Foregrounding the community: Geo-historical entanglements of community energy, environmental justice, and place in Taihsi Village, Taiwan

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Abstract
Studies on community energy have generated many useful insights concerning its potentials and challenges in facilitating energy transitions. However, this line of inquiry tends to overlook the crucial significance of site-specific contexts, concerns, and needs beyond the energy system and often generalizes these under a “civil society” umbrella. To study community energy on its own terms, this paper proposes a more grounded approach based on the relational place-making framework. It draws upon the case of the Taihsi Green Energy and Health Community Initiative in Taiwan to investigate how the emergence, development, and framing of this initiative are entangled with geo-historically produced concerns about the village’s socio-economic marginalization and suffering from petrochemical pollution. The findings suggest that community energy in this context was a proactive continuation of place-based activism for environmental justice; its value to this damaged community lied in its potential to create self-reliant socio-material relations alternative to those relied on the patronage of petrochemical interests. However, this justice-oriented aspiration tended to be discounted in national-level energy transitions agenda, revealing a tension between citizen-oriented and community-based energy projects. The paper argues that a relational place-based analysis is crucial in recognizing the grounded meanings and values of a community energy initiative, which can address the decontextualizing tendency in many community energy studies to better help policymakers and advocates enhance energy justice in disadvantaged communities.

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Introduction

Community energy (hereafter CE) has become a buzzword for energy scholars, environmental activists, and policymakers as a promising form of public participation in energy transitions. CE projects can be loosely understood as grassroots innovations in energy production and/or consumption, characterized by a considerable yet variable degree of civic engagement in decision-making, ownership, operation, and distribution of costs and benefits (Seyfang et al., 2013; Walker and Devine-Wright, 2008). CE projects are typically studied in relation to the global challenge of climate change, with a special focus on how they can be nurtured and scaled up to facilitate national-level low-carbon transitions, and by means of which policy measures, actor networks, and incentives (for instance, see Hargreaves et al., 2013; Hielscher et al., 2013; Hischemoller, 2012; Hoffman and High-Pippert, 2010; Radtke, 2014; Seyfang et al., 2013, 2014; Walker, 2008).

While generating many valuable insights about the potentials and limitations of CE in comparison to firm-led and market-driven energy projects, many CE studies that situate CE in an energy-transitions-for-climate-change-mitigation research agenda, especially those employing a quantitative research methodology (for instance, see Bamberg et al., 2015; Bauwens, 2016; Kalkbrenner and Roosen, 2016; Sloot et al., 2019), tend to diminish the centrality of site-specific contexts, concerns, and needs in CE and subordinate them to the ambiguous notion of “civil society.” Place and space in this line of studies are often seen as universal, passive backgrounds devoid of internal dynamics and geo-histories, in favor of comparisons between CE projects across places using standardized and quantified metrics like “financial incentives” and “environmental concerns” to explore the incentives for participation.

By contrast, a growing number of CE studies recognize different spatial connotations between various types of CE, and the effects of local conditions and culture on instigating and enabling community-based CE (Bomberg and McEwen, 2012; Jeong et al., 2012; Simcock et al., 2016; Slee, 2020; Süsser et al, 2017; Van Veelen, 2017; Van Veelen and Haggett, 2017). However, these studies often employ a project-centered perspective that views place-based elements such as collective identity and existing social networks as resources to facilitate the development of a CE project. Less attention has been paid to the ongoing construction of place through CE, and what this says about the inadequacy of an energy-centric perspective to understanding community-based CE projects.

This paper aims to demonstrate the pivotal role of place in understanding community-based CE by contextualizing CE in place-making dynamics. It proposes a bottom-up perspective of CE to bring site-specific contexts, needs, and aspirations that co-constitute a CE project to the fore. To this end, the paper reconceptualizes CE as an energy-related grassroots collective action involving the reconfiguration of socio-economic relations in the community of place to address geo-historically produced concerns and place visions. Methodologically, it draws on the relational place-making framework developed by Pierce et al. (2011) and the case of the Taihsi Green Energy and Health Community Initiative in a rural village in Taiwan.

The geo-historical context of Taihsi Village differs significantly from the Western contexts and projects that characterize most CE literature to date (Hargreaves et al., 2013; Romero-Rubio and de Andrés Díaz, 2015; Seyfang et al., 2014, to name just a few). Suffering
from serious environmental degradation related to one of the world’s largest petrochemical complexes, this community has become well known among activists, policymakers, and the public in 2016 for pioneering a CE initiative in Taiwan (Fang et al., 2019; Kao, 2019), a country where energy transitions are not only urgently needed but also on the rise (Chou, 2017a, 2017b; Chou and Chang, 2017, 2018). By adopting Massey’s notion of space (Massey, 1997, 2004, 2005), this paper is embedded in the recent relational turn in studies of energy geographies (Bridge, 2018; Bridge et al., 2013; Broto and Baker, 2018; Calvert, 2016; Hui and Walker, 2018) and spatialities of environmental justice (EJ) (Schlosberg et al., 2017; Walker, 2009; Walker and Bulkeley, 2006). With nuanced empirical findings, it helps enhance a non-Western, place-sensitive understanding of CE and EJ.

The paper is structured around three questions: (1) What are the geo-historical trajectories that have contributed to the dynamic site-specific context of the CE initiative in Taihsi Village? (2) How do the emergence, framing, and implementation of CE interrelate with grassroots actors’ perceptions of environmental injustice? (3) How do the place-based framing and objectives of CE engage with advocacy for citizen participation in energy transitions in Taiwan? I argue that a relational, place-centered analysis is better equipped than an energy-centric approach to understand the meanings and values that grassroots actors assign to a CE initiative, which tend to be under-recognized by CE studies and advocacy in prioritizing “citizens” in a decontextualized sense over “communities” grounded in a relational space. Moreover, a relational, place-centered analysis can highlight longstanding structural challenges and socio-environmental injustices facing a disadvantaged community, thereby helping activists and policymakers better understand the broader transformative potential of CE to enable a just low-carbon transition.

Material in the paper is drawn from a combination of primary and secondary data. To sketch the geo-historical trajectories of the community in Taihsi, I conducted a comprehensive study of secondary materials and literature in geography, history, regional development, and government publications related to Taihsi and the development of Taiwan’s petrochemical industry. To investigate place-framing and motivations for CE, I conducted 11 months of fieldwork in and around Taihsi between 2016 and 2017 and three follow-up visits in the following three years. In addition to participant observation at meetings and informal conversations, I conducted 42 semi-structured, in-depth interviews with a range of research participants including community members, scholars, non-governmental organization (NGO) actors, legislators, activists, government officials, and private sector actors involved in the CE initiative and/or campaigns against petrochemical pollution. I supplemented these data with an examination of media reports and press releases about the CE project and the environmental campaigns in which the community participated and/or initiated. After transcribing and triangulating key interviews with fieldwork notes and secondary materials, I analyzed grassroots actors’ rationales for initiating CE in relation to their place-framing, and double checked the findings through follow-up interviews.

