilities for new directions of thought and action. In this way, instead of Kuhn's structural history of scientific revolutions, where paradigms exhaust themselves to the point of crisis, at which point they are replaced with a new, relatively equal-yet-incompatible paradigm; the concept of the plateau enables a more complex, rhizomatic understanding of the history of science, one where divergent paradigms proceed, dialectically, in different directions, according to their own internal logics, producing epistemic differences. And plateaus are formed through encounters of paradigms, which may happen at any time, creating opportunities for thought outside their own confines.

6.1 COMING TO TERMS WITH DIVISIBLE GOVERNANCE

In this dissertation, I am arguing that part of the governance challenge of *just energy transition* lies in developing new modes of coordination and collaboration across the systems, jurisdictions, and domains of expertise that processes of stratification and divisible governance regimes hold separate, even as they are reshuffled and reformulated. Spatially, the organization of relations of obligation and dependence across jurisdictions can be endlessly renegotiated to divide or preclude the formation of what Gramsci would call "historical blocs" into less formidable forms of resistance.[63] As Howey and Neale demonstrate, "Even if the [Northern Territory] Government [of Australia] wanted to retreat from fracking, the current administration and its successors have limited autonomy due to its unfolding fiscal crisis and its long-term reliance on federal funding, putting it in a position to be leveraged by others" (Howey and Neal 2022, 21).

In Austin, the hawkish and petro-friendly state government ensures that the public utility is positioned similarly to Australia's Northern Territory. That is, as discussed in detail, even though Austin Energy owns its own assets and could shut down its worst carbon offenders, their structural dependence on the ERCOT energy market forces them to adopt racial-capitalist and

[63] Gramsci thought that the essential task of intellectuals was to organize and inspire the formation of a cohesive historical bloc, "systematically and patiently ensuring that this force is formed, developed and rendered ever more homogeneous, compact, and self-aware" (Gramsci 2000, 209). While this eschewed the class concept's privileging of the economic, allowing for relations of solidarity to be cultivated along other cultural lines, it still relied on resolving differences to establish a new counter-hegemony. In other words, while Gramsci pluralizes the lines across which solidarity and resistance might form, in the end, he privileges a dialectical politics that reduces intersectional differences to a single opposition. Divisible governance regimes, however, are neither left nor right, but work by producing and capitalizing on these and other strategic lines of socio-political division; divisible governance relocates and redefines difference, but the difference is always there. Thus, thinking in terms of oppositional blocs both undermines other, more loose forms of solidarity while also overestimating the cohesion of "the opposition," disguising potential weaknesses, schisms, and even tenuous alliances. The political field is not composed of blocs but of diffuse power relations distributed across multiple different groups and individuals, who's divergences and alignments vary from individual to individual, group to group, across the whole set, and across any encompassing set of sets.

settler-colonial logics that rationalize–as necessary, unavoidable, or even desirable–the continued use of these assets which poison certain sacrificial landscapes, ecologies, and communities (to differing degrees). The technostrategic language that bolsters energy market expertise structurally positions these experts as the producers and/or users of these fossil fuel assets, but never the *victims* of these assets.

Divisible governance also works through controlling both time and our experience of time. In part, this works through production of a "maze of forms and processes and seemingly endless technical rules" which can be selectively adjusted (truncated or expanded) to enable certain targeted processes to proceed at different paces than others, i.e. allowing development to outpace environmental protection efforts" (Howey and Neal 2022, 22). Or, at a more abstract level, time may be scaled (a certain form of punctuation) in ways that privilege more immediate and discrete risks over larger concerns of the future. For instance, in the RPWG, the near-term economic risks associated with pollution reduction always trumped the concern for longer term risks of pollution that contribute to rates of cancer, to ecosystem collapse, and to climate change, even if both sets of risk were recognized and validated.

Punctuating and repunctuating space and time in this way enables regimes of divisible governance to de-and-reterritorialize the political landscape as a way of keeping it the same. In a way, contesting the divisible governance regimes of fossil fuel states directly, on their terms, is like a hyper-difficult version of building the ship while you're sailing it. But, in fact, it's more like playing a board game with a clever toddler, one who just redefines the rules of the game when it's convenient to do so, undercutting your advantage at every turn. From this position, long term strategizing (i.e. strategizing beyond the next few moves) must be treated as tenuous at best, as the very tables of the game are continually turning against you.

With these issues of divisible governance in mind, I'd like to end this section with an extended quote from an interview I conducted with Dr. Tane Ward, a local anthropologist and community organizer who graduated from UT Austin's Activist Anthropology tract. As you will see, Tane is a vociferous critic of the City of Austin and, more narrowly, of the shape of the City's expressed fears and anxieties about climate change, their citations of climate science projections, and the pressing need for energy transitions. But, it's not simply that Tane denies or negates what they have to say… Rather, in my perspective, it's that he finds the statements that are distributed within these ecomodernist discourses to share the same archaeological ground as the petro-racial capitalists that they are, more superficially, out to resist.[64]

> "You know the ways in which things are able to be shown has ended in this really epitome of neoliberal, multicultural issues… 'Climate Change.' You know, this totally manufactured set of ideas. 'Trust the science.' This meaningless fuckin… I got into it with one of these guys, you know, he walked out of my training. You know, he was really just, you know there's this generation... These old white dudes. And I have compassion for these people. Because of their generation, the way they were raised was fucked up. Their parents were all in the war. Their grandparents were all in the war, you know. That's a side conversation, I'll tell you stories about that shit.
>
> But, they're so about 'Climate Change,' you know. 'This is the issue. We all… we need to stop Climate Change! And I will not hear anyone speak anything that is not to do with Climate Change!' You know, and so… and I'm like, 'What's your fuckin deal man, like, ooh you really care about climate change.' That sounds so stupid to me. You know like, I've been in situations where it's like, 'Oh yea? I know where that coal comes from. And I know families that have been displaced by death squads so that you can get that fucking coal.' You don't have to tell me that 'Oh, but really the important thing is how hot everything is getting.' Like, it's all related, man.
>
> How much carbon does a gold mine release? Or a fucking lithium mine. Like, I don't really fucking know or give a shit. I know extraction is obviously

[64] It's worth noting that, while Tane is speaking freely here, in his trainings, he was extremely professional, earnest, patient and considerate. However, he also did not let anything slide. He held no punches in calling out the ties between Austin's environmental liberalism and its racial inequities, which had been produced, in tandem, by a lot of people in that very room. For that reason, it's actually quite impressive, and a testament to the character of Zach Baumer and his team in the Office of Sustainability, that they chose Tane to lead the Climate Equity Plan's racial equity training.

> wrong, and exploitation of mineral resources is fucking up the planet. You don't need to measure it out. You know, like 'let's wean off the shit and cancel it out.' 'Well, let's model this a little more… how many parts per billion of carbon could we…' You know? It's like nobody gives a fuck. That's all manufactured.
>
> And it's like… from an indigenous perspective, like have you tried talking to the sky? Because I know people who do that, and like, it works. Like 'hey, do you wanna release some carbon into that atmosphere, earth?' 'Not, really… asshole. Do you wanna not remove my organs?' You know, and like 'Ooooooooooh… Nooooo, we're gonna keep doing that…' You know and that's where we're at in this impasse of like, 'I wanna be able to keep committing the violence but I don't want to have to be held accountable for it…' It's like, that's this colonial fuckin reality."

To be clear, my reasoning for including this rather extended and zealous rejection of energy transition as a method of climate protection, here, isn't to *negate* or even diminish the significance of climate change as an existential threat. Nor am I trying to argue that the problem of energy transition is really as simple as immediately shutting down our current extractive industries and polluting facilities, all at once. Rather, what I appreciate about this quote is the way it reveals Tane's capacity to draw connections between scales usually held separate, to pollute the prominent dialectics of just energy transition with more transversal analysis of the relations that have rendered our need for energy transition in the first place.

6.2 REPUNCTUATION AS RESISTANCE

In this chapter, I began to approach how Austin's diverse energy actors have proceeded in the context of Austin's current regime of divisible governance. And I began developing distinctions between different modes of strategy that become available when we take divisible governance into account. In bringing this discussion to a close, I want to address another scale of divisible governance, one that takes place at an unconscious level, well beneath the more conscious levels and terrains of struggle specified above. That is, by struggling to control the

punctuation of space and time, which, as Kant observed, are fundamental categories of human experience, divisible governance participates in the production of the very textures of our subjectivity.

Awoken by Hume's constructivism, Kant argued that space and time were indeed constructs, but necessary constructs that reflect and thereby connect us to the external world, rendering it intelligible, study-able, and knowable. Foucault showed how our constructs of space and time are not "whole," but rather punctuated and arranged into a system of interrelated categories of thought that he called epistemes. And Foucault's treatment of *statements* theorizes the acts that produce and perform (or produce by performing) these punctuations. As such, Foucault's archaeologies and genealogies show that these punctuations are neither necessary nor static, but rather subject to change; they have a history. He also showed how the particularities of the statement, which produces and performs the way we punctuate experiences into categories like space and time (but also sexuality, mental health, government, economy, etc.), shapes how we perceive ourselves, others, and existence more generally.

In other words, taking Foucault's work into account helps us recognize how the art of punctuating experience developed and performed by regimes of divisible governance influences the scales and dynamics that are being *figured* as domains of important political struggle. But, importantly, such divisions also produce the *backgrounds* that frame and reinforce the obviousness of these figures as the correct domains of our political energy and attention. And this has tremendous implications for the way we might think about power and resistance.

By controlling the divides by which we establish political figures and grounds, divisible governance seduces dissidents into thinking from within established categories, restricting thought to normative, technocratic terms. In this way, resistance is funneled into established

arenas, schedules, and dialectics of thought, reproducing power relations by restricting the forms of political expression to docile forms that take the deterritorial edge off of any given content of expression. Furthermore, it represents these forms of expression as the only sites of struggle, as if the current way such political territories are divided is merely objective and rational, rather than political and strategic.

Tane Ward's analysis is much more complex, spinning an intricate web of connections between issues spanning the domains of geopolitics, the family, climate, colonialism, extractivism, epistemology, and ethics, etc. And he factors all of that into the way that divisible governance is also a technique for the production of subjectivity, constructing the categories that shape and reinforce our frames of experience. And the categories produced through these divisions can be developed in strategic ways that restrict thought and limit our capacity to understand how power and resistance work.

Following Tane's lead, I have come to understand how resisting technocracy means deconstructing the categories of "climate activism" and "energy transition," but not in a dismissive or reactionary way, i.e. in no way similar to climate deniers or fossil fuel apologists. Deconstructing these concepts doesn't mean leaving them for dead. It means shifting the lines that distinguish their figures from grounds, repunctuating the web of causal connections and the sequence of events that got us to where we are, so that we can head in new and different directions.

In particular, certain tactics of power, like technostrategic language (Cohn 1987), can be utilized to keep separate the otherwise tangled and multi-dimensional fragments of our cyborgean (Haraway 1991), or schizo (Deleuze and Guattari 1983) subjectivities and ethics. That is, the efficacy of divisible governance is dependent, not only on juridical divisions, but also the

way that we distinguish and purify our professional lives from our personal lives, the way critical academics take a blind eye to the problematic dynamics of their departments and universities, the way we keep our professional ethics separate from our ethical sense as a sister, an uncle, a grandmother, by keeping our training in the scientific method separate and purified from our love of literature, or of music, or philosophy, or what have you.

This also means shifting from idealized notions like "saving the future," or "remediating the past." While intuitively appealing, such agendas are dangerous, they excuse too much. Instead, we have to shift our thinking towards making ethical decisions that engage the reality of the situation we are currently in: "this colonial fuckin reality," as Tane put it.

Climate change is already here, it's been here. We can't postpone ethics for a later date, when we have things under control. That day has never come before and never will. We have to learn how to live ethically within the Anthropocene, which means dealing with the issues that have shaped us and our ethics.

CONCLUSION: THINKING JUSTICE THROUGH THE OUTSIDE

As I established in previous chapters, time is multiple and nonlinear, and the petro-racial assemblages that re/produce Austin's energy ecology span across these multiple temporalities, producing the rhythms that characterize its quotidian Anthropocene. Altering these assemblages will require similarly non-linear and multiple modes of de/reterritorialization, paying careful attention to the rippling impacts on these rhythms. The technocrats, using space, schedules, and jurisdictions as their primary weapons of control, are the primary actors that turn energy systems into discrete objects, pre-territorializing energy futures through resource planning. This is not to say that I am against all forms of planning. Indeed, I firmly believe that we will need more and

better forms of coordination and organization if we are to rid ourselves of petro-racial capitalism in all its toxic social, psychic, and technological guises. The difficulty lies in recognizing the dynamics and aspects of our current modes of thinking, organizing, and planning that have enabled and produced the same social and environmental injustices we are using them to solve.

The dialectic is a petro-friendly theory of change that currently dominates Austin's energy transition planning. And it is "petro-friendly" not because it has any necessary relation to petro-systems, but because it's actually not a theory of change at all. It is a theory that represents change (through discourse and symbolism) but serves as a means of conservation (of systems and assemblages and their hierarchies of power relations). This is because the dialectic proceeds by resolving differences and rationalizing contradictions according to an immanent logic. There is no real "encounter" with the "outside" here. This ties to Cohn's concept of a technostrategic language: in the Working Group, it was made clear that the only speech that will be entertained is that of the language and logic of capital, anything else is disavowed. The only position from which one could speak was as a user or producer of energy, never one of the victims of energy production. Everything must be presented as a better or worse business model, as a market failure, or an externalization of costs, or some other kind of contradiction that remains within the discourse of energy markets and the logic of capitalism.

