

“I’m Saving Fuel to Buy More Guns”: The Electric Vehicle as Cultural Object and Climate Policy Solution¹

Terence E. McDonnell,² Anna Gabur³ and Rachel Keynton⁴

This article examines electric vehicles (EVs) as cultural objects and assesses how they are mobilized as a solution to the climate crisis. Taking a material approach to cultural objects reveals how hybrids and EVs are sites of contested meaning-making at the intersection of material affordances and conventional symbolic associations. This approach illuminates (1) how the material qualities of EVs destabilize taken-for-granted meanings grounded in polarized political positions, (2) how the process of design and changes in the social world bring new meanings to the material capacities of EVs, leading to reclassifications of EVs even by conservative Americans, (3) how attempts to persuade consumers to buy EVs circumvent the work of persuading people to adopt a pro-environment position, and (4) how the material infrastructural ecosystem can (and cannot) scaffold these new meanings. Ultimately, this article suggests that people can be moved to act in ways that align with a decarbonizing agenda without having to be convinced to adopt new positions on global warming. We examine the interplay of the material and symbolic dimensions of EVs to understand both the solutions and challenges of our environmental crisis and social problems generally.

KEYWORDS: cultural objects; cultural sociology; materiality and material culture; policy; social problems; environmental crisis.

INTRODUCTION

Some pickup trucks brandish “Prius Repellent” decals strategically placed over an exhaust pipe. Other car owners take an aggressive stance against clean energy with bumper stickers announcing they are the “Proud Owner of a Gas Guzzler.” Such stickers flip the bird at global warming and the move to eco-friendly cars and environmental regulations. They also express a defiantly oppositional and conservative political identity. More recently, hybrid and electric vehicles (EVs) are displaying more incongruous bumper stickers. To shore up their conservative bona fides, bumper stickers on EV cars declaring “I Drive a Hybrid so I Have More Money for Ammo” or “I’m Saving Fuel to Buy More Guns” allow conservative EV drivers to defend against perceptions that they are advocating for a leftist, eco-friendly position. This growing population of conservative EV owners underscores the economic benefits and couples buying EVs with a decisively conservative political issue. In this article we examine EVs as cultural objects (Griswold 1986; McDonnell 2023) and as

¹ Thanks to Steve Hoffman, Erin Metz McDonnell, and Christian Smith for their feedback. Many thanks also to Karen Cerulo, editor *par excellence*, for the invitation to write this article.

² Department of Sociology, University of Notre Dame, 4060 Jenkins Nanovic Hall, Notre Dame, Indiana 46556; e-mail: tmcdonn2@nd.edu

³ Department of Sociology, University of Notre Dame, 4060 Jenkins Nanovic Hall, Notre Dame, Indiana 46556; e-mail: agabur@nd.edu

⁴ Department of Sociology, University of Notre Dame, 4060 Jenkins Nanovic Hall, Notre Dame, Indiana 46556; e-mail: rkeynton@nd.edu

sites of changing meaning-making and contestation. This meaning work, we argue, plays an important role in the dynamics of social problems.

Sticking these messages onto one's car gets ahead of a conversation (or confrontation) with fellow conservatives. People know just how tightly coupled and culturally sticky EVs and lefty green politics are. Many, if not most, Americans view EVs as symbolic of leftist politics and indicative of people's views on global warming; the political divide between supporters and nonsupporters of alternative-fueled cars has been considerable from the start (Howard 2020). Conservative EV owners also implicitly understand that their actions are destabilizing these meanings. They make apparent to other conservatives that there may be reasons to buy electric or hybrid vehicles that have nothing to do with the environment.

That people want to appear consistent in their political identity is no surprise. What *is* surprising is the fact that enough conservatives seem to be facing this reputational crisis and cultural contradiction that people are printing bumper stickers to do this repair work. And yet, the presence of conservative EV owners makes clear that the meanings of EVs are *changing*, even if people's ideological position-taking does not.

The fact that cultural objects like EVs are flexible in their interpretations and less stable than we assume should give us hope. It is often erroneous to assume that "individuals select and use products they do because of the commonly agreed meanings that it is claimed they possess" (Campbell 1996:95; Silva et al. 2023). A cultural object comprises a "bundle of qualities" (Keane 2003) and can afford numerous meanings and uses (McDonnell 2023). A variety of factors drive people to purchase a car and the distinct meanings and uses the car affords shift in their salience over time (McDonnell 2016). Even conservatives can find it harder to dismiss EVs as gas prices rise and the material and economic advantages of going electric become evident. The varied meanings and uses that EVs afford shape their capacity to help solve social problems like global warming.

As cultural sociologists, we are interested in how cultural objects shape how people and institutions take action around social problems such as climate change. Cultural objects are often at the center of conversations about social problems and their solutions: masks during COVID, condoms and hypodermic needles around HIV, and housing in the homelessness crisis. In this essay, we draw on insights from recent work on cultural objects, materiality, and meaning-making to rethink how we understand social problems and their solutions. In particular, sociologists treat the action around social problems as claims-making and definitional work (Spector and Kitsuse 1973). This approach focuses on how actors persuade people to accept the existence of a problem, to motivate them to make behavioral, and consumption choices that will then move purposefully toward a solution to that problem. In this article, we suggest that material affordances of objects can enroll people as part of the solution to a problem even when they deny the very existence of that social problem. In addition to the advances of the social construction of social problems approach, taking a material approach to cultural objects makes clear how social problems (and their solutions) are not simply a matter of symbolic politics.