**Community energy, place-making, and environmental justice**

*Situating community energy in a relational space*

Following Watts and Peet (2004), I take as a starting point that a community is a heterogeneous assemblage of social relations, comprised of a population with differentiated levels of access to power, control over resources, and degrees of participation. From Agnew (1987), the place where a community is enacted, and where it is symbolically and materially grounded, is defined as a site that is interrelated with other places (location), the biophysical settings and features in situ (locale), and the socio-cultural meanings attached to it (sense of
place). From a relational perspective, a community of place often invokes, but is not bound by, the boundaries of a small-scale territory like a village, nor is it a unity with an uncontented, fixed identity. Moreover, a place is always in the making through dynamic networks of social relations and everyday activities on the site and elsewhere (Massey, 1997, 2005).

In energy geographies research, scholars pay increasing attention to CE, interrogating various concepts and dimensions of space, including scale (Hill and Connelly, 2018), the socio-materiality of energy resources (Armstrong and Bulkeley, 2014), and energy-induced place reconfigurations (Ahlborg, 2018). Despite differences in focus and theoretical tools, studies that deploy a relational approach to CE generally agree on the appreciation of “space, community, and energy as mutually co-constitutive” (Aiken, 2018: 135). Süsser et al. (2017), for instance, argued that the meanings and emotional bonds attached to a place can affect community members’ acceptance of the spatial changes brought about by CE. Van Veelen and Haggett (2017) further investigated place attachments and attitudes toward CE projects, highlighting the tension between community members with competing place visions. Yet both studies emphasize CE and place attachments’ influence on local responses to a project, rather than center on the place-making dynamics and the ways in which CE contributes to and is shaped by it.

Studying CE as a grassroots place-making project helps unpack the place-making politics that originate from a community’s geo-historical trajectories as well as CE’s meanings and values for grassroots actors in advancing their place-based, beyond-energy agenda (Lai, 2019). Building on this insight, this paper applies a relational place-based framework to investigate the interplay between CE and place in a marginalized rural community in Taiwan with a special focus on issues of EJ.

**CE, place, and justice**

Site-specific context is important for understanding how justice relates to environment change and/or energy systems. As the notion of environment in EJ literature is often understood as the place where we live, work, play, and eat (Gottlieb, 2009), injustice occurs when these place-based practices, cultures, identities, and senses of belonging are disrupted or not recognized (Schlosberg et al., 2017). Consequently, EJ scholars have stressed the need to contextualize the inherently diverse meanings and practices of EJ and have cautioned against the Cartesian understanding of space as an abstraction (e.g. the linear distance to a radioactive waste landfill) (Holifield et al., 2009; Walker, 2009; Walker and Bulkeley, 2006). Similar insights can be applied to the rapidly growing research on energy justice (Bickerstaff, 2017; Bickerstaff et al., 2013; Fan, 2006; Jenkins et al., 2016; McCauley et al., 2019; Sovacool et al., 2017, 2019).

As Broto and Baker (2018: 3) argued, a spatial and relational approach to energy studies “brings forward dimensions of justice, access, and distribution” in several ways. First, it opens up the inquiry of distributional injustices’ by emphasizing connectedness between places involved in different nodes of an energy commodity chain (Massey, 2004). Second, it stresses “injustice in terms of capabilities” by relating to geographically uneven patterns that differentiate the capabilities of different communities to access energy services (Day, 2017). Third, it helps redress “injustice in terms of recognition” by acknowledging the sociocultural diversity of perceptions and reactions toward certain energy technologies, resources, and facilities (Whyte, 2017). Last, it draws attention to “procedural injustice” in energy policymaking and siting processes by politicizing energy “as a social relation” as opposed to its neutral framing as “an economic asset, ecological phenomenon or a resource” (Bell and Carrick, 2017; Broto and Baker, 2018: 3).
A place-based study of CE provides a promising starting point for inquiry into justice on the ground. In a pioneering study of this sort, Forman (2017: 655) noted that “strategies for achieving energy justice both exceed energy-based goals and are often tailored to reflect local circumstances.” Beyond-energy circumstances can play a decisive role in defining local perceptions of justice, especially in the case of the “internally oriented” CE that focuses more on “intrinsic benefits” in situ than on the geographical expansion of renewable energies (Dóci et al., 2015; Seyfang and Smith, 2007). This suggests that justice in relation to CE cannot merely be examined within an energy-centric scope, but has to be grounded in broader site-specific context.

To this end, this paper embeds CE in the place-making dynamics of communities to unpack the ways in which the emergence and development of CE projects relate to grounded perceptions of environmental injustice. It first investigates geo-historical trajectories that pave the way to the current assemblage of socio-economic relations, biophysical settings, and psychological attachments in place. Then, a non-energy-centric analytical lens based on the relational place-making framework developed by Pierce et al. (2011) is employed to unpack the interlinkages between grounded perceptions of environment injustice, place-based activism, and the formation of CE projects. This is done by carefully examining the studied community’s place-framing, which involves (1) key place-frames that define the scope of the shared concerns, collective identities, and perceptions of the place’s past, present, and future; (2) key actors and institutions that produce and contest these place-frames; and (3) the place/bundles, referring to the strategic selection of social, economic, and biophysical elements of a place in the framing to serve the networked actors’ objectives. Here, place is viewed as a temporary coming together (i.e. bundling) of various geo-historical trajectories involving multiple temporal frames and geographical scales, such as urbanization, and is itself a locus for the emergence of new configurations of elements, relations, and processes related to ongoing and new trajectories (Massey, 2005).

Examining place-framing is useful as it helps shed light on site-specific concerns (e.g. EJ), place visions, and the political dynamics of specific places, as well as the way in which a CE initiative is situated in a specific context. While this framework typically focuses on conflicts, it is applied here also to CE as a form of collective action to investigate, first, how grassroots actors initiate and conduct a CE initiative in relation to their place visions and, second, how they legitimize their request for external support through specific place-frames. I now turn to the case of the Taihsi Green Energy and Health Community Initiative in Taiwan to illustrate the approach’s analytical strength in deepening the understanding of CE, place, and justice.

**Case description**

Taihsi Village, which is named after its location (i.e. “the west of Taiwan”), is a small seaside rural village housing around 500 residents at the southwestern point of Dacheng Township, Changhua County (Figure 1). The CE project began in 2016. Before and after then, the community anchored in this village along with some relatives and friends nearby had been actively engaged in a series of place-based struggles against petrochemical pollution, including the nationwide movement against the state-endorsed Kuokuang Petrochemical Complex project (i.e. the anti-Kuokuang movement) in 2009 and 2010 and several campaigns against toxic pollutants from the nearby 6th Naphtha Cracker Complex (hereafter the 6th Naphtha). After the Democratic Progressive Party (DPP) government assumed office and started to promote nationwide energy transitions in 2016, the leading community actors
Figure 1. The administrative area of Taihsi Village (top) and the two main residential areas in the village (bottom). The two areas are locally known as Tuō-tsng (left), where most residents belonging to the same kinship group (the Hsus) facilitated local engagement in community activities, anti-pollution campaigns, and the CE project, and Kue-á (right), whose residents are less active in Tuō-tsng-centered activities due to socio-geographical distance between them. By 2020, five rooftop PV systems had been installed in and around the village (one in a nearby township and not displayed in the map). Compiled by the author based on Google Earth images.
decided to launch the Taihsi CE initiative as a means to rejuvenate the community scarred by environmental hazards associated with the petrochemical industry.