Of course, this commitment to market logics and dismissal of the community perspective was also always presented as "realism." And, to an extent, I agree. The utility cannot simply disregard the fact that they are operating in Texas's deregulated energy market system, and that their planning decisions will affect the cost paid by consumers. However, this threatens to render the whole concept of the working group null, at least in terms of incorporating the community into the resource planning process. As it currently stands, the Resource Planning Working Group

is a shadow of democracy, a representation. And it is a particularly dangerous form of representation, because it presents itself as a form of inclusion when, in effect, it shows the public that they are ill-equipped, a hindrance, frivolous. The utility and only the utility has the expertise, the tools, and the knowledge to make the city's transition the transition that we need. Besides, as they often retort, the transition is already happening! "Why won't you trust us!?" was a common refrain.

The Climate Equity Planning Committee, by contrast, cultivated spaces and infrastructures that did create meaningful en/counters with the outside, instigating ruptures and shifting values and ways of perception. The participant selection process, the openness and transparency of the meetings, the equity tool, the climate ambassador's program, all of these are testament to this. However, divisible governance rears its ugly head again. This may be a rhizomatic planning process, but it's tucked away in a massive bureaucratic hierarchy.

So, at another scale, just like the three-minute speeches from the community during the Working Group meetings, the entire Climate Equity Planning process is another "representation" of an encounter with the outside that can be reterritorrialized, making it an infrastructure to keep things the same. The planning process is kept at a healthy distance from centers of power. Funneled in through all the rungs of the bureaucratic ladder before they ever reach the City Council.

Nothing shows this better than the end results of both of these supposedly groundbreaking plans. The Utility's repeated promise to shut down their portion of the Fayette Coal plant was abandoned near the end of 2022. And, before the climate equity plan was approved, Texas Gas came in and tore the first plan apart. Rendering the second "approved version" much more gas friendly.

Austin's technocratic approach to energy transition, as the "cure" for climate change, is symptomatic of the modes of psychic and social repression that produced climate change in the first place. And the City's transition to renewables is thereby "haunted" by an eco-modernist interpretation and strategy that reproduces the same forms of psychic and social repression that produced the climate crisis in the first place. As described in previous chapters, despite its progressive or environmentalist veneer, Austin is a city marked by palpable inequality and social and environmental injustice.

CHAPTER 4: ETHICAL ECOLOGY

> "If you ask ecologists what they intend to do to help the homeless in their suburb, they generally reply that it's not their responsibility. If you ask them how they intend to free themselves from a certain dogmatism and the practices of small groups, many of them will recognise that the question is well-founded, but are quite unable to suggest any solutions!" (Guattari 1995, 128).

In this last chapter, which focuses on ethical ecology, I will shift emphasis from identifying petro-ghosts to identifying and describing the practices by which Austinites are beginning to recognize and exorcize these specters. Such practices, I argue, are deeply anthropological in both style and intent, implicating the same political, epistemological, and ethical conundrums of any study of "the human" by humans, conundrums which have been both the bane and the lifeblood of the discipline since its inception. In other words, I will show how anthropology's worries about representation, about the study of the other, about the ethics of the cultural encounter, about understanding the "the human" are always (at least implicitly) in play in the problem of energy transition. What is ultimately at stake in energy transition is the re-invention of a non petro-racial capitalist culture. As such, energy transition calls for better methods, frames, and agendas for anthropologies, both professional and otherwise.

Thus, what follows in this chapter might be called an anthropology of anthropologies *in the wild*, where I utilize the critical and reflexive thinking practices of my interlocutors to reflect on anthropological practice, and vice-versa. At stake here is the possibility for escape: to escape the epistemological holds of the already thought and known, to come to grips with how we think so as to think otherwise.

Like many of my interlocutors in Austin, at the beginning of my research, I had assumed a narrower conception of what energy transition entailed. My initial research during the summer

of 2017 focused on the controversy of the recently developed Resource Planning Working Group recommendations, and the rift that I described at the beginning of Chapter Two. Through this work, I had gotten a sense of the spaces where "energy transition" was happening, and I spent my time interacting with various experts, activists, and politicians who frequented these spaces. Upon my return from the field, I designed my research around these encounters, assuming much of the technocratic ideals that this dissertation is now critiquing.

When it came time to write up this dissertation, however, what became painfully obvious were all the ways that my data had, all along, pointed towards the need to decenter technocratic imaginaries with detailed attention to more marginalized voices, concerns, and forms of environmental politics. Dave Cortez's 2017 speech, which I heard at the very beginning of my research, made this very point. Commenting on the skewed sample of Austin's diversity in the crowd before him, Cortez asked, "Who is not represented around you? Who is not standing next to you, and why are they not standing here? Ask yourself these questions. … How are we going to organize in a way that builds power in underrepresented communities, in a way that gives them something to care about and believe in? … That is the key question."

And though I had heard Cortez and even agreed with him, I failed to incorporate the statement he was making into the early designs of my research. Much like I discuss in Chapter Two, where PODER struggled to render Austin's human communities intelligible as a necessary concern of Austin's environmental movement, I had my own struggle to come to grips with Cortez's statement, a struggle to en/counter my own technocratic assumptions, my own petro-ghosts.

What does it mean to frame this struggle to come to grips with Cortez's statement as a struggle to en/counter my own petro-ghosts? At one level, it shows the value of a recursive

research design, one that can accommodate the "question of the question" that, in Chapter Two, I show is essential to any just transition effort. At another level, it demonstrates how the need for, or the utility of "research" is not always necessarily to "fill a gap" in the literature, or even a gap in one's own knowledge. Rather, ethnographic research–in the style of cultural critique (Marcus and Fischer 1986)–can be taught and deployed as an *ethical* practice in itself, which practice effects changes in the researcher's own habits of thought and perception.

One of the under-explored responses to the critique of representation in anthropology could be an emphasis on ethnography's *pedagogical* function, or the utilization of ethnography and ethnographic research to better equip non-anthropologists in the construction of their own anthropological practice. Ethnography can serve a pedagogical function by creating a feedback loop between anthropology as it is practiced in the academy and in the wild. That is, the research process has the potential to do more than merely put new information into circulation within epistemic ecologies. If designed to do so (or by happy accident), it may have a more deutero-effect of cultivating a kind of research-oriented subjectivity, transforming our *ethics* around the principle of the "question of the question," reshuffling of the way we relate to ourselves, to human/nonhuman others, and to our social and technopolitical environment.

For instance, I had already learned quite a lot about Austin's inequities by the time I had started my research and, as I already pointed out, I even thought I understood and agreed with Cortez, that addressing the renewable energy/climate justice movement's lingering exclusivity would be key to their success. And still, my own technocratic assumptions about "energy transition" instilled resistances to my incorporation of that knowledge into the design and early conduct of my dissertation research. It took fieldwork, as a sustained form of research within a specified and curated domain, to enable what I had already known about Austin's racial and

other forms of social inequality to begin to significantly redefine the categories with (and within) which I had come to think about petro-culture, racial capitalism, and just energy transition.

Throughout the process of fieldwork and in constructing an ethnographic archive, as well as through my venturing off into new research spaces and domains outside of Austin's energy transition, I began to expand my ideas about the locations where "energy transition" was taking place, better coming to grips with Cortez's admonition. But this took an extended period of ethnographic research, of listening, collecting, recording, searching, reflecting, reading, writing, re-reading, and re-writing. This chapter is about that journey, and I will identify and analyze the practices of self-care that I witnessed, participated in, and created to enable this journey. In an attempt not to reproduce technostrategic languages, I will be tacking back and forth between the position of an energy and climate justice advocate and that of a researcher of such advocates. I will also use this strategy of tacking back and forth in descriptions and analysis to make an argument for developing the pedagogical function of ethnography as a potential role for anthropology in strategizing environmental justice and just transition.

This chapter is about different Austinites' practices through which they come to intervene in their ethical ecology. That is, this chapter attempts to outline and affirm the means by which differently positioned Austinites have managed to produce encounters with the outside in ways that inspired new tactics and strategies for organizing power, new categories of thought, and/or new ways of punctuating experience. My discussion here, then, is about cultivating a new form of subjectivity as a research subjectivity. However, in thinking about this research subjectivity, I'll not be discussing how Austinites are developing research designs to produce new contents of knowledge. Rather, I will be looking at the "deutero-effect" of these research processes, i.e. how they are producing shifts in the way they relate to knowledge, how they relate to different forms

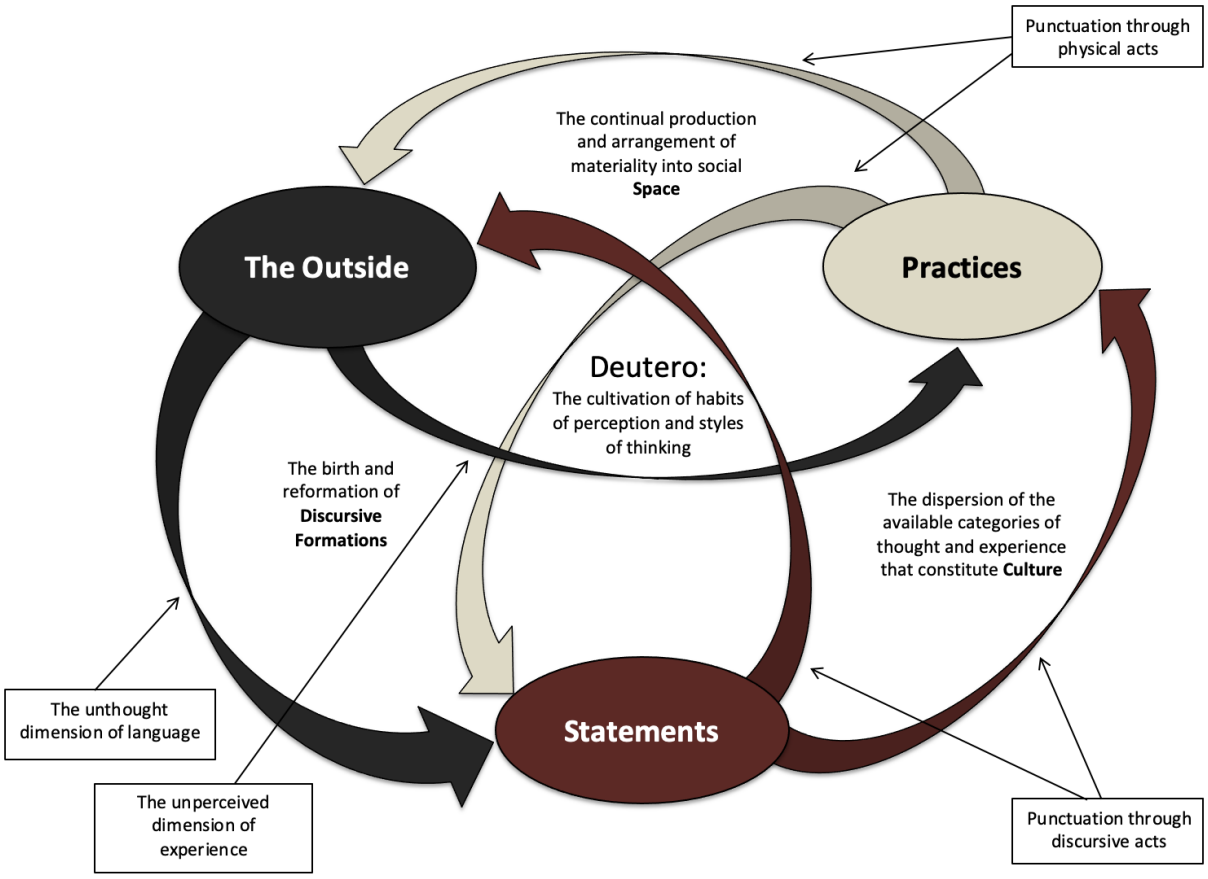

Figure 18: The Outside, that dimension of reality which is not immediately available to thought or experience, is punctuated–through both discursive (statements) and non-discursive (physical/material) practices–into the discourses and visibilities that constitute what anthropologists call culture. Culture is deutero-learned over time by repeatedly inhabiting and engaging certain visibilities and witnessing and participating in certain discourses which are always already punctuated by the acts and statements of others.

of knowledge, how they have come to recognize disjunction between these different forms of knowledge. More precisely, this chapter is about how, by folding our deutero-learning back on itself, we may bring our habits of thought, speech, and action into better alignment with our knowledge and experience. And I identify a number of what I will call trito-order tactics, modeled after primary research methods of ethnography, that increase our capacities to recognize and address lingering habits of thought and perception rooted in petro-racial capitalism.

Thus, the sections of this chapter are organized around classic ethnographic field methods–participant observation, interviews, and archiving–which I will reframe in terms of what Foucault called "care of the self" (1986). These techniques will exploit what I have been referring to as "disjointedness" within Austin's energy ecology, using the frictions produced out of these disjunctions and misalignments between different forms of knowledge to enable the subject to intervene in their own subjectivation. In what follows, then, I will treat the disjunction between knowledge and "the outside" as a primary disjunction, a disjunction at the root of all the others. And while the full meaning of this disjunction will be developed over the course of this chapter, in brief, it can be understood as rooted in Foucault's distinction between *the outside*, as the non-formal domain of relations of force, and *knowledge*, as the formalized domain of thought and experience. That is, knowledge consists of the forms with which we perceive and understand the regularities that emerge out of this interplay of forces. The second disjunction comes at the level of knowledge, between the categories/forms of experience as they are sensed through the habit-body and the categories/forms as they are understood and spoken of in language. In what follows, these three disjunctions, 1) between the habit-body and the outside, 2) between the discourse and the outside, and 3) between the habit-body and discourse, will be discussed for the way they can factor into ethnographic research, and also developed into techniques of the self with which to intervene in one's own ethical ecology.

