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Communities of place vs communities of interest in the United States: Citizen information and locally unwanted land uses in EIA

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1. Introduction

A great deal has changed in the 50 years since the signing of the U.S. National Environmental Policy Act (NEPA) by President Nixon in 1970 (Council on Environmental Quality, 2020). Diffusion of Environmental Impact Assessment (EIA) practices developed under NEPA has been broad, with 191 countries utilizing legal instruments referring to EIA (Morgan, 2012). International adoption of mechanisms for public participation have increased with the Rio Declaration (1992) and Aarhus Convention (1998).

In concert with the evolution of EIA, there have been dramatic changes in the context in which EIA has been applied. The global population has more than doubled from 3.68 billion in 1970 to 7.68 billion in 2020 (World Bank, 2019; US Census, 2019). Swelling populations have contributed to increased urbanization as over half of the global population lived in urban areas in 2018 (United Nations, 2018). Urban sprawl and expanded agricultural output have been associated with significant land-use changes (Ritchie and Roser, 2020). In many cases, conflicts about these land-use changes have been mediated by EIA processes (for transportation, see Johnston, 2004; for urban growth boundaries see Seltzer, 2009; for China see Tang et al., 2008).

The last 50 years have also seen a fundamental change in how international development is measured. Indicators for internet access and digital development now accompany urbanization, agricultural output, and population measures. Consider that at the 25-year anniversary of NEPA only 14% of US adults had internet access while suffering slow dial-up modem connections (Fox and Lee, 2014). In contrast, by 2019 broadband internet access had reached 90% in the US and 57% globally (Pew Research, 2019; International Telecommunications Union, 2019). While the global broadband number is lower than in

developed countries, nearly the entire global population lives under mobile network coverage.

These structural changes to society have fundamentally changed EIA. Higher standards of living and population increases have increased concerns by segments of the public who might not engage in an EIA for a locally unwanted land-use 50 years ago. Furthermore, access to information technologies has dramatically changed the nature of public participation in environmental issues as social media and digital advocacy have broadened citizen participation (Hestres, 2015).

Increased public participation has accompanied a better understanding of the effects of land use changes contributing to global climate change. Whether or not a project is in the broader public interest is a question that is moving beyond the project proponent's definition and into the deliberative and fact-finding processes related to EIA, especially around climate change impacts. The divisive nature of fossil fuel projects and environmental non-governmental organizations' (NGOs) opposition to them, provides little to no middle ground in EIA.

In addition to climate concerns, the increase in digital or electronic participation has further broadened the spatial scale of participation, where large-scale protests engender regional as well as local political conflicts. Due to the increased capacity of the public to participate in politics via the internet, lead agencies are having to adapt to a larger volume of public participation (Moxley L., 2016). Environmental NGOs involvement in the EIA process, and their large internet-mediated membership, gives the public easy access to information and pathways to participation (Wang et al., 2019). Consider that the environmental impact statement for the Keystone XL pipeline in the US received 1.9 million comments that took the State department over 3 months to respond to (US State Department, 2014; Volcovici, 2013). The increased delays from integrating the public comments from large-scale participation in EIA are also likely accompanied by increased scrutiny by stakeholders of the EIA scoping documents and impact assessments. As a locally unwanted land use (LULU) becomes more salient and at-

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tracts greater attention, stakeholders are likely to more closely examine the assumptions and findings in the EIA.

This research analyzes this type of widespread public participation and its impacts on EIA project outcomes. Following a brief literature review of public participation and the functions of the information it provides in Section 2, the types of decision-making associated with local and regional citizen participation are discussed. Section 3 describes the three different sources of data used for the analysis. Section 4 shows the results of the analyses of the interactions between citizen beliefs and participation at varied spatial scales and subsequent project outcomes. Section 5 concludes with implications for EIA theorists and practitioners.

2. Theories of citizen participation

In applications of EIA to LULUs, citizen participation has been perhaps unfairly categorized as narrowly selfish in order to protect residents' backyard (Schively, 2007). While these Not-In-My-Backyard (NIMBY) dynamics vary on a case-by-case basis, a better theoretical and empirical understanding of the different types of citizen participation can benefit EIA theorists and practitioners alike. Public participation has been linked to a host of normative benefits including democratic governance and changing the locus of decision making (Glucker et al., 2013; Beierle and Cayford, 2002). Many of the potential benefits from public participation are not realized in EIA because public participation is designed to be consultative to agency decision making.

EIA utilizes a managerial decision-making framework, and does not share decision making with stakeholders, unlike more collaborative processes such as stakeholder councils (Ansell and Gash, 2007). The EIA goal of "decision aiding, rather than decision making" limits the ability of citizen participation to impact decisions except when participation changes the values or political calculus of decision makers (Jay et al., 2007). This research considers the instrumental aspects of citizen participation; specifically, the type of citizen participation and the impacts that information has on decision makers. O'Faircheallaigh (2010) posits there are three instrumental functions from citizen information provision. These three functions provide a template for categorizing the information from citizen comments:

1. Providing missing or overlooked information for the project or its possible impacts. This category includes citizen requests to include the cumulative impacts of the project that could include climate change, ecosystem degradation, as well as air and water quality impacts.
2. Contesting knowledge that project scoping document developers believed to be appropriate for the siting project. This includes information to change the benefit-cost tests performed for the project, especially the need for the project developed by the project proponents. Contesting knowledge also includes positing different evaluative criteria such as non-monetized cultural values associated on impacted lands.
3. Providing social learning by providing innovative solutions that were outside the alternatives developed for the siting project. In these cases, local knowledge and ideas provide innovative solutions to reduce impacts and solve problems associated with the project.