The first phase of the initiative was marked by the installation of a roof photovoltaic (PV) system of 3 kW at the main public space of the village, the Hsienjung Temple, as part of a two-day green energy camp co-held with local and extra-local NGOs in November 2016. It was followed by a long negotiation between the initiator, who was the daughter of a former village head and a leader in the campaigns against petrochemical pollution, and external facilitators representing central government and business sector to work out feasible financial, legal, and technological arrangements. Limited results could be seen by the time the initiator moved out of Taihsi for family reasons and handed over the initiative to her brother in mid-2017, who thereafter resigned from his position as a middle manager of a big company and returned to the village.

The new organizer started the second phase by gathering the signatures of around one-third of the villagers and establishing a civic organization, the Taihsi Green Energy and Health Community Promotion Association, composed of 30 villagers and 6 external supporters, in late 2017. In early 2019, the Taihsi CE initiative obtained a grant of two million New Taiwan dollars (NTD, around 58,300 euros) from a pioneer CE subsidy scheme provided by the Bureau of Energy (BOE). With the grant and investments by 16 local stakeholders and external supporters, four public meetings in the village and two educational trips to other renewable energy initiatives were held in 2019. Additionally, four roof PV systems with a total installed capacity of 56.1 kW were completed and integrated into the national grid to sell electricity to the utility. The organizer oversaw the operation and basic maintenance of these micro-PV plants, with the goal to establish a green energy company owned mostly by the community members, with 10% of profits going toward community-wide social welfare projects and the rest toward the maintenance of facilities, personnel expenses, and dividends to the shareholders.

**Geo-historical trajectories in making the place**

The Taihsi CE initiative is embedded in and co-evolving with two prominent geo-historical trajectories: one concerns the socio-economic marginalization of the place during the country’s rapid industrialization; the other involves the spatial expansion of the petrochemical industry at the neoliberal turn of the country’s industrial policymaking. Together, they placed the community in a disadvantaged position in relation to broader political economic dynamics. Some villagers describe the place as “the periphery of the periphery,” with its largely abandoned traditional quadrangle houses, many fallowed farmlands, and almost two-thirds of its residents aged 65 or above (Figure 2).

**Where the water ends and the wind begins: A marginalized rural place in an industrial society**

Coastal areas in western Taiwan are described, often derogatorily in economic terms, as places “where the water ends and the wind begins.” Taihsi is one such location, situated at the mouth of the Zhuoshui River and at the forefront of salty winds blown from the sea. It faces relative freshwater shortages, unpredictable flooding in summer, and strong northeast monsoon winds in winter (Chang, 2014; Hong, 1994).

Since the arrival of Han settlers into the region in the 18th century, Taihsi, and the entire Dacheng Township, has been the least developed area in Changhua County (Chang, 2014, 2016; Chen, 1987; Hsia, 1988; Shih et al., 1977). Still, people sustained themselves through
upland farming, some extent of rice cultivation, fishing, and gathering, and built close relationships with the river, sand dunes, and the sea. At the turn of the 20th century, after Taiwan was incorporated into the regional division of labor with Japan, i.e. “industrial Japan, agricultural Taiwan,” agricultural production conditions were gradually improved through colonial state-led measures of land reclamation and the establishment of an embankment in 1920 to “discipline” the river (Chang, 2014, 2016; Hokutogun Office, 1937).

Later, typical for Taiwan’s rural areas, Taihsi was integrated into the state-led project of capitalist industrialization after the nationalist regime withdrew from China in 1949. To feed more than one million migrants and to strengthen its chance of survival during the Cold War, the regime introduced several policy measures to squeeze out surplus and cheap resources (e.g. food and labor) from the agricultural sector for industrialization (Chang, 2006; Gold, 1986). As agricultural income stagnated with low prices, heavy taxes, and high input costs (Hsu et al., 2016; Tung, 2012), farmers in Taihsi had to join the manual paddy harvesting team touring western Taiwan for additional income, while several female villagers traveled to sugarcane plantations in Okinawa as provisional migrant workers.

When Taiwan entered the international division of labor at the bottom of global commodity chains with labor-intensive industries in the 1970s, the lack of opportunities for non-agricultural income in southwestern Changhua triggered a relentless migration of young people to cities for better socio-economic prospects (Chen, 1987; Hsia, 1988). To tackle labor shortages and to improve rural income levels, the state introduced nationwide agricultural modernization measures and cash crops. Although the outflow of people continued, watermelon cultivation starting in the 1970s provided a relatively good income to the

Figure 2. A typical landscape of Taihsi Village with a hazy view of the 6th Naphtha across the Zhuoshui River in the background. Photo by the author.
community, occupying three-quarters of local farmlands in the following two decades, and becoming a symbol of the village.

In the 1980s and 1990s, the freshwater clam industry which could thrive in the harsh coastal environment with higher profit and lower labor demand became the hope of prosperity for this least-industrialized and populated township in this agricultural county marginalized in the process of rapid economic development (Changhua County Government, 2018; Chen, 2005; Jiang, 1991). The west coast of Dacheng, including part of Taishi, was transformed into one of the main clam farming bases in the country, accompanied by duck farms that became a hallmark of the area. The high demand for non-saline groundwater, however, led to serious land subsidence, flooding, seawater intrusion, and groundwater and soil salinization in this area (Chang, 2014; Chen and Lee, 2002; Executive Yuan, 2011). While this augmented the socio-economic challenges of this disadvantaged rural community, it was the environmental harms brought by the mega petrochemical complex established across the river in the 1990s that struck the deadliest blow.

When the river dried and the wind became toxic: A sacrifice zone of petrochemical expansion

Despite the dearth of petroleum resources, the developmental state identified the petrochemical industry as the engine for industrialization and economic growth in the 1970s (Chu, 1995, 1997, 2001; Tsai, 1997; Wang, 1995). With several protectionist policy measures and investment from party-state capital, the 1st Naphtha Cracker Plant was completed by the Chinese Petroleum Corporation (CPC) in 1968 to manufacture basic materials (e.g. ethylene and propylene), with naphtha produced in petroleum refineries. Seizing the opportunities of Japan’s and the US’s restriction on petrochemical industries for environmental protection, and to meet skyrocketing demands in the export-oriented plastic and artificial fiber industry, three more projects followed over the next 16 years, increasing the ethylene production capacity from 54,000 tons to 845,000 tons per annum.