1. PARTICIPANT OBSERVATION

In experimental ethnography, participant observation isn't only about the production of data through empirical recordings, it is also about the strategic mobilization of difference to achieve certain (often unsettling) effects. As Marcus and Fischer describe it, cultural critique

involves "[d]isruption of common sense, doing the unexpected, placing familiar subjects in unfamiliar, or even shocking, contexts … to make the reader conscious of difference" (1999, 137). Or, to borrow from another esteemed cultural critic, "the objective was to … free thought from what it silently thinks, and so enable it to think differently" (Foucault 1990, 8).

Participant observation can serve as one tactic for facilitating this disruption of common sense, so as to make speak the otherwise silent dimensions of our thought. And this disruption is largely enabled by valuing the frictions, failures, and/or, at the very least, the delay in our capacity to understand how diverse kinds of others punctuate and navigate the quotidian in the ecologies they inhabit. This is largely in step with what Bateson described as "schismogenesis" resulting from "cultural contact" (1939; 1987), which, in his original formulation, was framed as a progressive and deleterious production of differentiation. Later on, however, Bateson went on to contrast his concept of schismogenesis with the plateau of intensity. In the case of the latter concept, the progressive feedback loop of schismogenesis is offset by mechanisms of release, thereby breaking the feedback mechanisms and keeping the oppositional forces within a range of intensity. In anthropology (as with just energy transition), the goal of participant observation would be to artfully manage the level of schismogenesis introduced into the relation between the practitioner's pre-established habits of punctuating the flow of their experiences and the novelty of the experiences produced in the ethnographic encounter, so as to mobilize this schismogenesis, strategically, to render it productive of new modes of punctuating thought and experience.

Thus, in a sense, participant observation is an oscillation, a tacking back and forth between active and receptive modes of punctuation. Observation, here, represents the passive, or receptive form of punctuation. That is, observation entails having your experience punctuated by

the novel actions and statements of others, watching the way they create and navigate environments in order to get a glimpse of the disjunction between one's own deutero-learned habits of perception and the visibilities that orient the perceptions of one's interlocutors, listening to their propositions and arguments for the statements that punctuate and order their categories of thought. To participate, then, is to fold these observations into one's own practice, to begin to actively repunctuate their experience and the experiences of others, through their actions and exchanges. Participation is the active side of punctuation, where the practitioner "tries out" their nascent readings of unfamiliar spaces, discourses, and social milieus, to see how this reading fares. In what follows I will discuss three different trito-tactics, categorized around the three disjunctions identified previously, which can be arranged in and through the design of participant observations to engender and mobilize this kind of controlled schismogenesis.

1.1 BETWEEN THE HABIT-BODY AND THE OUTSIDE

As discussed in previous chapters, Lauren Ross once characterized racism as a problem of the flesh, where whiteness is measurable as the "distance" from the violence embedded in the systems of material and cultural reproduction. "There was an indigenous woman at Standing Rock who talked about whiteness as a measure of the distance from the violence that it takes to support our lives and she said we need to become a lot more aware of [that] hidden violence" (Ross 2018). One of the ways this "hidden violence" becomes apparent is through the effect of different spaces upon our physical bodies. That is, the traces of this violence can be realized in the anxiety we feel in certain spaces rather than others, in the physical discomfort that manifests from the pollution, noises, pests, etc. that some spaces expose us to, in the accumulation of the body burdens that affect our mental and physical health. These traces create dissonance between the epistemic and the ethical ecologies, opening up potential for encountering the outside, for

repunctuating our thought and actions. Accordingly, Lauren has cultivated a strong value for communicating face to face, emphasizing the profound effect of embodied interaction that's tempered by technologically-mediated interactions:

> "I want to deal with you in the flesh. I want to—I want to have a physical experience with you. I don't want to even talk with you on the phone so much or email with you. So as—as the whole world gets sort of swept into a digital experience, I'm making sure that my life is very carefully centered in flesh, sensory experiences that are unmediated by digital media. I think that's really important."

One of the ways this bodily-oriented style of participant observation can be developed is to take notice of when and how different spaces produce physical discomfort, whether your own or that of others, and to turn this discomfort into a question. One example of this can be found in PODER's early battle in the 1990's against the Tank Farms, struggling to have these dilapidated and pollutive petro-chemical storage facilities removed from their neighborhoods.

PODER began mobilizing survey data that they had collected to disrupt the notion that the tank farms were safe. Importantly, however, they did so, not merely through representing these bodily harms through language, but also by transporting outsiders into these spaces to see and experience the Tank Farms' injustices for themselves.

As Suzana Almanza recounts:

> "Lupe Padilla was the first home we stopped at and they listened to her. She was saying that that she was always sick. She was always taking aspirins, but that when she went to go visit her sister out at Taylor she would be just fine. But then when she'd come back she would start experiencing those symptoms. She says 'I don't know if it's the tank farms or not. I just know that when I leave the area for a few days I'm fine and I come back and I'm sick.' And then Maryann Flores talked about her children and we took them back there where they would see the run off that would come off the tank farm and you could see the sheen in the water and her kids had played in there and they had all broken out with sores and stuff."

Such "toxic tours" are a well-established strategy of producing these sorts of subject-effects through bodily-oriented participant observation. That is, one of their fundamental principles is to recognize how habits of thought and perception are harder to disrupt by language alone. Transporting you into the spaces enables those who have not been conditioned by these spaces to see the devastation themselves, to smell the toxic chemicals in the air, and to begin to feel the anxiety for one's well being that comes from inhabiting a polluted space. This collapses the "distance from the violence that it takes to support [their] lives," to repeat the poignant turn of phrase that Laruen Ross' learned from the indigenous standing rock activist (Ross 2018).

1.2 BETWEEN DISCOURSE AND THE OUTSIDE

One example of how the disjunction between discourse and the outside can be mobilized to produce thought can be found in Lauren Ross's story about an undoing racism training that she helped host among a "shock drag" community, which is a sub-sect of Austin's drag queen community. Lauren recognized she was out of her element, noting that she "had to google" what shock drag was when she received the invitation. However, she went ahead with the training, knowing full well what was in store: "I went in it with this condition for myself, knowing that I would absolutely screw up in some way, that this was not something that I knew how to do, that this was a very challenging community, in terms of political correctness, political edginess, sort of way beyond my cultural references" (Ross 2018).

In this example, Lauren Ross can be seen as utilizing the difference between the cultural references of anti-racist discourses–where she had achieved a level of expertise–and those of the shock-drag community–with which she was completely unfamiliar–to produce an unsettling effect. Here, the disjunction between discourse and the outside is located in the gaps, frictions, and misalignments between these two discourses, which can be utilized to generate reciprocal

influences on both discourses (a la the plateau) that does not require resolution into synthesis (a la the dialectic). This example is also useful for the way Lauren emphasizes the humility and discomfort that this sort of participant observation often entails.

It's always a risk to expose yourself, both for what it might reveal about you to others as well as to yourself. And yet, the most profound insights of fieldwork often come from these sorts of vulnerable experiences, encounters that threaten, not only our epistemic, ethical, and/or political positions, but the very sense of ourselves as thinking, ethical, and political beings. That said, Lauren also manages to temper the disorienting effect of this experience by determining, at the outset, a level of compassion for the mistakes she would inevitably make. Rather than retreating from the discomfort of these cultural differences, or collapsing under a sense of guilt for any mistakes or misalignments, she maintained a sense of herself as a work in progress, providing a sense of continuity and differentiation that offsets the ethnographic encounter's schismogenic effect.

In addition to the encounter of a discursive other, another tactic for designing participant observation that mobilizes the disjunction between discourse and the outside can take place by exploiting the aporia within one's own discourses. Here, I'll cite the work of Austin's Green Building pioneer, Pliny Fisk, who developed a relational approach to architectural design that utilizes "participation" as a frame of perception. Here, participation serves as an edge along which the architect's attention folds back upon itself, exposing the discursive gaps (Fortun 2009) that inhabit the interstices of the categorical approach to governance that Howey and Neal have identified as "divisible governance" (2022). That is, whereas divisible governance works by erecting governance regimes composed of spatial and epistemic divisions and of legal boundaries, which serve to obscure more systemic or cumulative risks by refusing to follow

these risks across space and time, Pliny's approach to planning disrupts these divisions through attention to so-called "life-cycle protocols." What is pivotal here is the double-edged question of participation: "what are we doing?" And this question is "double-edged" in the sense that it also requires careful consideration of "what are we not doing?" Or, as Pliny explains:

> "What am I depending on somebody else for before this point in time? Presumably, I would just assume, without telling them, I'm going to use your water. I'm going to use your 'environmental impact' that you've just created in pulling that steel out of the ground. I'm going to use your whatever. Now we're getting more responsible, presumably. *[W]hat I am doing*, I can put down and understand and share with others, but *what I'm not doing* I'm also willing to put down and share with others" (Fisk 2002).

This line of thinking is perfectly suited to techno-political ecology, as focusing on what you are *not doing* as much as what you *are doing* enables a greater concern for and appreciation of the larger ecology of assemblages in which you are intervening, interrupting, and/or reproducing. In short, Pliny fold's the gaze of the participant observer back upon itself, where what one observes is one's own mode of participation, looking for the difference between what we often think we're doing and what we actually do.

Thus, in my work, Pliny's figure-ground reversal enticed me to ask, in addition to what was done, what had Austinites *not done* to cause the Texas Power Crisis? That is, with what ready-made or repurposed parts had Austin's energy system been built? Upon/into what socio-natural assemblages was the City of Austin–including its sociotechnical infrastructures–constructed, and with what sort of techno-political and ecological effects?

And while Pliny's life-cycle approach has now become the golden standard for assessing sustainability (and quite literally so, in terms of both Austin's and the US's Green Building Programs), he also recognized the potential for this line of thinking to revolutionize much more than the practice of architectural and infrastructural design: "That's a totally different world than

the world that we've been dealing with. … That puts very different things on [an] individual's responsibility, and again we find it an incredibly creative tool to do whatever we're doing from architectural design on through" (Fisk 2002). That is, what Pliny was really after was much more than the establishment of a new sustainability protocol, it was "to change people's mindsets. We're trying to change how you look at the environment" (Fisk 2002). In my reading, what Pliny was attempting to mobilize with the question of "what am I not doing?" was an observation of ourselves as participants, or a continual, recursive folding of attention, as participants, questioning what our habits of thought and perception take for granted, which increases our capacity to identify and judge these habits and their effects.

1.3 BETWEEN THE HABIT-BODY AND DISCOURSE

In addition to venturing off into unfamiliar territories, participant observations can be facilitated by the creation of spaces that deterritorialize themselves. One of the best examples of such spaces that I encountered in my fieldwork were the racial equity workshops hosted by Dr. Tane Ward as part of the training of the Steering Committee and Advisory Groups of the Climate Equity Plan. Images featured heavily during this workshop. The images showed many different dynamics, all of which had something to do with structural racism in Austin. I took an interest in the form of this training and, in particular, the heavy reliance on images. At this time, I was participating in a collaborative project, Visualizing Toxic Places (VTP), which was designed to explore the relation between place, images, and toxicity. There appeared to be clear resonance between this project's concerns and this equity workshop, leading to an interview I later conducted with Dr. Tane Ward, who developed and hosted the workshop. Like the VTP project, Dr. Tane was reaching for a way to work with images to skirt the differences between discursive

and visual ways of communicating. The parallels shouldn't surprise. Dr. Ward is formally trained as an anthropologist though now working as a community organizer.

"I used to teach a lot, using essentially memes… just lots of images, trying to get people talking. But I was doing a lot of lecturing when I was teaching. And I really stopped wanting to lecture and do more of what I did in this training." The way Tane used images was expressly oriented towards participant observation, "they're presented in a way to be able to open people's ideas, imaginations, and creativity to be able to talk about these issues and then also solve these problems." Being an anthropologist himself, Tane found inspiration for this approach in the way other societies use images to unsettle and even provoke thought. "Because the thing about images, when I was talking about architecture, the murals in Mexico, those all stimulate imagination, those all stimulate creativity. And words, in this way, especially this type of scientific language, especially when it's really precise, it doesn't. You know, like 'I want to articulate every single tiny little aspect of how this works…' 'oh, well okay then… Thank you.' Not really much to fucking add."

In terms of participant observation, Tane doesn't utilize the images he presents in his trainings for their proto-level function of representation, but for their deutero effect of punctuation. That is, the emphasis is not on what they show, but rather on what they enable one to see. In other words, Tane's visual pedagogical strategy involves what Coleman calls haptic visuality, "as an attention to … what that image does: that is, in the kinds of inclinations that images produce, and the kinds of embodiment that images might encourage and produce" (Coleman 2011, 159).