These three types of information provide important inputs for decision makers. Setting out the various categories for which comments can be categorized allows generalizations to be made about how citizens at different spatial scales understand unwanted land uses. This framework also allows inferences to be made about how the information affects the decisions made by EIA administrators and decision-makers.

2.1. Citizen opposition

This research analyses citizen opposition only, and not citizen support for a LULU. This assumption is based on the fact that the vast majority of citizen comments in LULU projects are oppositional; hence opposition is the dynamic to be explained. The creators of NEPA realized this. Participants in EIA are labeled as "objectors" (US Code and Public Law, 2017). Objectors include members of organizations as well as individuals. Social science theory and data backs this up. Citizen attitudes in a community about a LULU can become dominated by opponents due to a "spiral of silence" by supporters (Noelle-Neumann, 1993; Mannarini et al., 2015). The result is that supportive citizen comments do not get submitted in the EIA process. In the data set described below, supportive comments tend to come from employees in the industry, firms sponsoring the project, and local leaders concerned with economic development. Aside from these groups, supportive citizen locations were typically not proximate to the project in question and were submitted at ratios of 1:50 compared to oppositional comments.

2.2. The value of local knowledge: communities of place

The analysis now turns to the location of citizen opposition. There is considerable support for the concept that policymakers and public managers obtain legitimacy for their decisions through public participation. Legitimacy is defined as, "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574). For Wondolleck and Yaffee (2000), legitimate law stems from deliberative politics with substantive public input. Thus, procedures that engage citizens provide input legitimacy for EIA decisions. This strand of theory that considers citizen knowledge as a means to evaluate alternatives is consistent with the rationalist decision theory foundations of EIA (Hall, 1982).

Is it possible that local citizen comments possess more input legitimacy than comments from citizens in distant locales? Locals' comments represent the "Community of Place": citizens who live in a specific geography with some sense of community. A sense of community here is defined as people with a common feeling of membership to the place, an emotional connection to the place and their neighbors, and social norms about appropriate behavior (Cochrun, 1994).

Information from a community of place satisfies long-held notions of the preference for local over non-local decision making. The European Union talks about this in terms of subsidiarity, and in the US is discussed as devolution or decentralization (Bermann, 1994). Communities of place provide local knowledge defined as "knowledge about a local context or setting, including empirical knowledge of specific characteristics, circumstances, events, and relationships, as well as the normative understandings of their meaning" (Fischer, 2000, p. 146). Community-based organizations (CBOs) potentially bring legitimacy because they represent identifiable communities (Edwards, 1999) and act effectively where states might not (Collingwood, 2006).

In summary, local knowledge is perceived to be required in order to provide the above instrumental benefits from information provision in EIA processes. The impacted communities are able to articulate their critical values, overlooked information, and to be able to effectively provide solutions to mitigate project impacts. For these reasons communities of place are recognized as a distinctive type of public participation within this proposed framework.

2.3. The value of regional knowledge: communities of interest

In addition to a community of place, citizen project information can also originate from a community of interest. A community of interest in this context are citizens who are members of an organization or network of other citizens with a common goal of learning as well as an understanding of how the organization is acting. Communities of interest are able to share information and strategies despite being geographically dispersed (Wang et al., 2019), and this sharing of information and collaboration provides an added strength in their ability to achieve common goals within the communities of interest. It could be argued that the activist members of environmental or social justice NGOs that oppose LULUs could be defined as "Communities of Practice", that are defined as "informal groups and networks that create opportunities for knowledge exchange" (Li et al., 2009). Defining activists as communities of interest instead of practice meets a lower bar for the amount of learning that occurs by members about the project, its potential benefits, and social and environmental externalities. Future research can help with the categorization question by measuring the extent of learning by NGO network members. Significant learning would imply a Community of Practice instead of a Community of Interest.

Membership-based environmental NGOs like the Sierra Club are the most common type of community of interest through which citizens outside the impacted communities participate in EIA. Membership-based NGOs like the Sierra Club have state "chapters" that advocate for issues based on what matters to local members and leaders (Sierra Club, 2020). Ecological and environmental justice groups develop a common understanding of the "objections" and strategy for an EIA. Group members realize that electronic or in-person advocacy is required to influence the project. Membership-based NGOs with significant online advocacy realize that climate change mitigation requires social change and tactics beyond armchair activism (Hestres, 2015).

These NGOs often partner with each other in coalitions to oppose headline projects. One such coalition claims it delivered 275,000 objections on the Tesoro-Savage oil-by-rail and export terminal in Washington state (Stand up to Oil, 2016).

Membership-based NGOs attempt to bring missing and contested information into the EIA to create narratives of the project being not needed, creating irreparable harm, or not meeting EIA process requirements. These narratives shape how individuals perceive the risks to the community and trust in the project sponsor (Devine-Wright, 2009; Gross, 2007). Membership-based NGOs can bring considerable technical information to EIA. In addition to 750,000 members, the Sierra Club claims to have a staff of 600 lawyers, scientists, and other employees and an annual budget of nearly \$100 million (Sierra Club Foundation, 2018).