The further expansion of the petrochemical industry was halted by the state’s industrial restructuring plan in the early 1980s to tackle the country’s high level of energy dependency and vulnerability during the oil crises. However, the developmental state was losing its power to discipline local private capital, which had become the main force of the industry (Tsai, 1997). In 1985, the policy was reversed by a pro-petrochemical cabinet that launched a series of measures (e.g. deregulation and opening competition for upstream market) to fuel the industry’s expansion while inviting capitalists, including the founder of the Formosa Plastics Group (FP), to industrial policymaking platforms (Chu, 2001).

The FP’s 6th Naphtha project was a symbol of the new state–capital relationship at the outset of “the neoliberal phase of capitalist development” (Chu, 1992; Harvey, 2001: 29; Wang, 1993). At the national level, despite booming anti-pollution movements, the FP had the state’s full support in meeting procedural and financial requirements and in resource acquisition by threatening to move the project to China (Chu, 2001; Hsia and Hsu, 1997; Wang, 1993, 1995). At the local level, it invested in more than one location to increase its bargaining power with local governments. The magistrate of Yunlin County, in particular, ardently welcomed the project in line with his plan to transform this “poor and under-developed” agricultural county into the largest industrial hub, where the 6th Naphtha project was celebrated as a solution to socio-economical marginalization (Hsia and Hsu, 1997).

In 1991, a 2603-hectare offshore industrial park customized for the needs of the 6th Naphtha was sited off the coast of Mailiao Township in Yunlin County. With a similar spatial-political strategy, the FP expanded the permitted ethylene capacity of the 6th
Naphtha from 0.45 million tons in 1992 to 2.935 million tons in 2007 (73% of the total production in Taiwan). This not only significantly strengthened Taiwan’s lock-in to the high-carbon, energy-guzzling industrial structure (Chou, 2017b) but also helped make the FP the second-most lucrative business conglomerate in Taiwan (CCIS, 2019) and the second-largest polyvinyl chloride manufacturer in the world (Schellerer et al., 2016). With a total investment of 841.7 billion NTD (25.06 billion euros), the 6th Naphtha has grown into a mega industrial complex comprising 53 plants, including 3 naphtha cracker plants, a petroleum refinery, 3 operating coal-fired power plants with a combined electricity production capacity of 1.8 GW, and 16 cogeneration coal- and petcoke-fired power facilities with a combined installed capacity of 2.75 GW (FPCC, 2019).

The 6th Naphtha project has given rise to significant socio-spatial transformations in Taihsi since 1994. As a result of reclaiming land from the sea and diverting the river for the construction and operation of the complex (Chang, 2014; Chou, 2017b), the cost of agricultural production increased as farmers had to install electric water pumps to irrigate land covered in sand blown in from the dry riverbed. When petrochemical manufacturing and electricity generation with bituminous coal started in 1999, toxic pollutants (e.g. volatile organic compounds and metals) were pumped into the atmosphere and soil. Despite the dearth of scientific investigations on the causes of pollution, the community itself witnessed the collapse of the ecosystems at the river mouth. Fishing activities, including lucrative glass-eel catching, dramatically declined (Chung and Hsu, 2013), while the total size of watermelon fields in Taihsi Village and nearby Dingzhuang Village dropped from 250 hectares before 1999 to a single hectare in 2016 according to local estimations. A senior villager who had to sell his two rafts as a result shared his first recollection of encountering air pollution,

We were enjoying the cool air [at the watermelon field nearby the embankment] when we noticed a strange odor. We saw a strange-looking smoke coming from the 6th Naphtha toward us. And then the watermelon stopped fruiting that year, causing losses of around 500,000 to 600,000 NTD [around 15,000 to 18,000 euros] per person for all of us.

Staggering economic losses born solely by residents were compounded by psycho-physical distress from long-term exposure to toxic pollutants: the incidence of cancer of Taihsi is almost 15 times higher than the national figure (by non-adjusted rate, MOHW, 2016; Taiwan West Coast Conservation Alliance, 2013). Ironically, those who have benefitted the least from industrialization have suffered most.

**From a village of cancer to a village of hope: Shifting place-frames through CE**

The place-framing through which the community collectively made sense of these environmental changes and acted on them unfolded through a series of campaigns against petrochemical pollution. This section examines how environmental injustice was perceived in relation to the ways in which the place was represented (place-frame) in campaign discourses, with a strategic selection of geo-historical elements related to the place (place/bundles) that helped create a place-based collective identity facilitating mobilization based on certain socio-spatial objectives (place vision). By unpacking the shift from this “defensive” place-frame against petrochemical pollution to a “proactive” place-frame that emerged alongside CE (Table 1), I argue that the grounded value of this CE initiative lies not
Table 1. A summary of the shifting place-framing of Taihsi and the role of the CE project in achieving the new place vision.

| Activism | Campaigns against air pollution | CE project |
|----------|---------------------------------|------------|
| Key actors | Internal: a former village head, his daughter (leading campaigner) and son; close friends in this area; the current village head  
External: other communities affected by petrochemical pollution; local and national environmental and agrarian NGOs; college students; DPP legislators; independent journalists; scholars; doctors; famous writers and artists | Internal: a former village head, his daughter (project initiator) and son (organizer); close friends in this area; the current village head  
External: scholars; anti-nuclear and local environmental NGOs; DPP legislators; Bureau of Energy and associated think tank; the utility; solar energy companies |
| Place-frame | A village of cancer dying from petrochemical pollution | A village of hope aiming to build self-reliance as an alternative to dependence on the patronage of the 6th Naphtha |
| Place identity | A marginalized rural village, a long-ignored, helpless victim of industrial pollution enabled by the state | A disadvantaged and damaged rural village striving to find a way past its distress with dignity |
| Place/bundles | Petrochemical-related negative environmental impacts (esp. the “south wind” and cancer incidences); the collapse of ecosystems, place-based culture, traditional ways of life, local economy (esp. watermelon cultivation); photos of “the good old days” and families affected by cancer | Previous place-frame as a premise; the “Hsuyuan Village” project; the Taihsi Gallery and photo projects about the place; the CE project |
| Place vision | Place survival: First to stop the Kuokuang Petrochemical Complex project, then to get state support to redress the health effects of air pollution (e.g. health examinations, environmental monitoring, reducing toxic pollutants) | Place renewal: to repair the functions of the community in economic and socio-cultural terms; to empower the residents to decide the future development for the community and place |
| Role of CE in the place vision | – | The first phase: as a symbol of change and action; a mechanism of institutional compensation for environmental injustice; a proactive rejection of financial patronage offered by fossil-fuel capital  
The second phase: a means of resuming the community’s subjectivity in place-making; as an income source for self-reliant social welfare projects to resist the socio-political changes induced by the emerging economic ties with the polluter |
mainly in its potential for facilitating an energy transition, but in its potential to deliver urgently needed hope for the damaged community to break away from a further lock-in to the socio-material entanglements with the fossil fuel-intensive industry.