This mode of participant observation is enabled by the fact that our perception is not innate or static, but rather deutero-learned. Our bodies are not stable forms, and our bodily

perceptions are not given to us in any direct sense. Instead, perception is a process of punctuating the near constant flows of stimulus into discrete and comprehensible categories of experience, a process that begins with the body and ends with the subject. Or, as Bateson put it, "perception is not by any means a process of mere passive receptivity but is at least partly determined by efferent control from higher centers. Perception, notoriously, can be changed by experience" (1987, 213). The flipside of this observation is that our experiences of the body are both historical and also deeply personal, such that we cannot appeal to our own embodied experiences as a mode of either self-recognition or a means of understanding the embodied experiences of others.[65] But it is also for this same reason, for the inconstancy of the body because of its subjection to historical formations, to social systems, to relations of power, that we can employ our bodily sensitivities, if not as a mode of access to the truth, at least as a line of escape. That is, even if our bodies cannot tell us the truth of ourselves, they can still expose the deceits, the ineptitudes of the catachreses that are our categories of thought and perception. Thus, what a bodily-oriented approach to participant observation offers, in this sense, is a rendering visible of our otherwise taken-for-granted habits of perception.

In reflecting on the impact of COVID-19 and Black Lives Matter, both of which erupted during the Austin Climate Equity Planning process, Dr. Tane Ward, commented on the way it gave certain inequities, which may have already been verbally acknowledged by Austin's more privileged communities, it gave them a different and deeper sense of reality.

> "People who talk about 'Oh, it's the internet, it's the internet.' But what is the internet doing? It's not like we're writing stories about it. It's just showing a picture of a motherfucker getting shot. Standing rock, same thing. Oh, army coming in and removing Indians? You know, if you read about it you'd be like, 'Hmmm… Sounds like history's repeating itself. Hmmm…' But when you see it

[65] "Nothing in man–not even his body–is sufficiently stable to serve as the basis for self-recognition or for understanding other men" (Foucault 1984, 87).

> you're like, 'Wait, what? That's fucking happening right now?' 'Wait, what color is that water?' You know?"

Or as Kenneth Thompson put it:

> "Some of us, you know, some of us have always known these inequities have existed. But it has been hard to get other people to buy into it, to understand, to see it and to feel it. … And when you ask about COVID-19 and BLM, what it really has done from my perspective is, those people who have been walking around with their eyes open and not seeing anything... Now they see it. You know, at one time it was more like, 'hey, I hear you, I hear you, I hear you.' You know? But now they see it."

It is the body's seeing and feeling – which is not at all present to the cogito, because it remains in the purely relational dimension of force that is the "outside" – that creates in us a sense of the "cogito," a sense of the subject that sees and feels. Because while the body sees because of the eye's capacity to be affected by refracted light, what the subject sees is not rooted in light, but in visibilities; its own habits of perception, the gestalts created through the eye's habits of distinguishing figures from grounds. Participant observation can utilize this disjunction between the body, which is stitched into the real, and our habits of thought and perception, not to break through to the real, but to free us, for an instant, from the confines of the past, to increase the potential for difference to intervene in the habits of thought and perception in much the way that Foucault describes the unsettling effects of fiction, which "consists not in showing the invisible, but in showing the extent to which the invisibility of the visible is invisible" (Foucault 1987, 24).

2. INTERVIEWS

Interviews are another classic ethnographic method, but one that is, in my view, terribly undertheorized. Structured or unstructured, the interview is the art of the question. And, in

anthropology, it is an interrogative art, more so than an art of interrogation. That is, the interviewer's question has the capacity to force thought in a way that mobilizes the outside through language.

In what follows, I will be expanding the category of the "interview" to include other modes of questioning, more common to everyday conversation. For formally trained ethnographers, the interview is, of course, much more than a conversation. It is characterized by asymmetry, where the thoughts and freedom of expression of one party is given primacy. Such settings are unusual, and while some activists or professionals might be used to orating in this fashion, most people are not so accustomed to having this opportunity (or, what might feel more like an obligation) to articulate their ideas in this linear fashion. But this unfamiliarity is also part of the interview's promise, as it enables the interview to facilitate a more reflexive gaze, providing the interviewee with a vantage point into their own thoughts and beliefs. That is, the interview can be crafted in such a way as to develop a sense of the gaps or contradictions that inhabit the interviewee's own ways of thinking and speaking about the issues they care about, which is not a point for criticism; not at all. There are aporia and contradictions within all texts, whether written or spoken. There are moments of marginalization, even within our own thinking, where we set aside or paper over the conflicting or contradicting elements in our own thought.

One beautiful example of this can be found in the interview titled "Questions on Geography," between Foucault and the editors of Hérodote. The interview is mostly read as a window into the role of space in Foucault's work, but it is at least equally important as a record of how interviews can serve as an infrastructure for encountering thought's "outside."

Over the course of these few pages, Foucault–being a master of trito-learning, himself–is led through the process of re-punctuating his own thought. At first, Foucault is perplexed by their

questions. He believes the geographers are critiquing him for not conducting an archaeology of geography. He suggested they take on that project, and leave him to his own interests. In fact, however, the geographers were arguing that geography (a discipline that emerged from the military) was central to his concept of power relations. That is, the tactics and strategies of power that Foucault studied were deeply rooted in social space.

By the end of the interview, Foucault states, "I have enjoyed this discussion with you because I've changed my mind since we started. … I didn't see the point of your objection. Now I can see that the problems you put to me about geography are crucial ones for me. Geography acted as the support, the condition of possibility for the passage between a series of factors I tried to relate. Where geography itself was concerned, I either left the question hanging or established a series of arbitrary connections" (Foucault 1980, 77).

In sum, the interview question can be designed to take many different kinds of effects, but in this section I'll consider three. The question can be designed to cull information, at the proto-level; they can be designed to influence or expose the contours of the deutero-learning of the interviewee; or at trito-level, interview questions can be crafted to fold the interviewee's attention back on the way they punctuate their own thought and experience, with the chance that rupture may strike; trito-interviews are a form of reaching for the outside.

2.1 PROTO-INTERVIEWS

Proto-interviews are the kind of paradigmatic interview that most people think of when they hear the term. The proto-interview is perhaps most often associated with the more journalistic endeavor to extract relevant or desired information from the interviewee, but without influencing those thoughts or perceptions. In other words, while proto-interviews might entail antagonistic questions, intended to expose the interviewee or to provoke empassioned

disagreements, what they are not geared towards is to produce any shift in the epistemic frames utilized by either the interviewer or the interviewee; it's a matter of information rather than conceptualization. As such, the questions of these informational interviews are best if kept simple, as straightforward provocations, designed to elicit the easily accessible knowledge of their counterpart, that which was already there, at the tip of the tongue.

The "listening exercises" run by Sunrise exhibit a similar tactic and goal. For instance, Katie Hyman of Sunrise ATX, Austin's local branch of Sunrise's larger nationwide, youth-lead environmental justice movement, told me about the "listening sessions" that they had started to develop to get a better sense of how their group might fit within Austin's network of social and environmental justice organizations. According to Katie, these sessions consisted of planning to "meet up with somebody in a different organization and just kind of listen to the way that they perceive the political landscape and how, you know, figure out how Sunrise could support them." Thus, the way Katie described it, these listening sessions, which really sound very similar to a qualitative interview, can help inform the understanding of the organization. So, she stressed the role that these kinds of proto-level, information-gathering interviews can play in informing their group's understanding of different political actors and therefore, facilitate their own political strategies and practice.

2.2 DEUTERO-INTERVIEWS

In contrast to proto-interviews, a deutero-interview would entail a focus on the more unconscious effect that the interview might have on either the interviewer or the interviewee. To return to Dr. Tane Ward's racial equity workshop that I mentioned earlier, a whole hour of that training was

spent in pairs or small groups, where each person had the opportunity to speak for around 30 minutes while the other just sat and listened. As Tane described it:

> "even [though] some people were like 'well I didn't hear from a lot of people in the room.' But every single person in there spent at least a half an hour of time speaking while someone else just listened to them, about what they think about shit. That's probably the only day this fucking year that they were at a work long thing, and they got to speak about their own ideas and someone else fucking listened. That is an empowering fucking moment."

Here, Tane is abstracting from the proto-learning that might be achieved from the content of the conversations he facilitated and, instead, highlighted the more deutero-effect of empowerment that comes from speaking one's mind in a professional setting.[66]

Another way that the deutero-effect of the interview might be incorporated into ethnography or into the practice of just transition concerns an appreciation of the skills one acquires in and through the act of interviewing, or being interviewed. That is, when conducting an interview, one is also always exemplifying, if not exactly teaching the interviewee how to conduct their own interviews. Or, at the very least, it provide a sense of the kinds of questinos one can ask in a semi-structured way in order to gain new understandings of their community, of other communities, or of various power holders. In short, the interview can be seen as an opportunity to share the anthropological sensibility for asking questions, offering a new capacity for these interviewees to come away from the experience with their own ideas about how to establish connections and flows of information across socio-cultural differences.

[66] This deutero-effect of empowerment that the interview facilitates was also commonly remarked upon by the Climate Ambassadors: See Chapter 3, Section 5.

2.3 TRITO-INTERVIEWS

Finally, trito-interviews entail the designing of the interview to create a space for an interviewee to double back and "rework" their articulations based upon the flow of the interview, making space for this articulation to change, based upon the knowledge they already have, rather than forcing articulations to change. One of the most exciting ways this manifested in my work was in a late round of interviews that I conducted where I attempted to track if and how the interview experience could be crafted to bring about a change in the interviewee's thinking. I did so by repeating a question about "just transition," which I first asked near the beginning of the interview and then repeated once more towards the interview's end. My inspiration here came from my general frustration with the sort of canned descriptions of "just transition" that my interlocutors often put forward, which didn't seem to resonate with the actual work they were undertaking.

Take this rather typical characterization of just transition for example: "those people who work in [fossil fuel] industries will be trained to work in renewable energy and no one has to lose their job." These and other similarly-tuned answers often discussed the need to provide jobs for those in fossil fuel industries, the need to incorporate low-income or otherwise marginalized communities into the process, or the need to distribute the benefits and the risks or costs of the transition equitably. All important concerns, but nothing that I couldn't have gathered from a quick search of the term on wikipedia.

What I was looking for was a deeper consideration of how these activist's ideas about the practice of working towards a just transition relates to the quite expansive work that these activists and their organizations had been undertaking. Thus, attempting to follow the lead of the editor's of Herodote, I attempted to walk my interviewees through the work that they often

undertake, at the everyday level, before returning to the question of just transition, using the dissonance between their conceptions and practices of just transition to bring about new articulations of the concept and what it might mean to them.

Sometimes, this tactic would produce the desired effect, and my interviewer would actively re-imagine just transition in view of our previous conversation about the full extent of the issues related to petro-culture and racial capitalism. Take this example, excerpted from an interview with a SunriseATX organizer:

> "Yeah I would say, with the conversation in mind, definitely, a just transition would imply transitioning to a system where, if we're hit with a winter storm, you know we can be sent energy from across the country that was produced with renewable energy … And … Trying to have in my mind different things are coming up now. I guess, just thinking about people who, you know, didn't have energy to begin with, … how transitioning the energy grid ensures that everybody can have access to electricity. And how it's, you know, made kind of into something that is available for everybody, yeah I guess… yeah."

Here's another example where repeating the question of just transition, in the context of the interview, really opened up a different way of thinking about the process and the politics:

> "Because, yeah, like… when I think about it, just transition, I also think about how like caregiving, like being a child care provider is a low carbon job that deserves to be paid fairly. And also, yeah, and people need to have universal childcare, because it's not fair that it's so expensive anyway. And I think that that's part of a just transition too because it's like, if we're going to rebuild a better society and dismantle all these oppressive structures, it's going to take people in so many different roles in society and it's going to take us, as a society, realizing that those jobs are deeply important."

In short, these trito-interviews illustrate another underappreciated function of the ethnographic interview, one that can be more directly incorporated into just transition practice. Trito-interviews, if designed adequately, can serve as a means of identifying gaps between our

habits of thought, our ethical sensibilities, and our political practices, mobilizing this difference to produce new "dice throws" of thought, to force thought in new directions. In this sense, trito-interviews also provide a different, complementary raison d'etre for anthropology, one that can avoid, at least partially, some of the criticisms of more traditional conceptions of anthropology in theory and practice.

For instance, in the mid 1970's, Roy Wagner leveled a poignant critique of anthropology and anthropological fieldwork as the invention rather than the study of culture. "If culture were an absolute, objective 'thing,' then 'learning' it would be the same for all people, native as well as outsider, adult as well as child" (Wagner 1981,16). However, as Wagner argues, the anthropologist comes in having already learned the customs, concepts, and ways of thinking from where they grew up. That is, the anthropologist enters the field having previously established forms of deutero-learning, which inevitably shapes their intuitions, methods, and other habits of thought and perception that they may apply in researching their interlocutors' own modes of deutero-learning. "Whatever he 'learns' from his subjects will therefore take the form of an extension or superstructure, built upon that which he already knows, and built of that which he already knows" (Wagner 1981, 16). This conclusion, however, is drawn too hastily, as it forecloses the potential for research objectives other than clear and objective representations of cultural others, like the objective to "get free of oneself" (Foucault 1990, 8). Trito-interviews can be thought of as a tactic for producing this kind of unsettling effect, one that is geared towards both the interlocutor and the anthropologist. In this case, the interview is not undertaken in the traditional positivistic vein of extracting and representing the knowledge of a research subject, in a pure, untainted form. Instead, the interview takes on a more experimental function that embraces Wagner's concept of invention, folding it back into anthropological practice with a

difference. In short, in this trito-orientation, the interview no longer involves a one-way transmission of information from interlocutor to the researcher–which, Wagner is correct, could only ever take the form of an "extension or superstructure, built upon that which he already knows" (1981, 16)– to a collaboration between two uniquely situated inventors tinkering with ideas to produce something novel, by inducing new articulations that were formerly inaccessible to either party.