Engagement by communities of interest can shift the role of citizen participation in EIA decision theory from the rationalist model (Taylor, 1998) to a negotiations framework (Leknes, 2001). In these cases, mass participation alters the structures of decision making. Institutional priorities can shift to become more responsive to citizen concerns (Jay et al., 2007). However, this often requires local or regional social movements that are perceived by elites as being able to mobilize a critical number of citizens-as-voters. In these cases, EIA becomes less important, as backroom deals, electoral politics, as well as lawsuits decide whether LULU projects proceed (Jay et al., 2007).

2.4. Communities and project outcomes

Given the premise that information from community of place can affect decision making differently from information from communities of interest, this research next links information type with project outcomes. Fig. 1 shows how these two types of comments (place and interest) generate the three types of information (missing information, contested knowledge, problem solving). (See Table 1.)

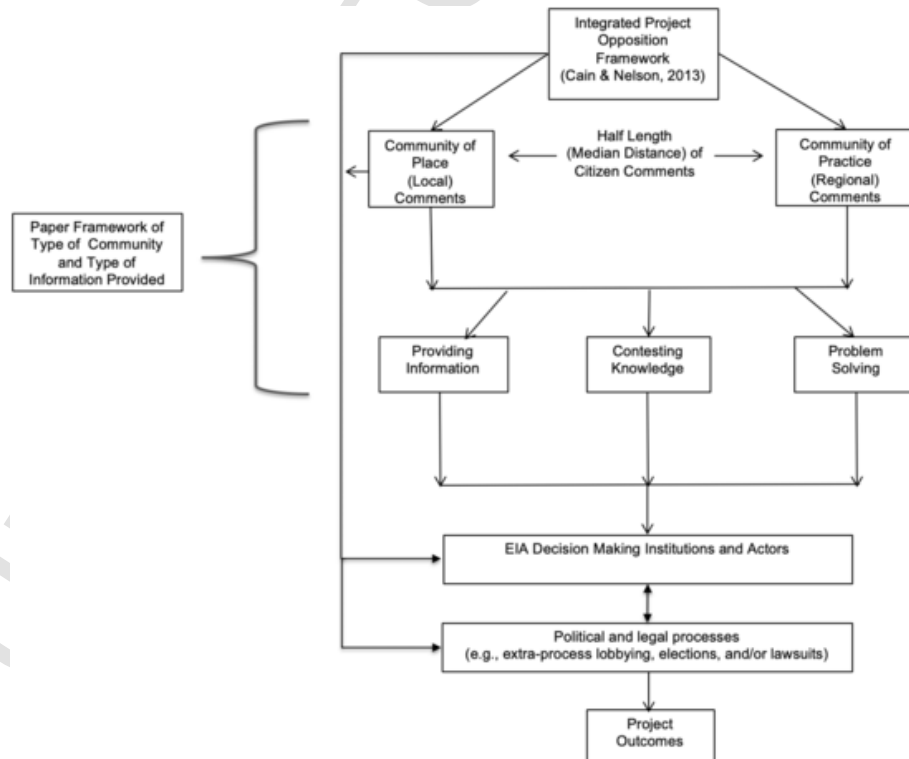


Fig. 1. Framework of type of community and information in EIA structures.

Table 1
Project data. See source information above.

Project name	Type	U.S. location	EIA dates	Lead agencies	Project size	Outcome
Alberhill	Electricity substation	Southern California	2007–Present	California Public Utilities Comm (CPUC)	500/115 kiloVolt	On Hold
Carty II	Natural gas electricity generation	Eastern Oregon	2018–2018	Oregon Public Utilities Comm	330 MegaWatt	Denied
Constitution	Natural gas pipeline	New York	2012–2017	FERC/New York DEQ	76 cm 200 km	Denied (by New York state)
Ocotillo	Wind farm	Southern California	2009–2012	US BLM/CPUC	94 turbines (137 proposed)	Approved with modifications
Tesoro	Crude-by-rail Terminal	Washington State	2013–2018	Washington Energy Facilities Siting Council	360,000 barrels / day	Denied
Tule I	Wind farm	Southern California	2009–2016	US BLM/ CPUC	62 turbines (128 proposed)	Approved with modifications

EIA is nested within larger regional and institutional structures and actors that will interact to shape project outcomes. As indicated in the brackets on the left side of Fig. 1, this paper focuses only on the type of community and information provided and their impacts on project outcomes (bottom). Readers interested in those larger structures should consult (Cain and Nelson, 2013) who state, “Although individual opposition is a necessary ingredient, without social interaction and resources, and a conducive institutional setting, it will probably not be sufficient to stop a large-scale project” (p. 212).

The EIA process is one of those institutional factors. The stakeholder management process for EIA managers is likely to be much different, and requires different types of resources, if comments are largely from local versus regional communities. The administration of projects where the key driver of opposition is the perceived risk of the project is going to be much different than when opposition is triggered by a lack of trust in the project sponsors, and / or perceptions of process unfairness (Nelson et al., 2018).