Social problems can feel intractable because attempts to persuade people to change their values or political positions fail more often than not. People's cultural

positions do not change much and when we see change it tends to be temporary (Kiley and Vaisey 2020). Concerted efforts by organizations to move the needle struggle to have the intended effects (McDonnell 2016). If conservatives are beginning to buy EVs but are not changing their beliefs, it suggests that pro-environmental action is possible independent of their personal political positions or identities. Reclassifying objects may offer a path to cultural change without threatening people's identities and encouraging intransigence (McDonnell et al. 2021). Changing the meaning of objects (e.g., hybrids and EVs), rather than the positions of people, may offer a better solution to managing polarizing issues like climate change.

THE GREAT ELECTRIC HOPE

Climate and decarbonization policymakers see great potential in EVs. As an article in *The Atlantic* notes, so do a growing number of Americans: “Electric vehicles, you might have heard, are miraculous. Just a sliver of new cars sold in the United States are EVs, but these machines have united a mishmash of people eager to move America away from gasoline” (Zipper 2023). A move to EVs is a cornerstone of the Biden Administration's climate policy (The White House 2023)—though the policy will be far more effective in decarbonizing if our nation's energy production shifts to cleaner sources like solar and wind. While EVs are only one imperfect part of a complex clean energy policy, they have received significant public attention in recent years and have become an iconic symbol of climate policies. EVs offer a practical response to the most widely recognized human driver of climate change: greenhouse gas (GHG) emissions from vehicles (Environmental Protection Agency 2023b, 2023c). Americans have heard the message that cars and trucks are one of the most significant drivers of fossil fuel consumption and GHG emissions (Leiserowitz et al. 2010). Substituting an EV for an internal combustion vehicle, then, offers car owners a direct one-for-one alternative that requires very few lifestyle changes on the part of the individual. Compared to other climate policies, there are a number of advantages afforded by EVs' materiality that make it feel like a silver bullet policy.

Perceptibility and Experience

As hybrids and EVs hit the streets and charging stations are installed, the shift toward electric becomes publicly *perceptible* (McDonnell 2010). People sense the growing number of EVs around them, seeing normalization happen in real time. “Waiting at a red light one recent morning, after dropping his daughter off at school, he counted more than a dozen Teslas whizzing by. “There's a Y. There's a 3. There's a 3, There's a Y,” he pointed, ticking them off in the 90 seconds before the light changed” (Whalen 2023). People confront this increasing material presence of EVs and make meaning around it. Compared to policies like carbon offsets which feel intangible, convoluted, and easily manipulable (Irfan 2020; Liu and Cui 2017), the presence of EVs on the road gives everyday folks first-hand *experience*.

People's personal experience with EVs has consequences. While early adoption of EVs was polarized, their increasing perceptibility introduces opportunities for different narratives, destabilizing the dominance of the political narrative. People hear stories from friends and family about their experiences with EVs. Taxi and rideshare drivers love hybrids and EVs because they have an experience of cheaper fuel and fewer repairs. These drivers value being able to see the car's energy flow, giving them a sense of control. People can observe and come to appreciate the decline of exhaust fumes and hear the reduction of noise pollution. The more perceptible EVs are to the public, the more direct experience can upend those sticky and polarized symbolic associations.

Affordances and Agency

EVs give people with environmental commitments a sense of agency. Often the practices that get the most attention among the "green is good" crowd are those where people can feel virtuous for making a green choice. Ideological commitments to recycling, choosing paper straws (or going without), and cutting soda can plastic rings all have this quality. Buying an EV is distinct in that it gives purchasers the sense that they have made a *significant* contribution—a one-time action with big consequences, rather than a daily habit one needs to develop. Many have real commitments to conserving the environment, and thus buying an EV—an easy and gratifying act—may give them a sense of agency that they are reminded of whenever driving the car.

For others, especially elites, buying an EV may be an act of virtuous consumption (DeSoucey 2016), where consumers use their cultural capital to present their buying choices as ethical and good (Johnston et al. 2011), often in a status competition. Some may view the purchase of an EV as an agentic act in the face of environmental threats (Szasz 2007). Consumption can act as a "political anesthesia" (Szasz 2007), demotivating collective action (Johnston 2008). For those who feel an obligation to make a difference in climate change, making a significant purchase can offer a "moral safety valve" that relieves the guilt associated with driving, while also relieving "the pressure for more fundamental action" (Poppendieck 1999:9). Once objects are designed, produced and purchased, they allow citizen-consumers to offload the work of regularly enacting their environmentalism onto that object. Regardless of motivations and potential unintended consequences for mobilization, buying an EV gives people a sense of virtue and purpose. From an environmental perspective this is a net gain. It gets cleaner cars on the road, which in turn makes EVs more visible and may motivate others to make the move to EVs to keep up with the Joneses.

For those whose ideologies and social circles are more concerned with freedom and individualism, EVs afford a way to enact that sense of independence. Anti-Biden conservatives who associate him with increasing gas prices have put stickers of President Biden on gas pumps pointing at gas prices with an "I did that!" (Schwedel 2022). By buying an EV, such critics can choose to free themselves from their reliance on gas at the pump and any dependence upon the political entities they see as responsible for its fluctuating prices (Gross 2022).

Consumption and Desire

Another advantage of EVs over other climate policies is that they align with people's existing consumption desires and practices without requiring complex changes to daily lived routines. Unlike other climate-forward practices that may feel burdensome, buying a car feels exciting. American consumers want to buy cars. Americans intertwine car ownership with status. Cars are symbolically linked with people's sense of self, and Americans' espoused commitment to freedom. If green choices can fit with their preexisting consumption practices, uptake should be easy—so long as the technical affordances meet practical requirements like range and charging. For the environmentalist set, eco-conscious consumption is status-giving in new ways that endows the consumer with ethical distinction (Carfagna et al. 2014).