3. RECURSIVE INFRASTRUCTURES

Recursivity has become a prominent theme in contemporary ethnographic methodology, whose fieldwork methods are "not what they used to be" (Faubion and Marcus 2009). Rather than sticking to the positivistic commitments of grounded theory, ethnographic theory is folded into the data production process, where the data produced is folded back into the research design; and this folding takes place at many stages throughout the research process, creating "an active relationship between the performance of method and the conceptualization of project design" (Rajan 2021). Or, as Kim Fortun puts it, "ethnographic subjects—both researchers and their objects of concerns—are constituted through repetition and relationality" (2009, 182). But professional ethnographers are not the only practitioners of recursivity, and recursive models of practice also have wider applications, well outside the domain of academic discourse and knowledge production. To make this point, in this section I will discuss the recursive infrastructures that my interlocutors have developed to create similar feedback loops within planning practices, community organizing, political practice, and other aspects of energy transition.

3.2 THE HISTORICAL ARCHIVE

The archive can serve as a resource for understanding history. This is imperative to an organization's ability to educate the public, as well as their own members, about the nuances of the systems which they are struggling to resist and reform. As Lauren Ross put it, "understanding history is a foundation for making positive social change" (Ross 2018). Another interlocutor identified this lack of appreciation for history as a weak point in Austin's environmental activism:

> "I would say [that Austin's] organizations need to do a better job of educating, their members of the systems in place, and how those systems work and interact and all the players in the system and they need to do a deeper dive of why these systems are the way they are and attack it from there. Yes, I think activism is great. Like I said, doing the marches, having the protests and all of that is fine. But … I think they need to understand how well they can fit in the ecosystem and they can definitely do a better job on understanding that front."

The archive is also a space for recording events taking place in the moment, for providing a record of events that can be collectively interrogated. For instance, as I have continuously established, the outbreak of COVID-19, the murder of George Floyd and the Black Lives Matter protests that followed, the Texas Grid failure, all of these events inspired rupture and shifts in thinking.

3.2 RECURSIVE MOMENTS

In striking contrast to the Resource Planning Working Group, throughout the entirety of Austin's Climate Equity Planning process, the Office of Sustainability had numerous moments for presentations and points of reflection, where people were asked to talk about the process, and how aspects of the plan came about. What were the intentions behind these processes? What worked and what didn't? Etc. And this whole discussion, the opportunity to listen to people retell

the story of the planning process in their own words, was always quite interesting to hear and observe. But there was one moment in particular where Katie Coyne, one of the co-chairs of the Climate Equity Plan's Steering Committee, reflected on a point of struggle in a way that really set me off in thinking about the doublebinds of energy transition, where our subjectivities become sites of intersection, where autonomous systems encounter each other and produce dissonance. And, in this particular example, how this dissonance both works against us and also serves as a resource for recognizing petro-ghosts, a dissonance that creates a kind of "deutero mirror," one that reflects, not so much "how we look," but rather "*how we see*."

In what follows, I will quote this reflection in full:

> "I just wanted to quickly talk about one more thing. I think it is important to talk about the hard points. Here is just a little anecdote. Most of our steering committee meetings I was a facilitator, trying to frame conversations. As an example of how much white supremacy culture is ingrained even in the way that I think, in the way we have been taught to think about efficiency. After George Floyd was murdered, we had a steering committee meeting the next week, and we got on, we made space at the beginning for black members to talk. And... the amount of trauma that we unpacked and listened to... was so vital for everyone to hear. But at the time, I had so much discomfort letting go of the idea that I had to get the meeting moving along. And that's coming from someone who really cares about being empathetic to people and wanting to hear those stories. And even knowing that, I was so uncomfortable with the idea that we ended up using that entire two-hour meeting to unpack that trauma. And, I don't know... for me that was so revealing that, you know, I think I am mindful of all these things, and I still could feel my body uncomfortable with doing things that way."

Identifying as a politically active member of Austin's LGBTQ community, Katie sees herself as empathic, as a feminist, and a trained and committed anti-racist ally. And, in my experience, she does quite well in these regards. And yet, in this particular context, she felt the conflict, viscerally, between the demand to keep separate the time and space for grief, and the

time and space for planning. That is, she felt the doublebinds produced by her unique position in Austin's complex web of power relations, not only at an epistemic level, but also at an embodied level, literally "feeling" the force of divisible governance urging her to keep her identity as a feminist and her role as an ally separate from her identity and role as a Steering Committee co-chair.

Listening to Katie's reflection, to this conflict between the spatio-temporalities of energy transition planning and the spatio-temporalities of alliship, is what first got me thinking about the ways Austin's energy transition was "out of joint." And by that, I mean this transition is taking place at different rates at different scales, where progress made at one scale (i.e. carbon reduction) is perhaps offset, or even overpowered by more insidious reproductions of a dynamic of petroculture at another (i.e. technocratic methods of abstract, carbon accounting).

This evidences the way that divisible governance works, not only on juridical divisions, but also on the way that we distinguish and purify our professional lives from our personal lives, the way critical academics take a blind eye to the problematic dynamics of their departments and universities, the way we keep our professional ethics separate from our ethical sense as a sister, an aunt, a grandmother, by keeping our training in the scientific method separate and purified from our love of literature, or of music, or philosophy, or what have you. In this way, in addition to being a technique for the production of space and time, divisible governance also produces ethics; it influences the location of the fault lines that define the contours of our ethical plateaus. The location of the lines that distinguish the categories of experience that enable the specificity of our ethical sense, shaping the ways such plateaus align, overtake, and resist each other, producing the ethical double binds and contradictory obligations, incentives, and opportunities of energy transitions.

3.3 THE ETHNOGRAPHIC ARCHIVE

Much like hosting these sort of moments for collective reflection or, on a smaller scale, like the repetition of an interview question, the archive can support trito-learning by inducing a fold of attention back upon itself. The archive can serve as both an infrastructure for ethnographic research, and also as a trace of the thought styles and data ideologies of the ethnographer. Accordingly, ethnographic archives can be designed to resist the constraints on thought produced by regimes of divisible governance (Howey and Neal 2022), by enabling interested parties (of whom the ethnographer is but one) to question the theories, practices, categories, and figures and grounds that have shape their understandings and experiences of environmental and energy justice (as a frame and as a practice).

This archive, then, is designed less to "recollect" the truth of the past than to facilitate a living re-modelling practice. Furthermore, being itself a practice, archiving offers a different way of inhabiting the world, lending itself to the cultivation of the research subjectivities that his chapter is striving to articulate and potentially giving way to new modes of political and ethical reasoning. As stated previously, the digital archive helped me to store, organize, and analyze my data in response to my research questions. It has also enabled me to establish connections between the university and the field by providing resources to scaffold my research and collaborative work with interlocutors. Together, these functions show how the archive helps repeat, multiply, and diversify the "ethnographic encounter," creating space for the encounter with the field–and the diverse perspectives it holds–to be doubled in the creation of the archive and then tripled by the encounter of the archive; it is this third kind of ethnographic encounter that realizes the ethnographic archive's pedagogical capacities.

To put this another way, the archive increases our capacity to recognize the unthought of our thought. It offers both new and continuously refreshed angles for the analysis of data and for meta-analyses of the ethnographic process. The archiving tactic also refreshes the relevance of ethnography, by opening up the question of how and what it means to maintain this archive and continue to keep it lively, rather than "nail it down" in a book.

In short, the pedagogical purpose of the archive is to produce “archivists,” which is an end in itself because archiving changes the way you orient to your surroundings. Becoming an archivist changes what you can “see” and what you can “say.” The question of what can/should be recorded? And what can/should be made publicly available? These are not innocent questions.

Seen from this lens, archiving becomes an infrastructure for trito-learning. It provides a trace of our own thought styles, our own way of punctuating experience, and renders it available to punctuation. This seems to me to be an important step that precedes and enables just transition actors to “map the connections that divisible governance fragments,” as called for by Howey and Neal (2022). That is, by foregrounding the never-ending practice of archiving, rather than the enclosed dissertation/article/book, we are developing the practices of observation, recording, reflection, and regimentation that Foucualt called “caring for the self,” and which he saw as capable of enabling the production of new subjectivities. This, I argue, is exactly what a “just transition” calls for.

4. PROTO → DEUTERO → TRITO

As Freud pointed out in regard to psychoanalytic treatment, “[t]he pathological factor is not his ignorance in itself, but the root of this ignorance in his inner resistances; it was they that first called this ignorance into being, and they still maintain it now” (Freud 1957 [1910], 225). Lacan

would later write that the analysand often has a "passion for ignorance" that precludes the healing process, a passion which Soshana Felman later recasts as a "desire to ignore" (1982, 30).

In this chapter, the petro-ghosts take the shape of this "desire to ignore," a desire that, even when directed towards renewable energy transitions, delimits our conception of what this transition will necessitate and entail in ways that often work directly against a *just transition*. In Felman's analysis, this sort of ignorance is "a kind of forgetting" that is "tied up with repression, with the imperative to forget–the imperative to exclude from consciousness, to not admit to knowledge" (1982, 29). Thinking in terms of repression, however, obscures how the unconscious "includes not only repressed material but also most of the processes and habits of gestalt perception" (Bateson 1987, 306). It's not that the information we need to transition away from fossil fuels justly and effectively is recognized and repressed, or that it cannot be recognized due to repression. Rather, petro-ghosts mark a desire "to mold the total context [of the transition process and of the world after transition] to fit the expected punctuation" (Bateson 1987, 306). Thus, I will characterize this resistance as rooted, not so much in repression, as in the reproduction of petro-sympathetic forms of *deutero-learning*.

Bateson describes deutero-learning as the process by which "the sequence of life experience, action, etc., is somehow segmented or punctuated into subsequences or 'contexts' which may be equated or differentiated by the organism" (Bateson 1987, 296). And this is because, as Foucault put it, "knowledge is not made for understanding; it is made for cutting" (1984, 88). But, while Bateson largely takes for granted the process by which these cuts are produced, Foucault dedicated his career to understanding their discursive production and both discursive and non-discursive effects. Thus, this is where Foucault's work on the statement, in particular, comes in handy.

Foucault characterizes the statement as "a function that cuts across a domain of structures and possible unities, and which reveals them, with concrete contents, in time and space" (2002, 98). The statement makes the cuts that form, circumscribe, disperse, and relate various unities, including objects, subject positions, concepts, and strategies (Foucault 2002, 130). The statement, then, is recognized and set apart from other dimensions of language and semiotics by this function of cutting and dispersion, as the dimension of semiotics that, rather than represent, involves the production of the "cuts" that make the unities of representative discourse possible and intelligible. And while the meaning and proper use of these unities of discourse are learned through trial and error, at the proto-level, the cuts of knowledge produced by statements are learned as at the deutero-level as "a sort of habit which is a byproduct of the learning process" (Bateson 1987, 171).[67]

Suffice it to say that language has both *proto*-level (conscious, representational) affordances and *deutero*-level (unconscious, productive) effects on our relations to ourselves and the world around us.[68] The proto-level involves learning to represent the world through signs, symbols, language, etc., where one learns the meaning of the words and how to use them to construct proper sentences, propositions, and arguments, but all at a conceptual level, at the level of representation. Thus, the proto-level of knowledge is deeply nominalist; it's the level of correct definitions and proper use, of effective representation and communication.

The deutero-level, by contrast, emerges as an unconscious byproduct of our learning at the proto-level. In other words, the deutero is the receptive, passive side of the subjectivating

[67] This is why the statement is "neither visible nor hidden" (Foucault 2002,122). Its existence is rooted, not in the meaning, form, substance, structure, or subjective intention of the speaker/author, but rather the cut that produces and contributes to the laws of division and dispersion.

[68] Deutero-learning is the kind of contextual learning enabled and affected by statements. It describes the sense of ourselves (of our ethical ecology) in relation to our sense of our environment (our techno-political and social ecologies) that are facilitated by the cuts of knowledge that mark the edges of our categories of thought and experience, which are produced and ordered by discursive statements (epistemic ecology).

effects of the statement, the latter of which does not represent reality so much as produce the cuts of knowledge which punctuate our experience into dispersed categories that are organized into recognizable gestalts and patterns. And, as a byproduct of proto-learning, deutero-learning is not as susceptible to debate and correction as proto-learning. That is, because deutero-learning produces one's sense of reality, it cannot be tested against that same sense of reality: "a way of punctuating is not true or false. … It is like a picture seen in an inkblot; it has neither correctness nor incorrectness. It is only a way of seeing the inkblot" (Bateson 1987, 305). Thus, deutero-learning tends towards self-validation, engendering a *productive* rather than merely *repressive* form of what Felman has called the "desire to ignore."[69]

For Bateson, deutero-processes include any or all of "the processes which determine the character of the individual or the processes of change in human (or animal) relationship" (1987, 217). He proposes that unconscious deutero processes produce an "economy of thought processes (or neural pathways)" that end in our conscious perception (1987, 221).[70] This is largely rooted in the individual's innate capacity to be affected by "contexts together with changes in the use of context markers" (1987, 214).