EIA processes that are perceived as procedurally unjust can trigger strong citizen opposition or result in direct actions that extend past the EIA. Consider the 2020 Mohawk rail protests against the Coastal Gaslink project in Canada that are capturing international attention (CBC, 2020). Gaslink's draft EIA received very few citizen comments in 2013 (Environmental Assessment Office of British Columbia, 2013). Current opposition to the project stems from the EIA approval that didn't recognize Wet'suwet'en (a First Nations people of Canada) hereditary chiefs, but rather the band council leadership, who are posited to not have decision authority outside of their reserve boundaries. Because of perceived flaws in relating to First Nations, British Columbia “revitalized” its EIA process in 2018 (Environmental Assessment Office of BC, 2020). Protest movements that extend beyond EIA processes perceived to be unjust have the potential to exacerbate existing tensions between stakeholder groups long after an EIA's formal conclusion.

3. Materials and methods

To analyze the effect of the types of citizen comments on project outcomes, three different data sources were utilized. The first requires a method of categorizing comments into emanating from communities of place or communities of interest. To delineate this boundary requires geo-coding both the citizen addresses and project locations and measuring the distance between them. This spatial methodology uses geographical information systems as a tool of “the science of where” to better understand socio-ecological systems (Vardan, 2017).

3.1. Locating citizen opposition using historical EIA data

To identify the localness of a LULU, the concept of *half-length* is used. Half-length is the distance from the LULU that encompasses half of the number of comments and is measured as the median distance in kilometers (Nelson et al., 2021). This is equivalent to temporal half-life associated with radioactive substances (Kocher, 1981) and pharmacology (Boxenbaum and Battle, 1995). The smaller the half-length (median), the more localized is the citizen opposition.

To develop the half-length measure, historical citizen comment data on six controversial energy projects were collected (Alberhill-California Public Utilities Commission, 2019; Carty II-Oregon Department of Energy, 2019; Constitution-Federal Energy Regulatory Commission, 2014; Ocotillo-Bureau of Land Management, 2011; Tesoro-Washington Energy Facilities Siting Council, 2014; Tule-Bureau of Land Management, 2010). The project data are shown below in Table 1:

The sample was selected based on the level of citizen opposition to the energy facility, not on the project outcome, to mitigate any potential bias in inferences caused from the sample selection (Freedman, 2003) Five of the energy projects were located in California and the Pacific NW (the main sample frame) and were identified using Google News searches for the energy technology (eg wind) plus “controversial” “citizen opposition” “comments” and other terms. The search did not return results for controversial pipeline projects in the Western United States which was the main sample frame. As a result, one natural gas pipeline in New York/New Jersey was randomly chosen from the top 10 pipelines with the most comments the Federal Energy Regulatory Commission's (FERC) database of pipeline projects. The screening criteria for the sample frame from FERC was that interstate pipelines had to have generated 1300 or more citizen comments.

Public records from the EIA provided the citizen comments about each project. Not all projects required citizens to provide addresses at each opportunity for public comments (public scoping, draft EIA report, final EIA report, etc.), so the comments are not necessarily reflective of opposition at all stages of the project. Also, the results include only opposition comments. Not all projects were coded with a field for supportive comments versus opposition comments. However, supportive comments were only about 1.6% of the total, and were from citizens who typically resided far away from the project they commented on.

The longitude and latitude of each valid citizen street address submitted as part of the facility siting process was geocoded. There was no way to confirm if a citizen lived at a submitted address. But if it was a fake address, then it would not have been able to be geocoded and therefore not included in the analysis. Out of 4834 addresses from pub-

lic comments, 4329 were successfully geocoded at a 89.6% success rate for locating latitude and longitude. For the few P.O. Box addresses that were submitted, the centroid of the zip code was geocoded. The near-distance function in ArcGIS estimated the Euclidean distance between each citizen and the project and was used to calculate proximity. Each project's attributes determined its exact location: For polygons such as the Alberhill substation, the distance to the project boundary was used. For wind projects, the nearest wind turbine to each citizen was used to generate each citizen distance. For linear projects including the pipeline and the crude-by-rail project, the nearest section of the line to each citizen was used to estimate distance. Fig. 2 shows the research process for the historical siting data.

3.2. Identifying citizen objections using survey data

The second data element was identifying citizen concerns based on their proximity to the project. Survey data collection was used to identify concerns by distance. The dataset consists of citizen responses to an online survey of approximately 100 questions. The surveys started in January 2018 and closed February 2019. There were two groups of citizens surveys. First, citizen names and email addresses were collected from the public record of citizens who participated in the EIA process (n: Alberhill = 938, Carty II = 4790, Constitution = 440, Ocotillo = 351, Tesoro-Savage = 877, Tule = 122) for a total of 7518 public comments. Our second group of citizens was a random sample of up to 500 for each project from the appropriate county voter list. To increase participation rates, online invitations noted that those who completed surveys were entered into a lottery to win a US \$100 gift card (with a one-in-100 chance of winning). In total, 30578 people were sent survey invitations, and 2413 people responded to the survey giving a response rate of 7.9%. The number of completed responses for citizens' largest concern for each of the projects is displayed in Table 3 below.