**A village of cancer: Petrochemical pollution and environmental injustice**

In 2008, the state-endorsed, CPC-led Kuokuang Petrochemical Complex was sited on the coast just north of Taihsi. The Changhua County Magistrate and most local politicians associated with the nationalist party (Kuomintang, hereafter KMT) ardently supported the project in the name of economic development (Changhua County Government, 2009; Shih, 2012). In response, a former village head, his daughter, and their close friends initiated the Taihsi self-help group in 2009 in alliance with a nationwide movement (Chen, 2011; Huang et al., 2011; Tsai, C, 2012; Wu and Wu, 2011), which pressured the state and the CPC to halt the project in 2011. Afterwards, the key local campaigners initiated and participated in a series of campaigns to continually articulate their distress and to access more help.

The publication in 2013 of a photo book, *South Wind*, by an independent journalist and the former village head’s son was particularly influential (i.e. Chung and Hsu, 2013). The striking images and a collection of villagers’ stories narrating the environmental changes caused by the 6th Naphtha enabled for the first time a complete framing of the place as a victim of the petrochemical industry. This narrative was broadcasted by several media reports and gave rise to a series of follow-up activities, including several photo exhibitions between 2014 and 2016, a powerful “testimonial play” (Figure 3), and two health examinations and several studies which verified the abnormally high health risks in Taihsi (Chen, 2018; Jhuang, 2018; Lin, 2017).

![Figure 3. The “testimonial play” in Taishi in 2016 that enabled seven villagers to enact the traditional ways of living and culture in this place, narrate their everyday experiences of environmental degradation, and pinpoint the harms the 6th Naphtha has imposed on the place and their bodies. Their dress revealed their rural identity (as farmers or fishers). Photo by Hsu Cheng Tang.](image)
The place-frame of Taihsi in these campaigns was intrinsically centered on the community’s experiences of environmental injustice manifested in various forms and spatial terms. It depicted Taihsi as a rural village that was first deprived of its fair share of economic benefits and then subjected to a disproportionate burden of environmental costs resulting from the country’s rapid industrialization. This distributional environmental injustice was experienced as a sense of “disconnected geographies of responsibility and outcome” (Walker, 2009: 623). A recurring theme in South Wind was the unfairness of sacrificing the poor and vulnerable in this rural village for the rich and powerful living in cities. Equally frustrating for them was a disconnection between the people affected by the environmental harms and those invited into the decision-making arena. As one villager stated (Chung and Hsu, 2013: 18)

The Changhua County Government claimed the toxic air belongs to the jurisdiction of the Yunlin County and has nothing to do with it. But there is only one river between us and the 6th Naphtha. When the south wind blows, are you going to reason with the “air,” asking it not to come here because this place is in Changhua?

As the community was not institutionally recognized as a stakeholder until recently albeit its geographical proximity, the villagers were left with little access to information on associated health and environmental risks for more than a decade, while their lives were fundamentally changed without consent or government compensation. The fact that another mega petrochemical project was sited near the village showed that their distress was again systemically ignored. The distributional, procedural, and recognition-related injustices strengthened their place identity as a long-ignored victim of industrial pollution.

In addition to the “trivalent” dimensions of EJ (Schlosberg, 2004), the place-frame emphasized the injustice associated with the disruption of positive place attachment by detrimental environmental changes. The “economic development” narrative depreciated the place by attributing the socio-economic “underdevelopment” of this area to its geographical features and its reliance on agriculture, whereby the Kuokuang project was presented as an opportunity for “industrial transformation” (Hu, 2010). To counter this place stigmatization, the leading campaigner defended this place by calling it “the apple of our eyes, the place where we exist” (Huang, 2015: 102). The self-help group stressed place-related elements that illustrated positive human–environment relationships, including once-abundant ecological resources and the rural culture grown from the place-based practices over generations. Ignoring this positive place attachment was interpreted as spurning their ways of life. To verify the disruption of this positive sense of place, they highlighted the environmental harms associated with the 6th Naphtha, best demonstrated by the dramatical decline of watermelon cultivation and the glass-eel population. In this way, the campaign discourse challenged the competing place-frame by framing the petrochemical industry as the primary challenge for local development.

The disruption of positive place attachment was accompanied by “the pain or distress caused by the loss of, or inability to derive, solace connected to the negatively perceived state of one’s home environment” (Albrecht et al., 2007: S96). The transformation of the community’s relationship with the south wind best exemplified this feeling of “homesickness” despite being at home (Albrecht et al., 2007). This “wind of the hometown” that used to bring solace to the villagers with “the smell of land and river as heaven’s blessing” was replaced by a toxic odor associated with petrochemical pollution and became the source of their misery (Chung and Hsu, 2013: 183).
This deprivation was compounded by the pain of “getting stuck” in the place despite the environmental and health risks, namely “the financial, physical, social and cultural inability to physically escape environmental bads” (Schlosberg et al., 2017: 595). As a senior villager said, “we don’t know how to read and write; we can’t find an alternative way for living or leave the place. Now only the old people are left in the village, waiting for death” (Chung and Hsu, 2013: 17). This sentiment was strengthened in the place-frame by tales of the physical and economic vulnerability of several villagers suffering from cancer. One oft-quoted story in South Wind, for instance, illustrated the heavy psychological and financial burden borne by a poor villager who took his own life to ensure the economic survival of his family. This selection of place-bundles cast the village as a place in great danger, thereby legitimizing the campaigns against petrochemical pollution as necessary for its survival.

A village of hope: Community energy and place rejuvenation

Although this place-frame helped the community successfully obtain a degree of institutional recognition for their dire situation and much-needed resources to address it, in 2016 grassroots actors changed this place-frame in response to several socio-political challenges. On the one hand, the emphasis on the desperation of the village risked demoralizing the community, especially when they realized that politicians across levels had little capacity or political will to effectively reduce the pollution of the 6th Naphtha (Tu et al., 2014). On the other hand, the FP successfully wore off opposition in Mailiao Township, where the 6th Naphtha was located, after several explosions at the complex in 2010 and 2011. It strengthened the economic ties with local elites through donations and by outsourcing jobs to their companies and introduced several “philanthropic” initiatives in local communities, including a monthly electricity subsidy of 600 NTD (around 17.5 euros) per person and lunch programs at local elementary schools (Fang et al., 2019; Jobin, 2021). The financial patronage, which funded more than 80% of the township’s annual budget, transformed social relations between residents and the FP from one of “victims versus the polluter” to “beneficiaries and the sponsor” (Fang et al., 2019). It not only created a favorable political climate for the FP but also generated distrust in protests that were viewed either as futile or as co-opted by rent-seeking politicians and individuals (Huang et al., 2014; Lin, 2019). Consequently, local activism for pollution reduction was significantly weakened.