> "What we are here calling 'context markers' may be digital (e.g., the word 'walk' mentioned above); or they may be analogue signals —a briskness in the master's movements may indicate that a walk is pending; or some part of the coming context may serve as a marker (the leash as a part of the walk); or in the extreme case, the walk itself in all its complexity may stand for itself, with no label or marker between the dog and the experience" (1987, 212-213).

In Foucault's work, simplistic notions of context are replaced with his complex conceptions of discourses and visibilities, which "are two forms of exteriority within which

[69] As Spivak argues, "Repression is … a species of production" (1993, 35).
[70] "The two general facts–first, that I am unconscious of the process of making the images which I consciously see and, second, that in these unconscious processes, I use a whole range of presuppositions which become built into the finished image–are, for me, the beginning of empirical epistemology" (Bateson 1979, 32).

dispersion and dissemination take place" (Deleuze 1988, 60). While Foucault's statements and visibilities bear some resemblance to Bateson's notions "digital" and "analogue" context markers, there are also important differences.[71] Bateson is still working at the empirical level of words which represent things that are seen. Foucault, influenced by Roussel and Blanchot, insinuates "the outside" between visibilities and things, between the statement and the thought. And his archaeologies sought out "to define the dispersion of these objects, to grasp all the interstices that separate them, to measure the distances that reign between them — in other words, to formulate their law of division" (Foucault 2002, 37).

Returning to Bateson's categories, deutero-learning, then, can be seen as the site and mechanism through which this "law of division" is both produced and rendered productive. That is, Foucault analyzed how the discursive formations and visibilities of a certain place and era set the conditions of possibility for its historically particular forms of knowledge, relations of power, and relations to truth. And he showed how, together, discursive and non-discursive actions also come to "structure the field of other possible actions" (1982, 791).

Bateson's logical categories of learning, then, attack the same problem from the opposite direction. Deutero-learning, enables us to account for the subjectivating force of discursive and non-discursive actions without reifying the latter into a coherent and external unity. In other words, the subject's capacity for deutero-learning, taken as a capacity to punctuate the chaos of the "outside" into a coherent sense of themself, others, and their environment, enables an

[71] It may seem unjustified to compare Foucault's complex conceptions of statements and visibilities with Bateson's more commonplace concept of "context" and "context marker," but Bateson was no simpleton himself. His was not a realist conception of context, but rather a perspectivalist take that considers the "context" to consist in the way a subject punctuates the timing, setting, and happenings of her surroundings into a recognizable and intelligible sense. In Batesont's words, "learning contexts shall be considered to be 'similar' one to another whenever it can be shown experimentally that experience of learning in one context does, as a matter of fact, promote speed of learning in another" (1987, 133). Thus, his working definition of context relies on the way an interpreter reads her context, rather than any objective or universal criteria. Which is to say that inhabiting the same "space" is not the same as inhabiting the same "context."

analysis of statements and non-discursive actions in terms of pure dispersion, where the only unity is the unity provided by the effects of the dispersed statements themselves–i.e., their consolidation into the subject's deutero-level habits of thought and perception.

Thus, there is both a return to the subject here and an abandonment of the abstracted notion of discursive formations as "the general enunciative system that governs a group of verbal performances" which appears to exist somewhere out there in the ether (Foucault 2002, 130).[72] If one employs rigorous restriction to the concrete, statements are only statements for the subject that (actively or passively) perceives them as such.[73] As a correlate, they are also always singularities, disparate and dispersed actions that escape to thought's outside, forming no greater or coherent unity, *except* in and through their subjectivating effects, which produce the subject that punctuates and that may begin to categorize and classify these dispersed statements into discrete discursive formations. Thus, though this move does recenter the subject, this subject is but a mere residue of the effects of dispersed statements; that is, the subject doesn't deutero-learn so much as it is the outcome of deutero-learning.[74]

If I were to end this discussion here, at the deutero-level, the project of a just energy transition would appear to be almost predetermined, its degrees of successes and failures

[72] Here, I am following Tobias Rees' observation that "all those who tend to the abstract as if it were the real thing, the actual condition of possibility—modernist technicians of the abstract, engineers of thinking—mistake as far as I can tell, the outcome of their research for a discrete object that had been silently waiting to be discovered" (Rees 2018, 30).

[73] That is, the letters "AZERT," written on a fragment of a french typist manual that survives the apocalypse, is no longer a statement, if there are no french speakers around to be affected by it (see Foucault 2002, 96). And the reason Foucault is "able to speak of clinical discourse, economic discourse, the discourse of natural history, psychiatric discourse" is because there are people who have been so affected by statements as to assess that the relevant "group of statements … belong to a single system of formation" (Foucault 2002, 121).

[74] This is what cognitive neuroscientists call "pre-reflective construal," which enables the seamless transduction of visual, semantic, and psychological stimuli into "coherent effortless experiences" (or what Mathew Lieberman has calls "cee-ing") (Lieberman 2022). As such, deutero-learning is a kind of passive synthetic process through which the subjective self emerges–as the sum total of the perceptive habits–but only as an after effect. As Deleuze describes, a passive synthesis "is not carried out by the mind, but occurs in the mind which contemplates, prior to all memory and all reflection" (1994, 71).

dependent on the sum total of our capacities of our current deutero-learning. That is, at the deutero scale, it is only the arrangement of these cuts of knowledge that is learned, and only tacitly, from the view that is produced by the cuts and their arrangement. The structure and the history of this arrangement–its emergence, its arbitrariness, its social and political effects–go unquestioned. The problem, as I have posed it, however, involves intervening in our deutero-learning. This requires an even higher order of learning, where a recognition that one deutero-learns is folded back into their deutero-learning.

As Bowker and Star have shown (2008), any system of classification inevitably makes some things visible and accessible while obscuring others. Such observations as these entail a proto-level discussion of deutero-level learning. Thus, they indicate a degree of trito-learning, which escapes the proto-deutero dialectic by bringing the deutero-level (the infrastructure of experience) into the proto-level (the representation of and debate about experience). Trito-learning, then, involves a recognition that our infrastructures of experience are historical; they are *produced* and *learned* rather than *natural* and *innate*. This both implies that there are/were likely alternative infrastructures in different places and times, producing different modes of thought and experience, and also renders our own deutero-level infrastructures more amenable to critical assessment and adjustment.

In sum, at the proto-level, we gain a conscious and correctible sense of ourselves and our world in and through our learning to use language to represent the world and communicate and debate our experience of it. At the same time, at the deutero-level, discursive statements–which, if one remains at the deutero-level, can be adjusted, iterated, or abandoned but cannot be debated–shape the very gestalts that are the substance of that experience, gestalts that are then organized according to Foucault's "laws of division," which establish our categories of thought

and structure our systems of classification. Thus, the deutero-level effectively sets the infrastructure for representation and ground rules for debate at the proto-level. The trito-level, then, is achieved by folding the deutero back on itself, by producing statements and representations that cut out and describe the realm of the "deutero" as a category of experience, thereby rendering this category debatable at the proto-level. This has the potential to produce new kinds of statements about "the statement," and accordingly, new kinds of more intentional deutero-learning that reflect a conscious awareness that one deutero-learns.

5. CONCLUSION: CAN THE SUBALTERN RESEARCH?

Reading Bateson's logical types of learning alongside (or perhaps even through) Foucault's analyses of knowledge and power in this way sharpens the critical edge of the former's concepts of deutero- and trito-learning. At the same time, reading Foucault's analyses of subjectivity and ethics through Bateson's concepts of deutero- and trito-learning helps the reader appreciate the way statements and visibilities produce subjectivity, and how the study of and intervention into this process opens up the possibility of an aesthetics of existence. Government–taken in Foucault's broadened sense of conducting other's conduct (1982)–may not require trito-learning, as the know-how to shape/control the deutero-learning of others may remain at the deutero-level; that is, it may result from an unreflective habit, rather than a conscious understanding of what deutero-learning is and how it works. Pedagogy, by contrast, does require trito-learning, as it entails the more difficult task, not of acting on the actions of others, but of enabling subjects to recognize and develop their capacities to act on themselves. In this chapter, I have attempted to build from my interlocutor's practices of the self, which they have cultivated and employed through their work towards energy transition, in order to develop something like a post-petro pedagogy.

Austin's diverse energy actors and their modes of deutero-learning developed within and in reference to the techno-political, social, and epistemic ecologies that have enabled, produced, and rationalized settler colonialism, petro-racial capitalism, and petro-culture. Together, these discursive and non-discursive processes of these ecologies produce the very cuts of knowledge that enable us to distinguish what has enabled petro-racial capitalism and, therefore, what is relevant to energy transition and what is not.

But thinking in terms of petro-ghosts is not to place petro-racial capitalism at the base of some other superstructure, to crown race and petroleum as the new "determinants of everything," from which there is no escape. Rather, it's to argue that the reach and intensity of the influence of petro-racial capitalism on our discursive and ethical ecologies has yet to be problematized as a concern of energy transition. And, in this chapter, petro-ghosts have taken the form of resistances to this problematization (i.e. the recognition of petro-ghosts) and to the trito-learning practices and infrastructures we'll need to cultivate, alongside more sustainable and just energy infrastructures and practices, in order to produce post-petro subjectivities.

CONCLUSION

In this dissertation, I have argued that Austin's energy transition is "out of joint." And by "out of joint," I mean that while Austinites are successfully identifying and transitioning away from certain dynamics of petro-culture, many other significant petro-cultural dynamics are being sidelined or even reproduced in and through these energy transition efforts. And so, what I sought to account for in my ethnography of energy transition in Austin, Texas, was both how and why this disjointedness has taken the form that it has, and what can be done about it.

In regard to the how and the why, I have tried to demonstrate that this kind of disjointedness is structurally inevitable, as it is rooted in the conditions of possibility for knowledge in the first place. Disjointedness is the force of change in history. As such, the persistence of petro-culture, in the form of petro-ghosts, is not particular to Austin, but inherent to any such transition away from fossil fuels. The precise form that these petro-ghosts will take, however, as well as any and all of the disjunctions from which these ghosts manifest, will be particular to the sedimented histories and contemporary dynamics in play in any given space and time.

While petro-ghosts may be infrastructural, technological, social, cultural, etc., they are ultimately epistemic. That is, they exist because our sense of what is and is not constitutive of petro-culture (and petro-racial capitalism) has been enabled by the habits of thought and perception that we have cultivated in and through becoming attuned to our petro-cultural contexts. In other words, petro-ghosts signify the fact that we are left with no objective position, outside of our own historical formation, from which to view that formation and identify what is and is not constitutive of petro-culture and its discontents. Rather, all of our modes of analysis and expertise have taken their shape on the same colonized, racialized, and petro-saturated

epistemic and ethico-political grounds. This is not to say that all modes of thought and expertise are homogenous, nor that there hasn't been resistance. The Black Radical Tradition, post-colonialism, and other indigenous critiques of western relations to land, people, and ecologies have long served as counterpoints and loci of resistance. These traditions have been rich resources for contestations, as they are rooted in different historical formations, and are composed of different habits of thought and experience. And the environmental justice and just energy transition movements have emerged, in part, out of (or at least in tandem with) these traditions of resistance. But these modes of resistance, too, have taken shape in reference to petro-culture and racial capitalism, taking on aspects of that which is resisted in a dialectical way. Or, to put this more generally, any mode of resistance to power is necessarily positioned within and shaped by the organization of power being resisted, rather than forming an alternative or external position. As such, while there is an outside to petro-racial capitalism, there are no outsiders; no one holds the seat of power, and so resistance can only ever be a moving target.

1. AUSTIN'S ENVIRONMENTAL GOVERNANCE

In short, the reason why Austin's energy transition is disjointed is not unique to Austin, even if its particular locations and the character of its disjunctions are uniquely its own. All energy transitions will be similarly disjointed because, as energy transition actors, we are only able to deconstruct petro-culture from the inside, appropriating deutero-learned habits of thought and perception which have emerged and congealed within the problematic organization of power relations that have produced mass extinctions, colonization, enslavement, proletarianization, and climatic/ecological devastation, etc., and applying these tools towards the new purpose of transitioning society into a more just and sustainable form. However, in and through this

deconstruction, in appropriating these tactics and strategies of power, we inevitably reproduce, even if through their reversal or inversion, the relations of power being resisted. I call these reproductions of petro-culture "petro-ghosts," and in each chapter, I attempt to identify a different set of Austin's petro-ghosts and critique them.

Chapter One showed how the infrastructure and design of early Austin was shaped by a settler colonial desire for empire and for the mastery over the Texas landscape, ecology, and the local populations; a techno-political desire that was continuously outstripped by the excess of the Real. The city's techno-political ecology emerged–and continues to emerge–out of this pulsing rhythm of development and disaster where, each time, we learn to control some systems, some variables, at the expense of others. The founding and construction of Austin reflected the settlter's ideology of homeostasis, of structure and control, the desire for an empire as a mastery over both man and nature. And this desire for mastery, along with the excluded inequities that they produced, have been sedimented into Austin's racial geography, infrastructures, temporalities, and social space. Merely adding renewables to the grid and shutting down other carbon assets will not touch these inequities, which have to do with the distribution of critical infrastructures (including grid infrastructure, as well as locations of hospitals, communication infrastructure, etc.) as well as the general design of the grid (its articulations) and the energy market. As climate change continues to intensify, and 100 year storms become 50 year or even 10 year storms, a just transition has to take these spatial and infrastructural legacies of petro-racial capitalism into account.