There is something very appealing about consuming or innovating our way out of the climate crisis. Trust in American ingenuity and the public's belief in techno-solutions leads us to look to cutting-edge technological fixes that demand little change in behavior, lifestyle or consumption patterns (Lenox and Chatterji, 2018). As the embodiment of techno-solution advocacy, Elon Musk's tech-bro energy and focus on style has converted many who do not see themselves as environmentalists. Tech mavens' desire to have the next shiny thing leads many to buy Teslas without concerns over politics. It is doubtful that conservative Tesla owners are apologizing for their purchase of an EV because the Tesla carries its own status advantages.

Car buyers can also express their commitment to American values through the purchase of an EV. Politically, EVs are attractive because they allow politicians to make claims about American technological advancement ("Buy American!") and encourage the support of local industries. President Biden stressed this in his speech at the 2022 Detroit Auto Show when he said that buying an EV no longer required one to compromise and that "today, if you want an electric vehicle with a long range, you can buy one made in America" (Hutzler 2022). Long-time autoworkers transitioning to EVs feel that they earned the right to build America's next car (Silva et al. 2023). So much of the meaning work around EVs takes for granted American commitments to car ownership and the freedoms ownership purportedly grants citizens. Maintaining an American way of life is the paramount goal, and we adopt EV innovations so people do not have to change their habits or desires.⁵

Why EVs and Not Other Policies?

The material dynamics of visibility, object agency, and consumption make it easier to engage with EVs than with other policies. This is for good and ill. Despite

⁵ Ironically, to match the qualities of the F-150 to consumers' desires to have EV pickup trucks look just like pickups with combustion engines, the F-150s Lightnings coming off the line at the Ford Rouge facility weigh 35% more than standard model. GM's EV Hummer "battery alone weighs roughly as much as some Toyota Corolla models." These large single-family electric vehicles use over nine times more lithium per rider than electric buses (Lahkani 2023; Lee and Northey 2023). This added weight means that they kick off more particulate matter as tires wear faster—even as they reduce carbon emissions they leach more particulates into waterways that harm people and animals.

their benefits of structuring public attention, EVs take attention off the ball of policies that may have a larger impact. Climate policies compete in the public sphere (Hilgartner and Bosk 1988), and EVs pull focus from policies, such as shifting from coal power to wind and solar, or bolstering public transportation infrastructure and reducing cars on the road.

Outside the realm of transportation, for instance, making homes and buildings more energy efficient and moving to cleaner energy sources will likely have a big(ger) impact on the environment (United Nations Environment Programme 2020), but we hear little about this on the news. In addition, a myopic focus on EVs can crowd out attention to policies that make structural changes to energy production (investments in clean technologies, reducing reliance on fossil fuels, reducing industrial air pollution). For that matter, it can even encourage the buying of more cars, rather than reducing our dependence on personal vehicles. More cars requires road maintenance and encourages the scourge of parking lots at the expense of green space or mass transit solutions (Grabar 2023).

One challenge of visibility is that people see the tides shifting more palpably in urban centers than rural areas. The infrastructure to support EVs was first built in cities. As cities tend to have people more committed to being early adopters of green technologies, the critical mass of people who share ideological commitments enables less issue-committed consumers to adopt technology with fewer inconveniences. In rural areas, EVs are still conspicuous. In an unwelcoming environment, the visibility of these cars makes them less likely to be accepted. Engineers then work toward a different goal—making EVs look “normal”—something we address later with our discussion of the F-150 Lightning.

Material qualities are not determinative, but they set the bounds of what is possible. The material affordances can be symbolically recast. While the materiality of EVs can shape their meaning and response, symbolic work can present these material qualities in distinct ways. For those who reject the climate crisis out of hand, EVs simply indicate freedom from fluctuating gas prices and a chance for self-reliance. The same qualities that align with someone’s individualism play to someone else’s sense of belonging to a global community where everyone plays their part to save the earth.

TRACING EVs ACROSS THEIR LIFECOURSE

Cultural objects, like the social problems (and solutions) they help constitute, are dynamic. Hybrids and EVs shift and change in response to market forces, state policy, and attitudes of the public. As they are interpretively flexible (Pinch and Bijker 1984), the ways EVs are read by the public create design challenges that manufacturers either ignore or respond to by reshaping the material character and capacity of future models. Car engineers and manufacturers seek to adapt to this shifting context. For that matter, EVs are not only one thing—while they may be associated with eco-minded urban liberals, they also save money on gas, may not currently have range for some people, or their upfront costs may be prohibitive. Meanings are multiple, and shift in salience.

A material approach to cultural objects examines its entire lifecycle from conception, production chain and manufacturing, to consumption and disposal, repurposing, or recycling. As Griswold (1986) advocates, tracing interactions among producers, objects, reception by the public, and the social world reveals how meanings stabilize and shift, with real implications for action. This process is neither linear, nor straightforward and there may be a disconnect across these stages in terms of meaning and interpretation. Endowed with different meanings by designers, engineers, and marketing teams, publics interpret and reinterpret EVs and attach new meanings to them, in turn constituting problems future designs seek to solve.

The systems of production around an object and its component resources illustrate how symbolic or ideological understandings of objects like EVs often do not align with their material realities. For example, lithium batteries proved more environmentally sustainable than internal combustion vehicles and their benefits will only increase with battery recycling programs and shifts away from fossil fuels (Environmental Protection Agency 2023a; Moseman 2022; University of Cambridge 2020). However, rapid increases in lithium mining have devastating environmental and social consequences, including indigenous land grabs, water shortages, widespread pollution, and ecological destruction. Shifting the United States' car fleet to lithium battery-powered vehicles will require a three-fold increase in the amount of lithium currently being extracted and refined. We could be facing a global lithium shortage as soon as 2025 (Shine 2022). This resource extraction also exacerbates social inequalities on a global scale, as the water-intensive process of lithium mining mostly takes place in regions that are already facing worsening water scarcity. Attempts to engender meanings of EVs as eco-friendly vehicles of the future will at some point confront these material realities unless car makers can innovate their way around lithium shortages.