To avoid such a dependence relationship akin to “compensation traps” (Van Rooij et al., 2012), CE was welcomed by campaigners in Taihsi in 2016 as a way out of the political impasse. As the public health scholar who recommended CE to them explained, “the aim of renewable energies is to replace fossil fuels”—what would be a more meaningful means than a CE project for victims of petrochemical pollution to show their resistance to this fossil-fuel-intensive industry? Although it could not directly address the environmental problems, the initiator aimed to bring about epistemic emancipation by showing that there was possibility to enforce change. If change could be enacted by the vulnerable victims in this damaged place through the CE project, there would be no excuse for powerful actors, especially the 6th Naphtha, for failing to act to curb pollution.

Besides symbolizing the possibility of change and action, the CE initiative contributed to the community’s pursuit of EJ in at least two ways. First, the community could negotiate with the state to have the initiative sponsored as a form of compensation for their losses, which the initiator reckoned was a more timely and concrete way of ensuring justice for this damaged, super-aging community than filing a time-consuming lawsuit against the FP, as some victims in Yunlin County had done (see Jobin, 2021). Second and more significantly, the CE initiative could help the community resume agency in defining its future and the
relation with the petrochemical interests despite huge power asymmetry between them. As the organizer explained,

Taihsi Village does not receive the 600 NTD, but we can earn the money by ourselves through green energy. [...] Once you accept payment from the 6th Naphtha, you cannot ask it to do anything anymore; you will have no dignity.

Put differently, CE could strengthen the “autonomy” of this community, not in the sense of converting energy consumers into producers (i.e. autonomy from the electric utility) but in the sense of transforming the helpless victims at the mercy of the polluter into self-respecting citizens who could sustain themselves with income generated in environmentally friendly ways (i.e. autonomy from the polluter). Crucially, renewable energies here were not taken merely as technologies or economic assets in contrast to the 398 smokestacks in the 6th Naphtha. Rather, they represented an opportunity for the community to resume its subjectivity in “sustainable place making” (Slee, 2020: 164) by establishing more self-reliant socio-material relations in the place.

The symbolic meaning of CE supported a change in Taihsi’s place-frame: from a village dying of cancer to a village in hope of rejuvenation. Media reports on the initiative and several concomitant activities organized by key grassroots actors and external supporters helped shape the new place-frame. The slogan of the green energy camp co-hosted with local and national NGOs, for instance, was “from a place of petrochemical pollution to a village of hope via green energy.” The leading grassroots actors also linked the CE project to other community projects in Taihsi, such as the “Hsuyuan Village” project (hsuyuan means “making a wish” or “the Hsus’ wishes”) by using solar energy in the religious practice of lighting up the “guanmingdeng” in the Hsienjung Temple and the Taihsi Gallery established by the organizer in 2018 to revive local culture and to strengthen the sense of community. In these place-making efforts, place-based struggles and the previous place-frame were invoked to strengthen the value and legitimacy of the CE initiative.

Similar to many CE projects aiming for rural development, the Taihsi CE initiative was “motivated by a desire for community survival, empowerment, and autonomy” (Bomberg and McEwen, 2012: 441), in which stable income generation through CE plays a pivotal role. To provide an alternative to the FP’s financial patronage, the organizer designed this initiative to fund bottom-up social welfare projects that strengthened the community’s socio-economic capabilities and chances of survival despite the political deadlock and lack of government funding for the village (Hsu, 2018). The income could be used to upgrade local infrastructure customized to improve the residents’ lives, such as free charging stations for electric bicycles and electronic homecare monitoring systems. Moreover, the profit could serve to enhance the community’s engagement and confidence in the initiative, since ideals like “citizen-based energy transitions” had little selling power to this deprived peasant society in comparison to tangible benefits. It could also incentivize local participation in social learning activities designed to boost community cohesion, such as discussing what residents wanted to do with the income to make Taihsi a better place.

Consequently, the organizer chose to establish a “B corporation” that stressed both profit-making and social objectives, rather than a social enterprise or co-operative that is often the preferred choice of CE advocates and scholars due to their democratic feature (Becker et al., 2017; Jeong et al., 2012). Counterintuitively, the “one-member-one-vote” principle of co-operatives was unpopular among some of the local shareholders, who regarded it as “unfair” and demanded a corresponding return on the hard-won money they invested. Moreover, underpinned by existing social networks and a spirit of resistance
commonly found in CE projects (Simcock et al., 2016), the leadership of a single individual (i.e. the organizer) had circumvented tensions among participants and concerns over elite domination that often arise elsewhere (Forman, 2017). Local participants of this initiative, mostly elder villagers who formed the self-help group along with the organizer’s father in the anti-Kuokuang movement, entrusted him with most of the planning, implementation, and decision-making activities. In so doing, they were exempted from taxing technological and tedious administrative tasks, while still being able to discuss the project with the organizer through daily conversations. This seemingly “undemocratic” way of management was deemed suitable for local socio-economic conditions, cautioning against formalist, essentialist assumptions about the forms and principles of CE.

The hope to rejuvenate the place via CE, nevertheless, had been increasingly challenged by the permeation of the petrochemical interests in the community and local politics. The lack of economic resources for competition created a peaceful political climate within the community when the initiative was launched. However, perceivable socio-political changes had been taking place after the FP in 2017 launched a series of “philanthropic” programs in Dacheng that included allocating a grant of approximately 50 million NTD (around 1.47 million euros) to the township office and organizing free trips for Taihsi villagers to the 6th Naphtha. Moreover, the Kue-á-born, pro-Kuokuang township council chair started to expand his political power in the community by helping his preferred candidate takeover the Hsienjung Temple committee in mid-2018, on the one hand, and by mimicking the anti-pollution campaign by leading a few local protests in 2019, on the other (Yen, 2019; Zhong and Tsai, 2019). Both helped strengthen his bargaining power with the FP. Villagers who benefited from or found contingent employment in the 6th Naphtha partly because of his coordination became silent about the pollution, confirming leading grassroots actors’ concerns over the emergence of a Mailiao-like symbiotic relation between township-level politicians and the FP.

The Taihsi CE initiative was hindered by this socio-economic reconfiguration that it aimed to resist. It became difficult for the organizer to enroll shareholders and to find sites for installing PV facilities in Kue-á, where the attitude change was most notable. Moreover, the change of the Hsienjung Temple’s leadership led to a surprising dispute in late 2018 between the new chair and the solar company who had donated and installed the roof PV system (see Figure 4). Consequently, the organizer had to keep a low profile in heading the CE initiative to navigate local political dynamics, and worked mainly with private resources provided by shareholders within and outside the community before the project could rival the FP’s economic ties.

Given the politico-economic power asymmetry between the grassroots actors and the FP, the chance to realize their hopeful vision of rejuvenating the “village of cancer” without falling prey to the economic dependence on the polluter would hinge on obtaining sufficient extra-local support for the CE project.