Chapter Two recalled the multi-pronged history of the city's environmental and energy governmentality, showing how the parallel dialectics between environmentalists and developers and between renewable energy advocates and the fossil fueled utility industry produced their

own excesses, which were realized and responded to in the form of Austin's environmental justice movement. That is, efforts to protect the environment diverted the burden of growth that is necessary to feed petro-racial capitalism from local ecologies to Austin's historically marginalized populations. And support for renewable energy in Austin came out of the decisive actions of a small number of relatively elite Austinites. In a particularly evident case of petro-ghosts, their techniques and strategies of power were modeled after the economic success of the oil and gas industry (where leases for wind farms were modeled after mineral leases of oil and gas), and the political strategies of local developers (i.e. seeking influence from the top of the political hierarchy, rather than building grassroots). This, I argue, reproduced the relations of power that they were trying to resist. Even within the environmental justice movement, which formed in response, groups like PODER and the Brown Berets have received much more attention and acclaim than EAST, the Black Citizens Task Force, and other long-lived Black community organizations in Austin. Thus, this chapter highlighted the way struggles for power, even those combined with struggles for justice, inevitably marginalize, foregrounding the importance of the "question of the question," or the need to continually reconsider the questions that are guiding one's research, theory, and political practices.

In Chapter Three, I analyzed the differences between Austin's energy resource planning and environmental protection planning. I characterized salient differences in the structure and operation of these planning processes, and the discourses and modes of expertise in play within and across these groups. I also considered how these planning groups functioned as carefully delimited spaces of resistance and domination. And I argue that they engender a complex *representation* of inclusion and equity that is fundamental to Austin's brand of environmental liberalism. This is not to suggest that these spaces can be ignored; they are important sites of

accountability and contestation. But the specific plans they produce–even the good ones–are not victories in themselves, but new features of a much broader and constantly shifting political landscape. Thus, I conclude the chapter with a warning that even progressive planning infrastructures, thoughtfully orchestrated and handled well, can take on a repressive function, when considered within the larger complex of processes that make up a city's regime of divisible governance.

Besides conjuring petro-ghosts, another goal of each of these chapters was to illustrate how our habits of thought and perception always take shape in and through an asymmetrical relation to an "outside." An outside that is radically untensed and uncategorized and, accordingly, exceeds any attempt at understanding, representation, or control. The outside is thus what always escapes, by definition. It means that there are no final solutions, no choice but to keep moving, always moving towards the outside. Indeed, this movement is what each chapter was seeking to accomplish, each in their own way.

In doing so, these chapters paved the way for a pivot that takes place with Chapter Four, where I shift focus from a study of Austin's petro-ghosts to the practices that have been developed to recognize and exorcize these ghosts. The ethical ecology chapter, then, is not about producing new knowledge, or about the power relations formed by/through knowledge production, but rather about the way we come to relate to knowledge, to others, to technology, and to ourselves.

This chapter argues that energy transition is, fundamentally, an anthropological problem; it entails our conception of the human, of society, culture, and, in particular, cultural change. And, much of the ethical and epistemic challenges that my interlocutors were struggling with were akin to the long-established problems in anthropology: i.e. how to "represent" or study

diverse kinds of "others," how to understand and ethically mobilize relations of power, how to develop reflexive knowledge production practices and infrastructures. Thinking reflexively about the impact of petro-ghosts on my own research in Austin, I framed these practices in terms of anthropological "research," where ethical practice is defined as a mode of intervention into "deutero-learning." And I argued that the methods of ethnographic research can be retooled to serve a "pedagogical" function, produced as a sort of "deutero-effect" of the research process. That is, part of what ethnography is designed to produce is a change in subjectivity. Chapter Four concludes by arguing that part of "just transition" will entail thinking about and incorporating these "deutero-effects" of ethnography as part of the energy transition planning and practice, baking in reflexive capacity or opportunities for recognizing misalignment between our current forms of knowledge and creating opportunities/practices to bring them into better alignment.

2. RE-ARTICULATING ENVIRONMENTAL GOVERNANCE

The disjointedness of Austin's energy transition is not unique to Austin, as it is structurally inevitable. That is, these disjunctions are rooted in the conditions of possibility for knowledge in the first place, which has implications for rethinking environmental justice more generally. The disjointedness between what we *experience* and what we *know* (between our perceptions and conceptions), between what we know and what we do (between our thoughts/perceptions and our actions), between our thoughts/perceptions/actions and those of diverse kinds of (human and non-human) others, and the disjunction between all forms of knowledge and the non-formal dimension of force, these four disjunctions are the source of continuous differentiations that are the force of the outside, the fountainhead of thought, and thus also the force of change in history. As such, the persistence of petro-culture, in the form of petro-ghosts, is not particular to Austin,

but inherent to any such transition away from fossil fuels. The precise form that these petro-ghosts will take, however, as well as any and all of the disjunctions from which these ghosts manifest, will be particular to the sedimented histories and contemporary dynamics in play in any given space and time. The development of more just and effective modes of environmental governance would entail paying greater attention to these disjunctions, trading "energy transition," as an arrangement of desire, for the identification and exorcism of petro-ghosts.

2.1 ENERGY AND ECOLOGY-ASSEMBLAGE THEORY

Building off of other prominent energy frameworks (Howe 2019, Boyer 2019, Geels 2011, Stephenson et al. 2010, Shove and Walker 2010), an ecology-assemblage approach situates energy and energy infrastructures in/as a complex field of entangled forces that produce, redirect, and feed off of the flows (of energy, information, language, affect, ect.) of articulated plateaus and assemblages. That is, when thinking about "energy," especially in the context of energy transitions, adopting the concept of "energy system" as a scale of analysis is necessary yet inadequate. By contrast, ecology-assemblage theory strives for a more holistic approach, one that considers the full gamut of socio-natural scales and systems that condition relationships between and within societies, the environment, and subjectivity.

A key argument embedded in the concept of ecology is that time is multiple and these temporalities don't necessarily tend towards synchronization; like Michel Serres' parasite, noise, dissonance, feedback, etc. are fundamental to the way ecologies dis/function (1982). That is, this approach suggests paying close attention to the differing materialities of energy and energy infrastructures and how they both require and produce temporalities that ripple across scales,

influencing the social rhythms and cycles through which we relate to our environments, to others (both human and non-human), to knowledge, and to ourselves. In that way, ecology-assemblage theory is a new frame for thinking temporality; one that helps us to rethink what has been going wrong, or what is currently problematic about energy, whether that's through critical analysis of ecological disasters, or the technological failures of the Texas infrastructure, or the social ills that result from pollutive infrastructures and industries. An ecology-assemblage approach thinks all of that in terms of rhythms of correspondence (as co-response) between scales, where nested scales and systems intersect and feedback or attenuate or devolve, and sometimes disentangle and desist.

Living with and within fossil fuel-based energy systems, these systems have become part of our mental ecology. That is, the material capacities of fossil fuels shape (without determining) the way we think. Every energy resource and technology has its own affordances, costs, and its conditions for use. In the US, we have spent the better part of two centuries becoming accustomed to fossil fuels and developing the social and technological conditions for their expanded use. This creates what economists often refer to as technological/institutional lock-in. Different aspects of this lock-in are more or less obvious. Our expansive highway system, our centrally organized grid, even the layout of our homes and businesses. Other aspects of lock-in are less conspicuous and, therefore, more insidious. We have also come to think and theorize through fossil fuels (Wilson, Carlson, Szeman 2017).

2.2 ENERGY TRANSITION AND PETRO-GHOSTS

In this dissertation, the notion of hauntologies or petro-ghosts goes hand in hand with the argument that energy transitions are out of joint. That is, the “ghosts” concept represents the

persistence of plateaus and processes that were developed within the sociotechnical assemblages of petroculture and whose persistent operation continues to shape our contemporary ethical plateaus and delimit just transitions to renewable energy. Hauntology also offers a view of history that emphasizes the afterlives of former hegemonies. It's a view of history, not unlike that represented in Cedric Robinson's magnum opus, Black Marxism (2000), which disrupts the idea that capitalism marked a rupture or a radical break from the feudal system that preceded it. Instead, he shows how both racialism and nationalism evolved within feudal Europe, yielding over time the contemporary racial capitalist world system that we see today. Furthermore, in Robinson's analysis, "the effects of racialism were bound to appear in the social expression of every strata of every European society no matter the structures upon which they were formed" (Robinson 2000, 28), which included, and quite importantly for the purposes of my argument, the "strata" of the radical intelligentsia and their socialist resistance to capitalism. The effect was such that racialism "insinuated itself into their thought and their theories… that in turn systematically subverted their analytical constructions and their revolutionary project" (Robinson 2000, 28).

One of the objectives of this dissertation is to identify the petro-ghosts at work in Austin, Texas, delineate their effects, and critically analyze local attempts to ameliorate or exorcize them. Such ghosts may take many disparate forms depending on the scale or system at which they are conjured. Citing, once again, Robinson's characterization of European racialism, which "insinuated not only medieval, feudal, and capitalist social structures, forms of property, and modes of production, but as well the very values and traditions of consciousness through which the peoples of these ages came to understand their worlds and their experiences" (2000, 67), these same social structures have inspired the desires, assumptions, and infra-structuration of

accessible, affordable, and abundant fossil fuels, which together haunt our geopolitics (in the form of war, occupations, subjugation, exploitation, and other forms of international conflict), infrastructures (in the design of our homes, the electric grid, and the transportation system), our social space (with gentrification, internal colonization, the planning and zoning of distinct sectors, cores and peripheries, suburban sprawl), our social systems (in our economic policies, political platforms, and the operations of our social, cultural, and political institutions), our atmospheres (which are saturated with carbon, fomenting extreme weather), and our landscapes and ecosystems (i.e. the destroyed landscapes of current and abandoned oil fields and coal mines, and our polluted air, soils, waterways, lifeforms, and bodies). But, even more insidious, these ghosts also haunt us directly through what Guattari called our mental ecology (or what Bateson called the ecology of mind).

As Cara Daggett explains, the recent rise of authoritarianism in the US is, in part, indicative of conservative America's reactionary response to the serial threats being posed to petro-masculinities: i.e., hyper-masculinities constructed in/through the development and valorization of the US's carbon-based economy, democracy, and culture. Here, climate change is more than an environmental process, it is "a breach in the patriarchal dam" (2018, 44). And conspicuous fossil fuel consumption and climate denialism are no longer a problem of ignorance or education, they are motivated by a vociferous refusal of climate change and a correlate rejection of the values and ethics that underwrite feminist environmentalisms and gender politics.

While there are surely traces of petro-masculinity within Austin’s city limits, the city has largely come to grips with the discontents of fossil fuels, including their impacts on public health and the changing climate. But, as Daggett notes, this particular petro-saturated form of hypermasculinity is not the only ghost in town. Many Austinites are firmly planted within what

she identifies as an “ecomodernist masculinity,” an alternative masculinity that is currently competing for dominance. Dagget characterizes ecomodernism as a call for a "good Anthropocene that would decouple the benefits of fossil fuels from the fuels themselves" (2018, 30). The ecomodernist paradigm, like the welfare-state before it, mixes the techno-rationality and economics developed through fossil-fueled political economy with some degree of compassion and care. Though, when push comes to shove, the former always trumps the latter. This goes to show that it’s more than our political-economic and sociotechnical systems, we too are possessed. Or, better yet, we are the combined effects of our being possessed, in that what we identify as “us,” (i.e. our ideologies, our desires, our expectations, our techniques and strategies of the self) either reflect or respond to our culture’s complete saturation in fossil fuels.

But if petrocultures shape their own resistances, reproducing in them what Gustafson describes as the inherently violent logics and divisive desires of fossil capital (2019), does that mean that energy justice is impossible? Not exactly. It means it’s nonlinear; it’s *ecological*. Even if forms of resistance to petro-capitalism are shaped by that which they resist, the relations between those forms of resistance add a new layer of complexity that escapes it. Those relations, though necessary, are not sufficient to bring about experimentation and change. Thus, part of what good energy/environmental governance needs to entail is the cultivation of more intensive and cross-cutting forms of coordination and collaboration, akin to what Isabelle Stengers has called an “ecology of practices,” a “kind of active, fostering ‘milieu’ that practices need in order to be able to answer challenges and experiment changes, that is, to unfold their own force” (2005, 195).

3. ANTHROPOLOGY AS TRITO LEARNING

As should be readily apparent, this dissertation is as much about anthropology and ethnography as it is about Austin's energy transition, and so my conclusions bear relevance to these topics as much as they do to Austin and to Just transition. This is because what I have done, or at least what I have attempted to do here, is to insert Anthropology's worries about representation, about the study of the other, about ethics of the encounter, about understanding the "the human" into the problem of energy transition, therein throwing the whole frame energy transition into question. Or, to put this differently, I have tried to break the category of energy transition, exposing it as the ultimate petro-ghost.

"Energy transition" both is and is not what people think. It is and is not an ecological problem, an engineering problem, an economic problem, a political problem, an ethical problem, etc. And it both is and is not because it is really an anthropological problem. Or, rather, the problem is our normative anthropology. This is not "Anthropology" the formal discipline, but anthropology with a little "a," in Wagner's sense that we are all anthropologists because we all invent culture (1981). The culture that our anthropology has invented is deeply petro-racial and technocratic.