The material realities of production and profit-seeking, as well as the context of reception (i.e., the total world of existing drivers, their existing driving habits and their interests and ideals), do not always align. Policy commitments to zero-emissions consumption ideals would lead us to believe that if hybrid batteries are good, fully electric cars must be better. Concerns about range anxiety have led EV manufacturers to optimize on this, but that requires bigger, more resource-intensive batteries that may be overkill for most people's driving needs. Plug-in hybrid electric vehicles (PHEVs) require less lithium and can often meet the needs of most people's daily driving on electric power alone—a viable solution to reducing emissions without problems of range. But pressure from environmentalists are encouraging car makers to move toward all-electric and away from PHEVs. They accuse plug-in hybrids of being *worse* for the environment than a comparably sized combustion engine vehicle.

The problem is not so much with plug-in hybrid technology but how . . . people infrequently plug them in. And when plug-in hybrids are not operating in electric-only mode as often as possible, they are less fuel-efficient and more significant producers of carbon dioxide and nitrogen oxides than conventional cars and trucks. Why is that? With the added weight of their battery packs and motors in addition to their internal combustion engines (ICE), PHEVs are heavier than conventional vehicles (Nerad 2021).

Plug-in hybrids could be an excellent step toward reducing emissions, but user-error undermines their effectiveness (Crownhart 2022). Environmentalists then push for all-electric, and regulatory regimes in Europe have begun to question whether to subsidize plug-ins (Crownhart 2022). In the long term, this may accelerate the path toward lithium shortages, which could in turn undermine people's confidence in EVs.

Symbolic perceptions and performances, such as companies' eagerness to innovate and consumers' striving toward zero emissions, can also alter the way in which we make meaning of the material properties of the object. Tesla has an outsized role in the public imagination as a promoter of innovation through EVs. According to an Autotrader study Tesla is the most searched for and desired car brand in the United States and across the globe (Autotrader 2023). Because of this, automakers like GM, VW, and BMW are scaling down their efforts to produce plug-in hybrids in favor of long-range battery EVs. These dynamics reveal further recursivity between innovation, production interests and advertising, and consumer demands.

Given this continuous conversation between producers, objects, and consumers, car manufacturers have been more strategic in how they have altered the material qualities of their EVs to make it easier for people to reclassify them to meet their needs. EVs and hybrids often look different from other cars, largely because their internal designs require a different configuration than internal combustion engines (Scherr 2021). The visible proportions of car bodies change with the shift in size from engine to electric motor, the battery placement, and the reduced need to cool an engine through a grille system. Early EVs needed better aerodynamics to extend the battery life and range of the car, which changed their look. So EVs often have identifiably different contours. This distinctive character might have been a valuable way to be publicly "recognizable" as different (McDonnell et al. 2017).

The visual distinctiveness of EVs is changing, now that consumers (especially pickup truck owners) have expressed their preferences for sameness. The new electric Ford F-150 Lightning does not look dramatically different from gas-powered F-150s. "Exterior designer Kenny Moore says Ford's research indicated that truck buyers wanted a pickup with 'a more modern look' than today's internal-combustion models, 'but not so futuristic as to be unrecognizable as a truck'" (Scherr 2021). This strategy seems essential for finding new markets in red states—for people who want to save money on gas, but not identify as tree-huggers.

CONVERTING THE UNCONVERTED

Transportation Secretary Pete Buttigieg acknowledged that there is a "cultural issue" with the uptake of EVs, as they are associated with "liberal city-dwellers" (Heilweil 2022). Conservatives may be quick to dismiss EVs because of these connotations or EVs' ties to climate policies they find dubious. But cultural objects are never just one thing. The material affordances of EVs creates wiggle room for people to attach multiple meanings to them, which do not always fall into the dominant narratives. In turn, these meanings can circumvent the power of polarization. The material qualities of EVs make them fun to drive, an icon of technological innovation, or

a pathway to fuel savings. People's growing experience with them as objects introduce new ways of thinking, which destabilizes the fixation on environmentalism.

Shifts in the social world and the material affordances of hybrids and EVs can also lead people to reclassify how they understand them. The Toyota Prius was designed as a car for the twenty-first century (Itazaki 1999) and was marketed to appeal to climate-conscious consumers who were willing to pay more to help the planet (Leonhardt 2006). The Prius also had its haters: conservative-leaning truck owners who sabotaged hybrids (Yoder 2022). Acceptance of EVs is still defined along partisan, political, and ideological lines, with Democrats being more likely than Republicans to adopt EVs. Consumption differences between political adherents existed because, prior to the rise in fuel prices, research mostly suggested that EV sales were driven by their ability to signal particular symbolic or status commitments, whereby "the extent to which people perceive EVs to *reinforce aspects of their identities*, are among the strongest predictors of EV adoption intentions, and may contribute to this group difference" (Sintov et al. 2020: 1, emphasis added). In 2021 the typical EV owner was an affluent, college-educated, middle-aged man who voted Democrat.