3.3. Project outcome data

The final task was to make inferences about the effect of citizen concerns on project outcomes. The evidence used for inferences comes from project websites, EIA documents, community-based organization websites, social media accounts, local government records, and electronic news articles. For each project, supportive and oppositional stakeholder groups were identified, and their motivations were summarized into primary themes. Social media accounts and stakeholder websites revealed which groups organized into coalitions addressing common concerns and which groups organized separately. Themes articulated by organized opposition often corresponded with comments to EIA documents, but NGO communications and news articles illuminated which themes were most salient in public-facing discourse. These concerns were echoed in opinion editorials, letters to the editor, social media posts, and CBO websites.

Reviewing public responses outside the formal EIA process was also helpful in identifying non-written responses to each project. Several of the analyzed projects saw at least one large demonstration either near the project site or at decisionmakers' offices. News articles following scoping meetings and public comment forums describe details beyond

attendance numbers, such as the tone in the room and whether commenters used visual displays in protest.

Widening the lens for evidence also captured how local and regional policy landscapes influenced project decisions. In cases where city and county governments were responsible for issuing decisions relevant to a project's approval, their meetings became additional sites of contention. Around critical elections and votes, CBOs generated opinion pieces targeting local elected officials. Even in some cases where local decision-makers had no formal authority to influence a project, they became targets of organized opposition groups demanding symbolic support from their local leaders. Examining decision-making agencies' other mandates also revealed when project decisions were influenced by existing policies such as Renewable Portfolio Standards, multiple land use mandates, or bans on certain types of energy extraction. Decision-making agencies were constrained to varying degrees by these compounding factors and policy interactions.

The integration of the data types and the inferences made from them in the results section can be found in Fig. 3. (See Figs. 4 and 5.)

Fig. 3 shows how each of the data types are used in the analysis.

4. Results & discussion

The EIA data revealed the two underlying types of citizen comments discussed above: Communities of place and interest. The citizen distance data provides insights into the dynamics of opposition. Table 2 shows key attributes of each of the facilities in the sample. Opposition from communities of place was stronger in the wind projects and the electricity substation. Citizens adjacent to the projects submitted com-

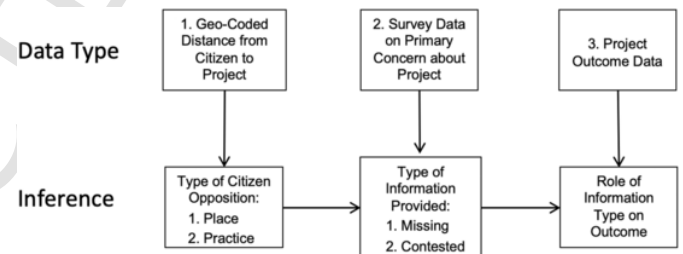


Fig. 3. Analytical overview.

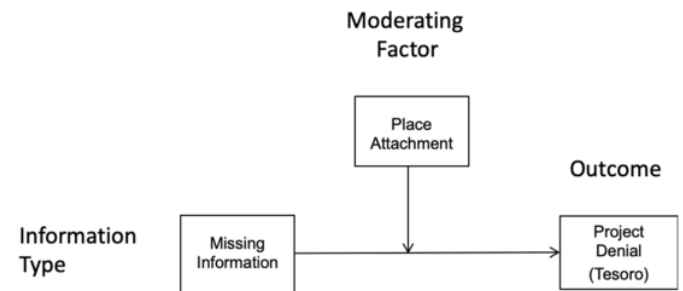


Fig. 4. Place attachment as a moderating factor for missing information claims.

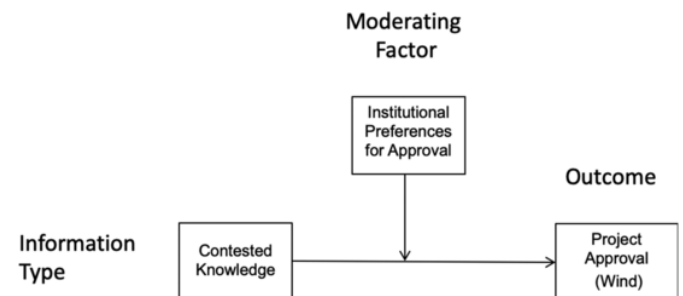


Fig. 5. Institutional preferences as a moderating factor for contested knowledge claims.



Fig. 2. The process for geo-coding historical comments.

Table 2
Geo-coded citizen information.

Project name	Type	Number of geo-coded comments	Min distance (km)	Max distance (km)	Half-length (median km)	Primary comment type
Alberhill	Electricity substation	60	1	23.7	3.2	Place (local)
Carty II	Natural gas electricity generation	2875	38.4	3621	227.9	Interest (regional)
Constitution	Natural gas pipeline	661	0	7782.5	16.9	Mixed
Ocotillo	Wind farm	127	0.8	3766.6	100.4	Place (local)
Tesoro	Crude-by-rail	456	0	5604.9	15.4	Mixed
Tule	Wind farm	35	1.2	83	5.9	Place (local)

Source: EIA documents.

ments as indicated by the Minimum Distance of 0.8–1.2 km. The half-length of the comments for these was small as well, albeit the Ocotillo wind project received a few comments from regional citizens.