In his critique of the human sciences, Foucault called psychoanalysis and ethnology the counter-sciences of the proper human sciences: i.e., biology, economics and philology. Anthropology, in this sense, is a trito-level response to the deutero-disciplines of the human sciences. That is, "they flow in the opposite direction, that they lead them back to their epistemological basis, and that they ceaselessly 'unmake' that very man who is creating and re-creating his positivity in the human sciences" (2005, 414). In other words, it was the tendency

of anthropology and psychoanalysis to work by means of re-punctuation, an essential dynamic for trito-learning.

Factoring this deconstructive impulse into my dissertation, I am attempting to design my dissertation as a series of diagrams of my ethnographic archive, one that indexes the analytical and political purchase of becoming aware of how our current identities, ethics, desires, political strategies, and other such focal points of experience have taken shape in reference to established categories of thought and scales of space, time, and expertise. The ecologies I developed loosely map onto Aristotle's 4 causes. Ch1: material cause: the stuff that is changing/needs to change (Techno-Political Ecology); Ch 2: efficient cause: the source of change or rest (Social Ecology); Ch 3: formal cause: where the "new form" of society is being imagined/debated (Epistemic Ecology); Ch 4: Final Cause: the rationalities, desires, modes of relations to self/others (Ethical Ecology). But I am not looking to replace the reader's categories of experience with those that I have specified in these chapters. Rather, with each chapter, I am trying to repeatedly repunctuate the spatialities and discourses of Austin, not to produce the "last analysis of Austin," but rather help engender a kind of skill or style of thinking, a new political ethics.

The chapters of my dissertation are, therefore, not designed to represent "Austin" so much as they represent different modes of punctuating my experiences in/of Austin and its historical record that are intended to be useful to others. That is, I do not intend for my dissertation to serve as a breakthrough to the Real, and I am not asking the reader to adopt my framework or my analysis whole cloth. I am not looking to merely replace the reader's perspective, their current form of deutero learning, with my own. Conducting this sort of epistemic coup d'état not only falls back into the analytical trappings and problematic politics of ethnographic representation (Clifford and Marcus 1986, Marcus and Fischer 1986), but it merely

replaces one regime of divisible governance with another. And in this way, I would be precluding the sort of trito-order learning that we'll need to address the complex sociotechnical issues of the contemporary.

Instead, I am attempting to design my dissertation as a diagram, one that indexes the analytical and political purchase of becoming aware of how our current identities, ethics, desires, political strategies, and other such focal points of experience have taken shape in reference to established categories and scales of space, time, and expertise. Once again, I am not looking to replace the reader's categories of experience, or even the currently hegemonic categories with those that I have specified in the chapters of my dissertation. Rather, with each chapter, I am designing diagrams that repeatedly repunctuate Austin and the processes that characterize the city's energy transition into a set of different scales and systems, that create relations across these punctuations, as a form of trito-order politics, and that might help engender a kind of skill or style of thinking, rather than merely contribute new contents of knowledge. These diagrams are designed to work at and on the limits of a "representational" dissertation.

An ethnography that strives for trito-order learning would perform a certain style of cultural critique (Marcus and Fischer 1986), but one that focuses less opposing or negating contemporary regimes of divisible governance (thereby being sucked into a dialectic that preserves the relations of the current regime), and more on the development of techniques and strategies for contaminating and repunctuating a given regime's discrete and purified terrains of political struggle (i.e. tools for constructing new plateaus). A trito-order anthropology would seek a methodology for becoming aware of how divisible governance regimes punctuate and arrange what are otherwise continuous flows of experience, creating a series of nested figure-ground relations that form our epistemic infrastructures, enabling the habits that direct and

fix our attention, the combined effect of which is what we commonly refer to as "context," but also provides our sense of "reality." A trito-order anthropology would set out to produce new ways of discovering the contours of the political terrain that we engage and adapt to, thus offering a new capacity to "care for the self," to intervene in production of desire, of ethics, of our sense of self and community in ways that translate into our everyday practices.

EPILOGUE

The contemporary United States is a notoriously divided nation; both within and across traditional political divides, factionalism and animosity are palpable. According to a recent study by PEW researchers, climate change and environmental justice top the lists of controversial political issues in the US that are polarizing the electorate and driving a wedge between the parties (Schaeffer 2022), but they are certainly not alone. And while the environmental justice movement has had substantial victories in terms of recent developments in the Biden administration's environmental policy, this has also drawn a fair share of criticism and disdain from his opposition. Furthermore, scholars studying the internal dynamics of governmental institutions have documented the subtle modes of resistance to environmental justice at work within environmental regulatory agencies (Harrison 2019). Thus, environmental organizations will have considerable work ahead of them to maintain political support for environmentally just and protective policies and their implementation throughout the upcoming election cycles and on into the future.

Building from the conclusions of my dissertation, I understand this factionalism in terms of what Gregory Bateson called "schismogenesis," or a feedback loop of progressive disintegration. In short, schismogenesis describes two different shapes (complementary and symmetrical) of progressively disintegrative interactions that may form, at any scale, between any type of "unity" (individual bodies, subjectivities, disciplines, political parties, cities, nations, ecosystems, etc.), where the effect of this interaction is to increasingly destabilize the relations upon which that interaction depends. For instance, a symmetrical schismogenesis may take the form of a shouting match between two hot-headed individuals, one that increases in intensity to the point where exchanges of physical blows eventually substitute and dissolve the former

system of exchange of harsh words. Complementary schismogenesis, by contrast, might take the shape of a virus that becomes so lethally effective that it burns itself out, killing its hosts at such a speed that the virus undermines its own opportunities for further transmission. Thus, once the pattern is established, schismogenesis is at once the cause, symptom, and catalyst of itself.

Despite their inevitability, the disjunctions of US energy transitions, and of its regime of environmental governance more broadly, have also been intensified by a long-running trend in the reconfiguration of relations of power and knowledge that have, at least since the postwar era (Foucault 2008), tended towards a steady dispersion of former concentrations of disciplinary and biopolitical power.

While this development has included deregulation, privatization, marketization, financialization, and many other dynamics that fall under that famous catch-all, "neoliberalism," I am hesitant to restrict the phenomenon to political economy. Instead, I would like to root it in a much wider, more fundamental disruption in the modern episteme. In 1986, Marcus and Fischer coined the term "the crisis of representation" to identify a wide-ranging pattern of epistemic disintegration, or "the destabilizing of foundational knowledges in many arenas of instrumental practice," due to a situation where "traditional concepts and methods are increasingly outrun by real-world events" (Marcus and Fischer 1999, xix).

Neoliberalism was but one form of this destabilization of knowledge that has, over time, been subjected to its own destabilization. As Callison and colleagues both perform and brilliantly display (Callison et al. 2019), the supposed inherently related and self-contained packages of concepts, arguments, techniques, and strategies sorted into the categories of neoliberalism, socialism, and fascism (and even feminism, marxism, post-structuralism, etc.) have been disentangled and reconfigured into new mutant forms. But while these scholars continue to

identify these monsters as "mutant neoliberalism," I take the fact that, not only the state, but neoliberalism, itself, has been subjected to its own unraveling and repackaging indicates that a more fundamental process is at play.

In the spheres of politics, economics, anthropology, as well as that of biology, physics, artificial intelligence, etc. (i.e. in domains well outside political economy), what we are seeing is an ever-widening dispersion of former concentrations of power and authority. That is, rather than assume the contemporary is dominated by a set of hegemonic logics and practices, easily identifiable as "neoliberal" in character, the contemporary is better understood in terms of a notable lack of hegemony, a lack of a center of power to which we might speak our truth. Instead, former centers of power and planning have been disassembled into a series of disjointed peripheries (Howey and Neal 2022), a dispersion of state bureaucracy (Harrison 2019), a refusal of the state to maintain a monopoly of violence, creating the conditions for a preponderance of more micro-scale actors, tactics, and pockets of exploitation and solidarity, of domination and resistance.

Building from the findings of this dissertation, I put forward the need for research, not of this dispersion of power and authority, but for research into the question of how to formulate, pose, and pursue the question of dispersive governance. And, in doing so, I do not emphasize the epistemological vantage point, but rather the ethical one. As Thomas Kuhn is often quoted in saying, "The answers you get depend on the questions you ask." Thus, asking questions is not innocent, and the problem of choosing to ask one question (or one form of a question) over another is both an ethical and epistemological problem in itself. Furthermore, as Kuhn's quote suggests, there is a certain circularity to all research: all possible answers to a given question must be somewhat contained in the precise framing of the question. This makes

the moment of question formulation a (if not the) pivotal moment in any research project or program.

Posing the question of the question of dispersive governance in this way emphasizes the epistemic, political, and ethical dimensions of social scientific research. That is, it exposes research as an ethical practice, through which one produces knowledge that has the potential to transform the self. The question of the question of dispersion eschews the normal divisions between the more structural or more humanistic paradigms of the social sciences. That is, it does not set out, in advance, to detail the structure and operation of dispersion, to uncover its "law of division" (Foucault 2002). Nor is it to gather and interpret a diversity of perceptions of this dispersion (Harrison 2019), to produce a more emic understanding of this process from the "native's point of view." Indeed, the question of dispersion is really only a secondary concern, and would not be the question of this research at all. Instead, the strategy would be to embrace (rather than either assume or disavow) the circularity of research imposed by the question, by folding the gaze of research back upon itself. Upon first gloss, this might sound like the dreaded "navel gazing" which plagued a certain generation of post-modern ethnographers. And with good reason, as it follows in much the same traditions that turned the navel into a possible object of the gaze (Clifford and Marcus 1986). But, I am not posing the question of *the researcher*; I am posing the question of research itself. And, in doing so, what I am calling for does evade the trap of pure reflexivity by adding a collaborative dimension to the reflexive ethnography.

As I have proposed in this dissertation, ethnographic research can be put towards the task of developing an ethics with which to begin to develop the kinds of social, epistemic, and ethical infrastructures necessary to address complex social issues. Here, the outcome of the research would be to properly formulate the question of dispersive governance by continually

re-formulating this question in and through its pursuit. Thus, this project poses research ethics, not as something to be decided before the research process begins, but as an empirical question worthy of study. This research asks what a research question is and what it does, how it shapes relationships between researchers, between the researched, and between the researcher and the researched. And it seeks a new arrangement of these relations as a form of political engagement.

My dissertation suggests that the process of cultivating ethical sense forms along with the development of strategies, tactics, and practices for building power, which, I am suggesting here, can be turned into a productive research program for environmental justice research in the United States. That is, I am interested in the way experiences of building political power generate what Gregory Bateson calls "deutero-learning," or "habitual ways of looking at the stream of events of which our own behavior is a part," where such apperceptive habits are largely unconscious "by-products of the learning process" (1987, 130). Political ethics are, here considered, one form or dimension of deutero-learning which concerns ideas about the correct or appropriate way in which one should engage others while striving to influence their thought and conduct.

As anthropologists have argued, social theory tends to overlook the way people orient their actions according to "criteria of what is right and good," instead favoring a focus on the influence of "structure, power, and interest" (Lambeck 2010, 1). By framing this research in terms of political ethics, I am attempting to account for both, foregrounding the ethico-aesthetic dimension of habits of perception that are embedded in and acquired through the development and use of tactics and strategies for building and mobilizing political power. In particular, this project will investigate how diverse environmental actors and organizations en/counter apathy and/or opposition to their campaigns as well as how they handle more nuanced epistemic/cultural divergences "within" their organizations or within the environmental movement more broadly.

This research would also need to be deeply participatory, collaborative, and experimental, with recruited participants serving both as research collaborators and as research subjects, with the overall research design bearing the influence of the environmental justice training sessions and in community climate planning practices that I studied and participated in my dissertation fieldwork. Building from these experiences while also incorporating ideas from Foucault's techniques of the self and Guattari's transversal approach to institutional analysis, the project's research instruments–including interviews, focus groups, and exercises of self-writing–will ask participants to engage in deeply reflexive considerations of their own ethical stances and practices. This experience will also serve as part of the training process where research participants will begin to learn how to conduct qualitative interviews. After initial training and conducting at least one co-interview with me (or another trained ethnographer), participants will then be tasked with conducting their own interviews and/or focus groups with folks who are either apathetic or oppositional to their work in environmental justice. All data from this project will be uploaded into the PECE platform, a digital archive and collaborative research infrastructure. Research participants will be tasked with co-analyzing this data along with the PIs and potentially with the research subjects that they interviewed.

Perhaps anthropology's discursive obsession with "the human" and "the word" (i.e. Anthropos + logos), captured so well in that irreducible question of "writing culture" (Clifford and Marcus 1986), will no longer serve as its most enduring plateau. If anthropology is ever to breach the confines of representation, it won't take the proto-level form of a concept or theory, nor even the deutero-level form of a discipline, but rather as a rupture in this very arrangement of anthropological desire for closure. But, as a rupture, perhaps it won't take any form (written or

otherwise) at all; perhaps it will, rather, persist as that ever-present, trito-level, anti-form: a *question*.

That said, it surely won't be some realization of the final anthropological question: "one question to rule them all." There is no essential, empirical question of "anthropos," nor any final theoretical question of "logos." Indeed, there is no analytical edge sharp enough to cut this Gordian knot once and for all. Instead, the path forward is not a cut but a fold: it's the "question of the question," which, through its pursuit, renegotiates this very line of division (amongst all others).

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