**When place vision encountered energy transitions agenda**

As Creamer et al. (2018: 8) stressed, CE is “unavoidably entangled with a range of different actors and institutions operating at and across scales.” In the case of the Taihsi CE initiative, this assemblage of external actors included local and national environmental NGOs, sympathetic scholars, solar companies, experts in energy-related agencies, and the electric utility. Some of them, especially environmental activists and the public health scholar, had built trust and forged friendships with leading grassroots actors by campaigning together in the anti-Kuokuang movement. They helped mobilize actors in government agencies and the
private sector through interpersonal and political networks to obtain various forms of assistance, including co-organizing events, donating facilities, and offering technical and legal advice.

Engaging the state: Citizen energy or community energy?

Grassroots actors strived hardest to engage with the state, especially central government institutions, not only because it possesses more resources and power than other actors to address the difficulties they encountered but also because it was deemed responsible for creating and perpetuating the community’s distress. Despite abundant wind, sunshine, and fallow land ideal for developing wind and solar energies, the overall built environment in Taihsi could hardly reach the regulatory requirements. Consequently, the first phase of the initiative was dedicated to negotiations with several central government agencies about the possibility of financial support and regulation relaxations.

The demand for state financial support instantiated an implicit discrepancy between the EJ-based place vision upheld by grassroots actors and the agenda for public participation in energy transitions pushed by CE advocates in government agencies and NGOs. Many pro-renewable-energy activists and scholars had worked very hard to persuade the state of the need for public engagement in energy transitions in addition to its emphasis on large-scale, firm-led initiatives to boost renewable energies’ share in the energy matrix. Some of them expressed concerns about the latent adverse impacts of the Taihsi actors’ ardent political lobbying for this single case on government agencies’ perceptions of CE, which could render their advocacy attempts difficult. Moreover, they saw the grassroots actors’ demand for “top-down” funding as at odds with the “bottom-up” character of CE. Instead, they
suggested public fundraising as the more appropriate way to secure funding, which not only was the primary source of funding for most NGO-run CE projects in Taiwan, but was also celebrated as a key example of civic participation.

While this suggestion was perfectly in line with the notion of citizen-based renewable energy projects, it was dismissed by the grassroots actors as totally missing the point in their pursuit of justice. The initiator wondered: “why are they asking other people to donate? [...] if you believe that Taihsi Village should be compensated, shouldn’t it be the government who pays?” For them, the stress on citizens’ lead in financing CE in Taihsi’s context in effect could be covering the government’s failure to discipline the petrochemical industry. Consequently, they insisted that government investment in the initial stage was crucial for starting up the CE project. Moreover, the organizer reckoned that getting central government on board could help avoid internal objections by enhancing the initiative’s commonality, credibility, and feasibility to community members, whereas public fundraising and corporate sponsorship might cause unhelpful conjecture about the leading actors’ and sponsors’ motivations. Paradoxically, engaging the state became a strategical necessity rather than an antithesis to public participation in Taihsi’s socio-political context.

The tension between the two perspectives, one citizen-oriented and the other place-based, illustrates a need for critical reflection on the conceptualization of CE. CE advocates and policymakers in Taiwan often subsume place-based CE under the general term “gongmin dianchang” (citizen power station), whereby they tried to maintain “a flexible space” that could encourage originitative experimentation and the formation of a discourse coalition (Walker and Devine-Wright, 2008; Walker et al., 2007: 76). As the term “gongmin” (citizens) suggests, they tended to regard grassroots actors as rooted in the abstract realm of civil society, rather than as situated in relational spaces resulting from specific geo-histories. Place specificity was less of a concern for several NGO-run CE projects which could recruit citizens all over the country as investors and “rooftop lessors.” Thus, when performing an “intermediary role” that translates local experiences into knowledge of and policies related to CE (Hargreaves et al., 2013), they tended to downplay site-specific needs and objectives that were at odds with the preference for a replicable model.

By contrast, for the grassroots actors in the Taihsi CE initiative, the distinction between the notions of “citizen” and “community of place” was crucial. By describing the project as “typically community-based,” they prioritized the vision of reviving the community over the external agenda of civic participation in energy transitions. As the initiative was just a means to achieve the place vision, it would lose its meaning to the community if site-specific needs and ends would have had to be sacrificed for the purpose of the geographical expansion of CE. The place specificities, including an aging population with limited economic capabilities and low levels of education, were not to be sidelined. Instead, they were the daily reality that consumed most of their energy in the search for a suitable site and a shareholder. For them, “localization” and “public participation” in CE entailed not merely a decentralized energy system in which citizens participated through public fundraising or rooftop leasing, but rather involved embedding CE in local socio-economic relations in ways that could create positive “social values” for the community.

The implication of these differences for understanding and promoting CE is profound. They not only reflect the tension between the particular and the general, or “local-global dynamics” in transition literature (Coenen et al., 2010; Geels and Deuten, 2006; Geels and Raven, 2006). They also reveal a potential hierarchy between different forms and imperatives of CE in advocacy and policymaking that prioritize national-level energy transitions over the place visions of host communities (Slee, 2020; Van Veelen, 2017). This indicates several pitfalls of the CE-for-energy-transitions framing in knowledge production in Taiwan
and in general that deserve critical reflection from a place-based perspective. Despite some awareness of place differences among CE advocates and scholars in Taiwan, there is an inherent tendency in the objective of upscaling and replicating CE across places to downplay these differences so as to highlight the universality of CE. Moreover, the catchall concept of CE, albeit helping public mobilization, runs the risk of obscuring the divergence between projects focusing on civic participation and those emphasizing community of place, thereby overlooking the different needs and challenges for the development of the latter.

**CE and justice in a relational space**

The seemingly fundamental divergence between the place-based and citizen-oriented objectives and practices of CE also has significant implications for energy justice from a relational and spatial perspective.

Taiwan’s CE campaigns and policy discourses have paid some attention to socio-economically disadvantaged groups, including communities in “remote areas” (townships with a registered population density less than 20% of the national average). Despite receiving much external help, the grassroots actors in Taihsi expressed their frustration with the underestimation of the challenges facing the community. For instance, the pioneer subsidy scheme for CE projects functioned as a compromise between the grassroots actors’ demand for government financial support and the goal of the geo-historical expansion of CE. While enabling the second phase of the Taihsi CE initiative, it nonetheless showed the government’s reluctance to directly compensate the victims of petrochemical pollutions as several local informants had hoped for.

The grassroots actors pointed out two additional hindrances in their pursuit of justice through CE. First, the conventional conceptualization of CE reveals a potential urban, middle-class bias, which risks overlooking structural challenges facing marginalized rural communities. “When they were defining *gongmin dianchang*, they forgot that the cost of the renewable energy installation, in whatever form, is high,” the project initiator commented. “It involves a certain expertise that can only be obtained if you’re above a certain class. And the high initial costs will produce further class differences.” For these grassroots actors, the Taipei-based advocates and policymakers not only underestimated the longstanding socio-spatial inequality that constrained the community’s ability to implement CE but also unintentionally reproduced the social hierarchy. The fact that they tended to consider their perceptions and implementations of CE (such as through co-operatives and public fundraising) universally applicable and desirable suggests insufficient awareness of their own positionalities that differed significantly from many residents in this disadvantaged community.