The fossil fuel projects were either a mix of communities of interest and place, or strictly Interest. The strongest regional opposition came to the Carty II generation station where all of the comments came from outside the community of place, as evidenced by the minimum comment distance of 38 km. Opposition citizens were members of NGOs such as the Sierra Club or Physicians Social Responsibility. The Constitution gas pipeline and Tesoro crude-by-rail results are more mixed. These projects faced opposition from highly capable and motivated community-based organizations, as well as environmental NGOs. The project half-lengths for the mixed communities of Constitution and Tesoro of 16.9 and 15.4 km respectively, are between the community of place half-lengths (Alberhill at 3.2 km and Tule at 5.9 km) and the much larger distances for the communities of interest projects (Carty II at 227 km and Ocotillo at 100.4).

4.1. Citizen concerns by distance

The analysis now turns to differences in citizen concerns at different spatial scales. LULUs have unique perceived risks that in turn are perceived differently depending on the project context. While some categories of concerns such as property value declines, wildlife impacts, and quality of life may be universal, other perceived risks depend on citizen location.

Table 3 presents the results of the survey data for the projects. Each of the projects had different perceived risks that were constructed through each community's risk interactions (Kasperson et al., 2003).

Table 3
Citizen concerns.

Project	Largest concern overall	Largest local concern (< 8 km)	Largest regional concern (> 80 km)	Number of responses
Alberhill	Aesthetics	Aesthetics	NA	47
Carty II	CO ₂ emissions	Lack of public engagement	CO ₂ emissions	233
Constitution	Health risks	Health risks	Health risks	26
Ocotillo	Wildlife	Noise & visual impacts	Wildlife	18
Tesoro	Environmental damage & oil spills	Environmental damage & oil spills	Environmental damage & oil spills	1256
Tule	NA	NA	NA	0

Source: survey data.

Table 3 shows that there were differing project concerns for Carty II and Ocotillo between local and non-local survey respondents. Proximate citizens were concerned about wind turbine noise and visual impacts, while more distant citizens were more conservation oriented. For Constitution and Tesoro, close proximity and non-local responses had the same top concerns, and notably these were two cases where collaboration between communities was strongest. The Alberhill substation did not have responses that were in the furthest distance category as they were all relatively in close proximity to the substation. Due to a coding error, the Tule wind survey instrument had no option for respondents to provide a top concern.

4.2. Project outcomes (from news articles, social media, and EIA documents)

Given the analysis of citizen location and concerns, the analysis now links these to project outcomes. At first glance, the three projects that were denied permits (Carty II, Constitution, Tesoro) were all fossil fuel projects and all had huge doses of opposition from communities of interest. Each of the dynamics was different, but included substantive citizen opposition that engaged democratic institutions and elites: either elected officials (Constitution, Tesoro), or appointed officials (Carty II).

Carty II natural gas generation

Membership-based NGOs rallied strong opposition to the Central Oregon facility based primarily on overlooked information: climate change from fracked gas (methane leakage as well as CO₂ from combustion) as well as highlighting air quality and environmental justice problems from the plant. NGOs also contested information about the benefit/cost ratio in the EIA, identifying cost-overruns on the first facility at the site (Carty I). They also contested the need for the project due to Oregon's renewable electricity portfolio standard that requires 50% renewable electricity by 2050. Commission staff received 7000 calls and written comments arguing for less natural gas and more renewable energy in the utility resource plan (OPUC, 2017). Ultimately, the Community of Interest that opposed the plant convinced the Oregon Public Utilities Commission to not accept the gas project by contesting knowledge on the need for the project.

Constitution natural gas pipeline

In spite of significant local and regional opposition, the pipeline received a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC) in December of 2014. The primary strategy of the diverse "Stop the Pipeline" coalition of landowners, local governments, and NGOs was to provide overlooked

information: climate change from fracked gas, as well as highlighting air quality, water, and endangered species impacts. FERC's final EIA did not include climate impacts and FERC was accused of rubber-stamping approval of industry projects (Northey, 2014). However, at the same time that FERC was permitting the Constitution project, and following a primary election challenge from an environmentalist, NY Governor Cuomo banned fracking of natural gas in the state (Kaplan, 2014). Subsequently, in 2016 the NY Department of Environmental Conservation denied the proponent the 401 Water Quality Certification under the Clean Water Act. In sum, the evidence is not clear that the overlooked information provided by communities of place and interest had much impact on the project outcome for Constitution. Large-scale opposition to the pipeline likely modified NY state elected officials' preferences, which appears to explain a large part of the NY agency permit denial.

Tesoro crude-by-rail

First proposed in 2013, the Tesoro-Savage crude-by-rail transfer in Vancouver, Washington would have been capable of receiving up to 360,000 barrels of domestic crude oil per day. The project was denied a permit by WA Governor Inslee in early 2018 due to balanced opposition consisting of local citizens, municipalities along the route, environmental NGOs, the tribes, and local business coalitions. The draft EIS received over 275,000 comments, with contesting knowledge on the benefit-cost ratio of the project (Stand Up to Oil, 2016). In addition to problems in Vancouver from increased railcar crossings, the citizen opposition argued that the EIS underestimated risks from train derailments through the Columbia Gorge Scenic Area. A crude oil train derailed in Mosier, Oregon in 2016, raising the salience of the cost arguments. Environmental NGOs opposed the project based missing information arguments regarding the climate impacts of fracked oil. The project ultimately affected elected politics in 2017 when a Vancouver businessman defeated the incumbent, pro-project Port of Vancouver commissioner (Bernton, 2018). This resulted in a unanimous vote to deny the permit by the WA lead agency for the EIA. As in NY with the Constitution pipeline, elected officials preferences were probably aligned with, or by, opposition from both communities of place and interest.