This is changing rapidly. Even though EVs are conventionally associated with certain identities does not mean those are the only meanings that people attach to EVs. Even entrenched conservatives can view EVs in multiple, contradictory ways. In light of runaway gas prices, for example, EVs take on new meaning as a viable alternative to volatile fuel costs that are out of individuals' control. As gas prices hit an all-time high of \$5.02 per gallon in 2022, the interest in EVs rose dramatically (Astor 2022; Popli 2022), laying the groundwork for a symbolic makeover. As of summer 2023, some red counties in Texas have EV sales well above the national average (Whalen 2023). Those who oppose EVs are often not doing so explicitly because of their material affordances (e.g., range anxiety) or cost. Instead, people's perception of symbolic attributes of EVs with self-identity more strongly predict EV adoption intentions (ibid.) as they can signal a person's belonging to political, gender, and socio-economic identity groups. In turn, these symbolic attributes are often related to material properties. For example, EVs are often shunned by hypermasculine drivers who prefer their cars to make loud, rumbling sounds, and do not want "something that makes the sound of a vibrator when it goes by" (Silva et al. 2023).

As noted above, cars have long been seen as status symbols and a means of self-expression in the United States. To appeal to car owners in ways that skirt the political and environmentalist connotations of EVs, car new iterations of EVs and hybrids were designed to attract other groups of consumers. Tesla's suite of models are marketed toward *tech mavens*—middle- to upper-class individuals who pride themselves on technological savviness. Some EVs, like the Ford F-150 lightning are aimed at *rugged individualists*, those self-reliant pioneers who oppose government regulations and environmentalist agendas.

Some hybrids and EVs have become sleek and cutting-edge symbols of innovation, independent of their green affordances. From its early days Tesla's marketing focused not on combating carbon emissions, but on their creation of a technologically disruptive sports car with unparalleled torque (Baer 2014): a car that could accelerate as fast (if not faster) than gas-powered competitors. The high-tech sports

cars made EVs about (often masculine) pleasure and desire, rather than sacrificing for the good of the environment: “The [Tesla] Model S completely delivered on its promise to change how the world thought about electric cars . . . EVs were no longer the vegetables you should eat—they became the dessert you desired” (Yoder 2022).

Not only are these cars icons of innovation, they are also aesthetic objects that feel futuristic, designed with clean lines and uncluttered interiors. Like Tesla, sleek luxury EV manufacturer Lucid similarly makes cars that look like they came from the future: “Freed from the rules of traditional automotive design.”⁶ These are designs aimed at tech mavens often buying EVs for their tech bro status more than the environmental good they are doing. This was exactly Elon Musk’s insight—to position himself and Tesla as the market-based solution to climate change, innovating our way out of environmental calamity through the principles of capitalism and cutting-edge engineering. Regardless of one’s position on Musk’s politics, this strategy is opening up the market for EVs.

For the rugged individualists, high-performance pickup trucks were converted to more energy-efficient vehicles and given names like “workhorse” and “lightning,” using labels to emphasize material capacities (towing and acceleration) and to combat notions that hybrids and EVs are wimpy cars for “nerds and hippies” (Oster 2016). In the spring of 2022 an all-electric version of one of Republicans’ favorite cars—the Ford F-150 (Howard 2020), was released with a 3-year waitlist. Electric pickups are touted to be able to power a home for 3–10 days with copy that appeals to rugged individualists—“Stand up to your outage.”

The material qualities of EVs and the multiple affordances they enable make salient meanings that do not easily fall into the dominant narratives. In turn, these meanings can circumvent the power of polarization.

INEQUALITIES IN THE MATERIAL-INFRASTRUCTURAL ECOSYSTEM

It takes a great deal of cultural work to stabilize meaning—especially conventional symbolic meanings without a material grounding. Remember all the work those bumper stickers do to affix political meanings to cars. Our material infrastructures and the world of objects stabilize (or can destabilize) cultural beliefs and practices (Domínguez Rubio 2020; McDonnell 2023). To understand and solve social problems like the anthropogenic climate emergency, we must attend to the role material infrastructures play in scaffolding meaning. Inequalities in the material infrastructure can stabilize or destabilize meanings around EVs, accelerating or decelerating their diffusion.

The changing material qualities of EVs that make viable new reframings (e.g., rugged individualism, freedom, cheaper fuel costs, or affirming one’s status as a tech maven) may reduce symbolic resistance for those conservatives who were previously unwilling to switch. To reach widespread adoption, the material infrastructure must support those meanings. EVs must perform the same functions as gas-powered cars in both public perception and in practical, everyday usage. If converting red state Americans to EVs is the new frontier for green policy, the infrastructure needs to

⁶ <https://lucidmotors.com/air>.

catch up in order to support and harness the changing meaning systems that make EVs attractive for lower-income drivers. As people may trade one infrastructure (gas stations and high oil prices) for another (the electrical grid and relatively sparse or slow charging stations), questions emerge about whether or when the infrastructure will be ready to support the growing EV market, particularly in economically disadvantaged or low population density areas.

Thinking ecologically, we can see how the capacities of electrical grids and charging stations intersect with EV battery longevity and charging time to shape people's experience with and meanings of EVs. Range anxiety is still a sticking point for many considering a switch to EVs. The density of charging stations varies greatly across the country, and is correlated with wealthier areas. This makes sense given the target markets of early adopters, but has real consequences. For example, driving an EV directly from San Francisco to Portland has fast charging ports at least every 50 miles, but ports are much more scarce on the route from Chicago to New Orleans.⁷ Though the availability of charging stations is rapidly expanding, the fastest growing area of this expansion is at-work charging (Singh and Manthana 2023),⁸ which is further stratified by socio-economic status. Those who live in poor and rural areas or who do not have personal garages would confront a scarce charging infrastructure that may deter them from EV ownership. This is a shame, given that those who live in poverty are the ones who suffer most from the effects of nitrogen oxide pollution (Mullen and Marsden 2016).