Additionally, the CE advocates and policymakers had devoted their attention to democratizing the process of a nationwide energy transitions and to addressing political challenges from pro-nuclear interests. Although important and urgent in themselves, these focuses limited their sensitivity to other transformative politics facing marginalized rural communities, such as resisting the emerging alliance between local politicians and petrochemical interests. Consequently, their goodwill of promoting participatory energy transitions was not sufficient to ensure the recognition of grassroots experiences and objectives in carrying out CE that differed from their own. Given the fact that they were often over-burdened by engaging in the complex politics of energy transitions and other tasks, a spatial and relational analysis of CE is thus vital for the intermediary and institutional actors to bridge these cognitive gaps and to provide measures that can truly support grassroots actors in divergent contexts.
Second, the grassroots actors identified a tendency of the state to underestimate the social value of the CE’s profits for a disadvantaged community. For instance, the BOE provided few price bonuses applicable to the Taihsi CE initiative in the feed-in tariff (FIT) system and viewed the profits of CE projects as an alternative to “bank interests” rather than as returns on investment. These institutional barriers limited the income generation of the Taihsi CE initiative which was pivotal for achieving the EJ-based place vision. They represented a form of “institutional injustice” to the organizer: “You thought that it would have been fair, but I still experienced injustice.” For him, this revealed the government’s passive understanding of its role in coordinating the more equal distribution of resources to develop CE in disadvantaged communities. These opinions, however, tend to be ignored in public meetings on price setting where the focus was on business actors and the economic efficiency of the FIT. This observation, along with high traveling costs, discouraged him from further attending these meetings in Taipei, where Taipei-based CE advocates became the voice of CE.

Such procedural disadvantages in establishing CE strengthened, rather than eased, several grassroots informants’ feelings of marginalization and powerlessness arising from longstanding environmental injustices, as their needs for place revival were again sidelined—this time for the promotion of nationwide energy transitions. It is thus important for policymakers to adopt a perspective that appreciates beyond-energy values of CE to a disadvantaged community. In cases where grassroots actors deploy CE to address broader injustices, distributional and procedural inequality can emerge if these site-specific challenges and visions remain under-recognized.

Conclusion

Using a relational place-based approach, this paper seeks a more grounded and proactive engagement with dynamic site-specific contexts to investigate how CE initiatives emerge and develop. Instead of understanding CE as civil society-led initiatives subsidiary to national energy systems, I ground CE in a community of place entangled with geo-historically produced challenges. In the case of Taihsi, the CE initiative arose from the community’s resistance to environmental injustice related to petrochemical pollution and was envisioned by grassroots actors as a means of creating self-reliant social-material relations alternative to that dependent on the polluter’s financial patronage. The focus on these site-specific framings of CE revealed a likely tension between two objectives regarding this CE project: the principle of civic participation assumed by CE advocates and the EJ-based place vision upheld by the grassroots actors. This finding suggests a need for critical reflection on the tendency to decontextualize CE in advocacy and policymaking processes, which may unintentionally increase the injustice experienced by disadvantaged communities by underestimating the challenges and intrinsic values of CE in these socio-economic contexts.

This paper contributes to CE studies by shifting the focus from “energy” to “the community” of place. It testifies to the need for differentiating the frequently conflated place-based CE and citizen-oriented CE (Slee, 2020; Van Veelen, 2017), and further associates it with the propensity of many energy-centric CE studies and advocacy efforts to prioritize the imperative of democratizing energy transitions over the place-based objectives of the grassroots practitioners and beneficiaries of CE. Such potential priority conflicts deserve more attention in knowledge production and policymaking, as the failure to do so may not only compromise the efficacy of policy support for these initiatives but may also reproduce socio-spatial inequalities on the ground. A relational and spatial analysis that unpacks the situated meanings and values of CE can help advocates and policymakers
bridge discrepancies between different priorities to really achieve a win-win outcome where participatory energy transitions and broader social transformations are balanced.

Moreover, this paper demonstrates that seemingly fairer distribution of profits gained from environmental externalities (such as “philanthropic” programs provided by the polluter) can perpetuate environmental injustice by depriving the affected community of the subjectivity in place-making, to which CE as a grassroots attempt to reconstruct the socio-material relations of a place through green energy offers a hopeful solution. As CE projects often aim to address place-based injustice beyond the energy system, enhancing justice through CE requires widening policy attention from energy issues (e.g. energy poverty) to the broader politico-economic marginalization of a disadvantaged community, so as to support grassroots actors without reproducing structural inequalities they have experienced. The Taihsi CE initiative may not be widely replicable and thereby able to increase civic participation in energy transitions, but it presents CE’s potential to support the resistance of victims locked in old injustices of the fossil-fuel-driven “system of sacrifice” (McCauley et al., 2019; Takahashi, 2014), which is equally essential to enable a just low-carbon transition.

**Highlights**

- Explores the nexus between community energy, environmental justice, and place with a relational spatial perspective
- Shows the tendency and pitfall of downplaying grounded meanings and values of community energy in the advocacy for participatory energy transitions
- Advances the reflection on conflating place-based and citizen-oriented community energy projects

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Notes

1. The village head, who the initiator recruited in the CE project from the beginning, has occupied this position for almost three decades, whereas the Hsienjung Temple committee had distanced itself from local politics over the past decade.

2. While elected representatives addressing the unequal distribution of environmental harms and benefits facing the township seemed a welcome move, the leading anti-pollution campaigners expressed their suspicions about their opportunistic motivations, which was indirectly verified by the detention of both the township mayor and council chair in mid-2020 over charges of extorting money from cable construction companies by threatening to initiate local protests against and send thugs to these companies (Chen, 2020).

3. According to local estimations, one-third of the community members—often associated with the township council chair’s socio-political network—no longer vocally opposed the 6th Naphtha in early 2019; the proportion increased to around one-half by early 2020.

4. Possibilities for building large-scale wind turbines on the riverbank significantly declined by the mid-2017 due to regulatory and financial difficulties. Rooftop PV systems could be installed only at a few houses in the village, as many of the local houses were either too old and fragile or unlicensed due to being converted from farmhouses or built before the regulation was implemented. Despite several villagers’ willingness to lease their fallow farmlands, ground–mounted PV systems could not be widely installed either, because agricultural land here was not allocated for renewable energy installations, even though it was in an area of severe land subsidence (COA, 2015). Moreover, common in the rural areas, many houses and farmlands were jointly possessed by multiple owners, which significantly increased the administrative cost of utilizing these sites.

5. Ironically, Dacheng Township did not meet this criterion, partly because this measure is based on “registered” population rather than the “actual” population. It is classified as a “relatively disadvantaged” area according to other official measures (for instance, see NDC, 2020).

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