Alberhill electricity substation

The Southern California electricity substation and associated power lines were pitched by the regional utility as necessary for future grid reliability. The Community of Place that opposed the project used missing information arguments about aesthetics and air quality. One citizen group submitted detailed information contesting the need for the project based on a study done by the California transmission planning authority that forecasted limited increases in electricity demand for the community (California Public Utilities Commission, 2019). Ultimately, contesting the need for the project was successful as the California Public Utilities Commission administrative law judge recommended against granting a certificate for the substation and distribution lines because of the lack of proven need for the facility. While not denying the project the ruling left the proceeding open for the utility to prove the need for the project. As with the Carty II project, contesting knowledge from citizen opposition was largely responsible for the project outcome.

Wind projects in Southern California

The Ocotillo and Tule wind projects in Southern California share several attributes, including timing, significant Community of Place opposition, and the Bureau of Land Management as the lead Federal

agency. Neither project was able to be blocked entirely by local opposition, in part because of decision makers preferences for job creation from the Obama stimulus package as well as strong state and federal support for renewable electricity generation. However, both projects were significantly reduced in terms of acreage and number of turbines. In both cases, communities of place opposed the projects by providing overlooked information on Noise & Visual Impacts. Environmental NGOs and the US EPA contested information on raptor impacts. However, the primarily stated reason for the big reductions in project size were contested cultural evaluations (BLM, 2012). The Kumeyaay, a Native American nation in Southern California, contested the Tule project because the project area is on one of its few undisturbed ancestral sites, and because of the cultural and religious ties to golden eagles that are likely to be harmed from the project (US Bureau of Land Management, 2010). Project opponents launched legal challenges on both projects alleging procedural violations following the EIAs that were ultimately unsuccessful.

4.3. Integration and implications of the three analyses

These six case studies across different technologies offer inferences about the effects of different types of information submitted by communities of place and interest in EIA on outcomes. Communities of place that provided missing information on unwanted local impacts did not appear influential in determining outcomes in five of six cases. The ability of community of place-based opposition to influence decisions was truncated by pro-development lead agency preferences of the Constitution Pipeline and Ocotillo wind project. Local citizen concerns in the Alberhill substation project around missing information on air quality, aesthetics, and noise were noted in the Final EIS and addressed as part of a mitigation plan (CPUC, 2018). Missing information arguments in the Constitution pipeline case were not able to block the lead agency from approving the project.

However, missing information from community of place was effective in the Tesoro crude-by-rail project. In this project, the place-protective action was focused on the Columbia Gorge, a treasured Scenic Area that had recently suffered an oil train derailment and spill. Figure 4: shows how place attachment moderated the effects of missing information for the denial of the Tesoro project certificate. The place attachment, combined with community of interest climate change opposition, triggered the massive citizen response that resulted in the permit being denied by Washington State regulator.

In contrast with missing information, contesting knowledge about the need for the projects by both communities of place and interest appeared to be more influential in determining outcomes. The CPUC placed the Alberhill substation on hold because of concerns about forecasted electricity demand in the local electricity circuit. State energy and environmental policies can deter opposition based on needs assessments'. The need for natural gas generation from Carty II was called into question given Oregon's renewable electricity requirement. Opponents of the California wind projects couldn't question the need for the projects given the state's aggressive renewable electricity requirements, and the need for local economic development coming out of the Great Recession. Figure 5: shows how institutional preferences moderate the effects of contested knowledge on project approval for the wind case studies.

The ability of the regional policy environment, and subsequent institutional preferences, to help determine EIA outcomes is consistent with Jay et al. (2007) who find that project outcomes are determined largely by decision maker preferences. Rather than being an aid to instrumental decision making, citizen information shifts the locus of decision making to a negotiated model, which has important implications for future EIA theory development. The data show that for this sample of projects, lead agencies tend to approve projects that conform to their

institutional preferences. But, the FERC-approved pipeline project subsequently got denied by state regulators in New York who withheld a water quality permit. This has occurred in other fossil fuel LULUs as well, including a natural gas terminal in Oregon (Nemec, 2020). While beyond the scope of this research, this bifurcation can lead to disillusionment in the public comment process specifically (Worby, 2018) and generally contribute to lower levels of citizen trust in the federal government compared to state and local governments (Gallup, 2020). Citizen trust and perceptions of procedural justice are important predictors of citizen engagement ((Nelson et al., 2018); Wiklund, 2011).

Recall the three functions of citizen information from Section 2: a) missing information, b) contesting knowledge, and c) social learning. While inferences about the relative efficacy of missing information and contesting knowledge can be made from the research design and data, they provide limited information about the role of social learning from information provided by communities of place and interest in EIA. Social learning in EIA does occur in the development of project alternatives and mitigation plans. This is exemplified in the Final EIS for the Ocotillo wind project that included avian and raptor protection plans that were not part of the Draft EIS. The number of turbines and project footprint were reduced in order to conserve sensitive desert resources (BLM, 2012). However, the data are not able to distinguish if the social learning that did occur was due to communities of place or interest, or from non-membership NGOs or government agencies.