Dependence on electrical systems is also tricky. Increasing pressures on energy grids may increase the cost of electrical power over time. Given that the U.S. energy grid is aging, we can imagine a scenario where power is disrupted and people without fully charged vehicles cannot drive to better conditions. What happens if you run out of battery? You cannot take a gas can from the filling station. Need a tow? EVs can only be towed on a flatbed truck with all four wheels off the ground, and most roadside assistance do not have the capacity to charge depleted batteries (though EV drivers reportedly rarely find themselves in this position) (Blanco 2022). If the sale of cars outpaces the charging infrastructure it may destabilize efforts to expand the market.

The material and infrastructural constraints surrounding EVs which lead to inequalities in ownership therefore exacerbate the stickiness of symbolic associations of EVs with the coastal, urban elite. For example, in the absence of direct current fast chargers it takes up to 10 or 50 hours to fully charge an empty battery using a 220 V and a 110 V outlet, respectively (Lindwall 2022). Accordingly, an overwhelming majority of EV owners have not only a house, but also a personal garage (Electric Vehicle Council 2021). Renters who do not have a garage or ability to install the infrastructure to support overnight charging at home end up spending much more not just in money, but also time and inconvenience of charging up in public.⁹

⁷ <https://afdc.energy.gov/stations/#/find/nearest?country=US>.

⁸ A nearly 10-fold increase is expected by 2030.

⁹ Public charging stations—even when they are located nearby, use faster charging technology, and there is not a line—take much longer than pumping gas, and typically cost around twice as much as you pay for electricity at home.

The meaning systems and material inequalities around EV ownership further illustrate the challenges of consuming our way out of the climate crisis, as consumption and its impacts are always stratified. In the absence of other mobilization, it may be all we have, but we need to be attentive to the unintended consequences. Even as the material infrastructure catches up to technological innovation, we are confronted with a hangover of cultural and symbolic meanings. The cultural stickiness of certain meanings attached to EVs—most notably the ideas of range anxiety and associations of EVs with certain “types” of people—even in the face of rapidly developing charging infrastructure and technology affects their uptake as a possible part of the solution.

CONCLUSION

The case of EVs demonstrates how engaging a material approach to cultural objects offers tools for thinking about the intractability of social problems. The material qualities of objects afford alternative interpretations. When those alternatives become salient, often through experience and changes in the social world, they can destabilize or bypass settled positions and sticky ideologies. Tracing objects over their life course and through cycles of design and redesign reveals how intended meanings and unintended interpretations feed back into systems of EV design and public discourse. The power and longevity of those meanings depend upon the material infrastructure—it will be difficult for EVs to resonate as solutions if we lack charging stations, enough lithium, or if high price tags and range anxiety continue to create obstacles to ownership.

EVs have taken center stage in the public debates and discussions of climate change solutions. Americans often read EVs through a lens of political polarization. They operate as a lightning rod and site of symbolic contention. EVs exist on a cultural and discursive battlefield as political opponents engage in a proxy war through bumper stickers and car decals. Taken merely as symbols of this divide, we miss important dynamics overlooked by cultural approaches that emphasize the social construction of social problems. Instead, a material approach to cultural objects considers the ways the material qualities of EVs and our alternative energy infrastructure uphold or upset the status quo of left v. right politics. We see hope for our climate future when people who do not believe in global warming *act* in ways that decarbonize our environment. Viewing EVs as a path to freedom from volatile gas prices or as indicative of a taste for innovation permits conservatives to act in eco-friendly ways without contradicting their political identities. The route is clear. If we can align the culture-material ecosystem supporting EVs with the changing meanings EVs have for the public, then, we may reach our destination.

REFERENCES

- Astor, Maggie. 2022. “As Gas Prices Went Up, So Did the Hunt for Electric Vehicles.” *The New York Times*, April 8, accessed August 1, 2023. <https://www.nytimes.com/2022/04/08/climate/gas-prices-electric-vehicles.html>