The results from the three different data sources (geo-coded citizen location, survey data, project outcomes) on the six projects provide important implications for EIA practitioners. The staffing plan (including outside consultants) for projects with significant participation from communities of interest is likely to be much different than projects with communities of place-based opposition. Consider the Tesoro crude-by-rail project that received over 275,000 comments on the draft EIS. Granted many of those comments came from form letters and email petitions. Yet, at the US federal level, managers have an obligation to treat all substantive comments equally, which means responding to every comment that meets the following five requirements: (i) Name and address. (ii) The name of the proposed project. (iii) Specific written comments on the proposed project, including evidence. (iv) Signature (v) Personal eligibility to submit and not as part of an organization (Department of Agriculture, 2013). Administrative delays and staffing shortages are likely for an EIA process with over a quarter million substantive comments on the draft EIA. Given the global push to “streamline” the EIA process, greater efficiencies will be needed (Trump, 2018; Environmental Assessment Office of British Columbia, 2020).

When both types of communities are engaged in the opposition process, all EIA steps are likely to be heavily scrutinized, but some more so than others. Morgan (2012) categorizes the main steps in EIA as: 1) Screening, 2) Scoping, 3) Impact prediction, 4) Significance, and 5) Monitoring and follow-up. The analysis indicates that communities of interest commonly objected to missing cumulative effects analysis in the scoping phase for this sample. Both communities objected to the significance of impact predictions in the EIAs, albeit with varying spatial scales of the projects' impacts. In this sample, communities of interest opposition to fossil fuel projects precluded the identification of environmentally superior alternatives due to the long-term, global nature of the fossil fuels' pollution.

5. Conclusion

This research contributes to our understanding of EIA through its unique sample and three diverse data sources. The diverse technologies (fossil, renewables, infrastructure) all generated significant opposition in the Western US. When combined with the random selection of the Constitution pipeline from the FERC database, the sample allows infer-

ences to be made about the role of information in decision making and project outcomes. The sample eliminates selection bias from selecting on the outcome (deny, modification, approval) that has limited the generalizability of our understanding of EIA dynamics in past research. The authors understand that replication and subsequent generalizability in case study research is difficult due to differing contexts and temporal conditions between research sites (Schofield, 2002). The results are not offered as universal inferences about Type of Community → Concern/Type of Information → Project Outcome. Rather, in the tradition of Guba and Lincoln (1982), the relationships are offered as “working hypotheses” that describe these six cases, and may be transferable to other cases based on the contextual and temporal similarities.

Decision makers and EIA managers need new tools that help to frame their approaches to engagement. Recognizing and grouping concerns into various communities of interest or place provides a flexible framework to efficiently manage the many potential project concerns. The use of geocoded distance data enables the bifurcation of citizen opposition into communities of place or interest that likely have very different concerns about the projects. Place protective action against impingements on their quality-of-life using missing information strategies was not effective in project denials. O'Faircheallaigh (2010) states that indigenous and environmental concerns to large-scale projects are based on a value system that is different from the project proponents'. For communities of interest, larger concerns about scope of impacts from the project rather than specific details that have potential for mitigation. For example, a pipeline would not be able to mitigate its connection to fossil fuels, and at no point would be deemed acceptable by climate activists.

As with most studies, there are limitations to this research as well. The data show different collaboration styles between communities of place and interest, as well as a mix of results across multiple types of energy infrastructure in the United States. The technological capacity and norms of participation in environmental, health, and social justice NGOs varies considerably across space, including within the United States. Additional research needs to be done to extend the approach to EIA in other jurisdictions.

However, the innovative analytical approach of using geocoded citizen comments to bifurcate participation into communities of place and interest is certainly a generalizable methodology. It is also likely that categorizing citizen comments into providing missing information, contesting knowledge, or offering social learning will provide insights into decision making in other regions of the world as well.

Another fruitful line of research could follow on the relationship between EIA and larger political processes including elections. It is possible that communities of place and interest are able to mobilize citizen advocacy on LULUs into subsequent electoral mobilization, then this could help explain the primacy of politics in EIA outcomes as noted by a range of scholars (Jay et al., 2007 among others). The analysis showed that New York incumbent Governor Cuomo might have been pushed to oppose fossil fuels because of the primary election, and the Constitution pipeline might have been a weapon in that primary battle. Additional research using these methods and working hypotheses going forward can likely yield exciting additions to knowledge for both EIA theorists and practitioners.

Uncited references

CRedit authorship contribution statement

Hal T. Nelson: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Visualization, Resources, Supervision, Validation, Visualization, Writing - original draft, Writing - review & editing. **Samantha Hass:** Formal analysis, Investigation, Data curation, Visualization, Project administration, Writing - review & editing. **Kirsten Sarle:** Formal analysis, Inves-

tigation, Methodology, Data curation, Visualization, Project administration, Writing - original draft, Writing - review & editing. Alex Renirie: Investigation, Data curation, Writing - original draft.

Declaration of Competing Interest

None.

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