- Autotrader. 2023. "Cars that the World Wants to Buy." *Autotrader*, June, accessed August 1, 2023. <https://www.autotrader.co.uk/cars/sell-my-car/cars-the-world-wants-to-buy/>
- Baer, Drake. 2014. "The Making of Tesla: Invention, Betrayal, and the Birth of the Roadster." *Business Insider*, November 11, accessed August 1, 2023. <https://www.businessinsider.com/tesla-the-origin-story-2014-10?r=US&IR=T>
- Blanco, Sebastian. 2022. "What Happens If Your Electric Car Runs Out of Battery?" *J.D. Power*, July 26, accessed August 1, 2023. <https://www.jdpower.com/cars/shopping-guides/what-happens-if-your-electric-car-runs-out-of-battery>
- Campbell, Colin. 1996. "The Meaning of Objects and the Meaning of Actions." *Journal of Material Culture* 1: 1: 93–105.
- Carfagna, Lindsey B., Emilie A. Dubois, Connor Fitzmaurice, Monique Y. Ouimette, Juliet B. Schor, Margaret Willis, and Thomas Laidley. 2014. "An Emerging Eco-Habitus: The Reconfiguration of High Cultural Capital Practices Among Ethical Consumers." *Journal of Consumer Culture* 14: 2: 158–178.
- Crownhart, Casey. 2022. "Why EVs Won't Replace Hybrid Cars Anytime Soon." *MIT Technology Review*, December 22, accessed August 1, 2023. <https://www.technologyreview.com/2022/12/22/1065830/why-evs-wont-replace-hybrid-cars-anytime-soon/>
- DeSoucey, Michaela. 2016. *Contested Tastes: Foie Gras and the Politics of Food*. Princeton, NJ: Princeton University Press.
- Domínguez Rubio, Fernando. 2020. *Still Life: Ecologies of the Modern Imagination at the art Museum*. Chicago: University of Chicago Press.
- Electric Vehicle Council. 2021. "EV Consumer Behavior." June, accessed August 1, 2023. https://www.transportationenergy.org/wp-content/uploads/2022/11/21FI_-EVC_ConsumerBehaviorReport_V07-FINAL.pdf
- Environmental Protection Agency. 2023a. "Electric Vehicle Myths." June 15, accessed August 1, 2023. <https://www.epa.gov/greenvehicles/electric-vehicle-myths>
- Environmental Protection Agency. 2023b. "Sources of Greenhouse Gas Emissions." 2023. April 28, accessed August 1, 2023. <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>
- Environmental Protection Agency. 2023c. "Tailpipe Greenhouse Gas Emissions from a Typical Passenger Vehicle." May 30, accessed August 1, 2023. <https://www.epa.gov/greenvehicles/tailpipe-greenhouse-gas-emissions-typical-passenger-vehicle>
- Grabar, Henry. 2023. *Paved Paradise: How Parking Explains the World*. New York, NY: Penguin Press.
- Griswold, Wendy. 1986. *Renaissance Revivals: City Comedy and Revenge Tragedy in the London Theater, 1576–1980*. Chicago: University of Chicago Press.
- Gross, Samantha. 2022. "Politicians Need to Square with the American People on Gasoline Prices." *The Brookings Institution*, April 20, accessed August 1, 2023. <https://www.brookings.edu/articles/politicians-need-to-square-with-the-american-people-on-gasoline-prices/>
- Heilweil, Rebecca. 2022. "'There's a Bit of a Cultural Issue': Pete Buttigieg Gets Real About the EV Revolution." *Vox*, October 13, accessed August 1, 2023. <https://www.vox.com/recode/23399488/pete-buttigieg-transportation-biden-electric-vehicles-tesla>
- Hilgartner, Stephen and Charles Bosk. 1988. "The Rise and Fall of Social Problems: A Public Arenas Model." *American Journal of Sociology* 94: 1: 53–78.
- Howard, Bill. 2020. "Vehicles and Voting: What Your Car Might Say About How You'll Vote." *Forbes*, Wheels, October 1, accessed August 1, 2023. <https://www.forbes.com/wheels/news/what-your-car-might-say-about-how-you-vote/>
- Hutzler, Alexandra. 2022. "Biden Touts Electric Vehicle Investments at Detroit Auto Show." *ABC News*, Politics, September 14, accessed August 1, 2023. <https://abcnews.go.com/Politics/biden-touts-electric-vehicle-investments-detroit-auto-show/story?id=89899138>
- Irfan, Umair. 2020. "Can You Really Negate your Carbon Emissions? Carbon Offsets, Explained." *Vox*, February 27, accessed August 1, 2023. <https://www.vox.com/2020/2/27/20994118/carbon-offset-climate-change-net-zero-neutral-emissions>
- Itazaki, Hideshi. 1999. *The Prius that Shook the World*. Tokyo, Japan: Nikkan Kogyo Shimbun Ltd.
- Johnston, Josée. 2008. "The Citizen-Consumer Hybrid: Ideological Tensions and the Case of Whole Foods Market." *Theory and Society* 37: 3: 229–270.
- Johnston, Josee, Michelle Szabo, and Alexandra Rodney. 2011. "Good Food, Good People: Understanding the Cultural Repertoire of Ethical Eating." *Journal of Consumer Culture* 11: 3: 293–318.
- Keane, Webb. 2003. "Semiotics and the Social Analysis of Material Things." *Language and Communication* 23: 409–425.
- Kiley, Kevin and Stephen Vaisey. 2020. "Measuring Stability and Change in Personal Culture Using Panel Data." *American Sociological Review* 85: 3: 477–506.

- Lahkani, Nina. 2023. "Revealed: How US Transition to Electric Cars Threatens Environmental Havoc." *The Guardian*, January 24, accessed August 1, 2023. <https://www.theguardian.com/us-news/2023/jan/24/us-electric-vehicles-lithium-consequences-research>
- Lee, Mike and Hannah Northey. 2023. "Making the Entire U.S. Car Fleet Electric Could Cause Lithium Shortages." *Scientific American*, January 25, accessed August 1, 2023. <https://www.scientificamerican.com/article/making-the-entire-u-s-car-fleet-electric-could-cause-lithium-shortages/>
- Leiserowitz, Anthony, Nicholas Smith, and Jennifer Marlon. 2010. "Americans' Knowledge of Climate Change." *Yale Project on Climate Change Communication*. Yale University, New Haven, CT, accessed August 1, 2023. <http://environment.yale.edu/climate/files/ClimateChangeKnowledge2010.pdf>
- Lenox, Michael and Aaron Chatterji. 2018. *Can Business Save the Earth? Innovating Our Way to Sustainability*. Stanford, CA: Stanford Business Books, an imprint of Stanford University Press.
- Leonhardt, David. 2006. "U.S. Hybrids Get More Miles Per Congress." *The New York Times*, June 21, accessed August 1, 2023. <https://www.nytimes.com/2006/06/21/business/21leonhardt.html>
- Lindwall, Courtney. 2022. "Electric Vehicle Charging Explained." *Natural Resources Defense Council*, July 5, accessed August 1, 2023. <https://www.nrdc.org/stories/electric-vehicle-charging-explained>
- Liu, Xiaoyu and Qingbin Cui. 2017. "Baseline Manipulation in Voluntary Carbon Offset Programs." *Energy Policy* 111: 9–17.
- McDonnell, Terence E. 2010. "Cultural Objects as Objects: Materiality, Urban Space, and the Interpretation of AIDS Media in Accra, Ghana." *The American Journal of Sociology* 115: 1800–1852.
- McDonnell, Terence E. 2016. *Best Laid Plans: Cultural Entropy and the Unraveling of AIDS Media Campaigns*. Chicago: University of Chicago Press.
- McDonnell, Terence E. 2023. "Cultural Objects, Materiality, and Material Culture." *Annual Review of Sociology* 49: 195–220.
- McDonnell, Terence E., Amy Jonason, and Kari Christoffersen. 2017. "Feeling Red and Wearing Pink: Trajectories of Cultural Power in AIDS and Breast Cancer Ribbons." *Poetics* 60: 1: 1–15.
- McDonnell, Terence E., Dustin S. Stoltz, and Marshall A. Taylor. 2021. "Revision, Reclassification, and Refrigerators." *Sociological Forum* 36: 1316–1344.
- Moseman, Andrew. 2022. "Are Electric Vehicles Definitely Better for the Climate than Gas-Powered Cars?" *MIT Climate Portal*, October 13, 2022, accessed August 1, 2023. <https://climate.mit.edu/ask-mit/are-electric-vehicles-definitely-better-climate-gas-powered-cars>
- Mullen, Caroline and Greg Marsden. 2016. "Mobility Justice in Low Carbon Energy Transitions." *Energy Research & Social Science* 18: 109–117.
- Nerad, Jack R. 2021. "Is End Near for Plug-In Hybrids?" *J.D. Power*, April 12, accessed August 1, 2023. <https://www.jdpower.com/automotive-news/is-end-near-for-plug-in-hybrids>
- Oster, Erik. 2016. "H&L Partners Celebrates Toyota Prius, the State of California." *Adweek*, July 20, accessed August 1, 2023. <https://www.adweek.com/agencyspy/hl-partners-celebrates-toyota-prius-the-state-of-california/113335/>
- Pinch, Trevor J. and Wiebe E. Bijker. 1984. "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." *Social Studies of Science* 14: 3: 399–441.
- Popli, Nik. 2022. "High Gas Prices Are Pushing Electric Car Sales to a Tipping Point." *Time*, May 3, accessed August 1, 2023. <https://time.com/6173178/high-gas-prices-electric-vehicles/>
- Poppendieck, Janet. 1999. *Sweet Charity?: Emergency Food and the End of Entitlement*. New York, NY: Penguin Books.
- Scherr, Elana. 2021. "Why Do Electric Cars Look the Way They Do? Because They Can." *Car and Driver*, July 7, accessed August 1, 2023. <https://www.caranddriver.com/features/a36877554/electric-vehicles-design-future/>
- Schwedel, Heather. 2022. "The People Behind the Joe Biden Sticker that has Colonized America's Gas Pumps." *Slate, News and Politics*, March 11, accessed August 1, 2023. <https://slate.com/news-and-politics/2022/03/joe-biden-i-did-that-gas-pump-stickers-prices.html>
- Shine, Ian. 2022. "The World Needs 2 Billion Electric Vehicles to Get to Net Zero. But Is There Enough Lithium to Make All the Batteries?" *World Economic Forum*, July 20, accessed August 1, 2023. <https://www.weforum.org/agenda/2022/07/electric-vehicles-world-enough-lithium-resources/>
- Silva, Jennifer M., Sanya Carley, and David M. Konisky. 2023. "'I Earned the Right to Build the Next American Car': How Autoworkers and Communities Confront Electric Vehicles." *Energy Research and Social Science* 99: 103065.
- Singh, Akshay and Anand Manthana. 2023. "The US Electric Vehicle Charging Market Could Grow Nearly Tenfold by 2030: How Will We Get There?" *PWC*, accessed August 1, 2023. <https://www.pwc.com/us/en/industries/industrial-products/library/electric-vehicle-charging-market-growth.html>

- Sintov, Nicole D., Victoria Abou-Ghalioum, and Lee V. White. 2020. "The Partisan Politics of Low-Carbon Transport: Why Democrats Are More Likely to Adopt Electric Vehicles than Republicans in the United States." *Energy Research & Social Science* 68: 101576.
- Spector, Malcolm and John I. Kitsuse. 1973. "Social Problems: A Re-Formulation." *Social Problems* 21: 145–159.
- Szasz, A. 2007. *Shopping Our Way to Safety: How We Changed from Protecting the Environment to Protecting Ourselves*. Minneapolis, MN: University of Minnesota Press.
- The White House. 2023. "Building a Clean Energy Economy: A Guidebook to the Inflation Reduction Act's Investments in Clean Energy and Climate Action." 2023. Version 2. [CleanEnergy.gov](https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf). January, accessed August 1, 2023. <https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf>
- United Nations Environment Programme. 2020. "Emissions Gap Report 2020." Nairobi, accessed August 1, 2023. <https://www.unep.org/emissions-gap-report-2020>
- University of Cambridge. 2020. "Electric Cars Better for Climate in 95% of the World." March 23, accessed August 1, 2023. <https://www.cam.ac.uk/research/news/electric-cars-better-for-climate-in-95-of-the-world>
- Whalen, Jeanne. 2023. "Electric Vehicles Appeal to Conservative Buyers Sick of Gas Guzzlers." *The Washington Post*, June 5, accessed August 1, 2023. <https://www.washingtonpost.com/technology/2023/06/05/ev-conservative-buyer-uptick/>
- Yoder, Kate. 2022. "Herschel Walker, South Park, and the Prius: How Loving Gas-Guzzlers Got Political." *Grist*, November 28, accessed August 1, 2023. <https://grist.org/culture/herschel-walker-south-park-the-prius-gas-guzzlers/>
- Zipper, David. 2023. "EVs Are Sending Toxic Tire Particles into the Water, Soil, and Air." *The Atlantic*, Planet. July 19, accessed August 1, 2023. <https://www.theatlantic.com/technology/archive/2023/07/electric-vehicles-tires-wearing-out-particulates/674750/>

Copyright of Sociological Forum is the property of Wiley-Blackwell and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.