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Decolonizing EV Battery Recycling: Unveiling Impacts on Native Communities

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Abstract: As there is a growing number of electric vehicles (EVs) in the US, the EV battery recycling industry has begun to gain traction. This paper explores the potential impact that these recycling plants such as those projected to be built by Redwood Materials may have on native communities in the surrounding areas. It also addresses the first steps we can take towards decolonizing the industry that could be crucial to a sustainable future. This paper was written as a part of Volume 2 in the Queered Science and Technology Center.¹

INTRODUCTION

With the rapid rise of EVs, in the United States, led by California's over 900,000 registered EVs² powered by lithium-ion batteries, the question of what will happen to all of these batteries once they reach the end of their lives lingers. While the EV battery recycling industry is in its early development stages, there is a jarring trend of disproportionate amounts of battery recycling plants in the East despite more EVs in California than the rest of the nation combined. While there exist lithium-ion battery material production plants in California, the nearest announced recycling plant is in Nevada, near the border of the two states.³

This specific announced plant, Redwood Materials, has been at the forefront of the EV battery recycling industry, and the company's goal has been publicly announced to serve the EV batteries that belong to California EV owners. This paper will zero in on this company and its societal and environmental impacts in an attempt to explore the broader question:

What is the impact on native communities of inequitable distributions of EV battery recycling plants?

IDENTIFYING THE AFFECTED COMMUNITIES

In California specifically, the median income of families who own EVs is over \$200,000, and owners are mainly White and Asian affluent individuals. On the contrary, Black, Latino, and low-income neighborhoods, have hardly any EVs at all.⁴ When the EV batteries in California reach the end of their life, they will be transported to Redwood Materials near Reno, Nevada, in an area where there is a high concentration of Indian reservations within a 60-mile radius.⁵

ANALYZING THE IMPACTS: A NATIVE FEMINIST CRITIQUE

I argue that native communities in Nevada have to bear the burden of California's wealthy populations' EV battery scraps, which yields negative societal, health, and environmental impacts.

To scratch the surface of the implications of EV battery recycling plants, Nevada state officials have given a billion-dollar loan for companies to place their headquarters within

state lines.⁶ Though some argue that these plants will increase employment opportunities for Reno locals, we are overlooking the fact that an emerging tech company will attract young talent from all over the world; this can lead to dislocation and gentrification of the native and local communities that reside there now. We have seen a similar surge of young talent swarm to Texas over the years for the low cost of living and the increasing amount of tech startups.⁷ In other words, the argument that giving loans to companies like Redwood will improve the lives of the Nevada locals is simply a disguise for government officials to exert their power over native communities and perpetuate the settler colonial mindset that has already confined these communities to modern-day reservations.

The impacts of the EV battery recycling plants go beyond societal as there are clear long-term environmental implications, too. Recycling lithium-ion batteries has always been a risky task, with a reported 1.2 billion dollars in collective damages from lithium-ion battery fires alone in the US and Canada.⁸ Whether during transportation from California to Nevada, or complications in the actual recycling process, these fires can spiral out of control, damage the land, and harm the lives of the local communities in the surrounding areas.

Beyond these implications, we can further analyze this topic by leveraging the points in native feminist theory as discussed in the scope of the course.^{9,10}

Criticize settler-colonialism and its intersectional oppressions

The controversy over land and the economic benefits of a plant like Redwood is not the only fundamental issue: as analyzed from a lens of native feminist theory, native communities are subject to intersectional oppressions beyond the settler colonial struggle such as class and lack of representation in the EV decision-making. The excitement surrounding EVs benefits EV owners, who as mentioned, are mainly White and Asian individuals in wealthy communities; whereas inequities in infrastructures have barred American Indian and Alaskan Native communities from EV involvement.¹¹ While the EV movement is only benefitting very specific populations, it has become adopted as the “objective truth”—electrification of vehicles and the general movement of clean energy is good for our society and any progress in related industries is encouraged. Applying this “objective truth” on the entire nation when marginalized communities house little to zero EVs and native and rural communities will be affected by neighboring EV battery recycling plants serves as evidence that what is considered objective could be inherently harmful, especially if we do not seek out the opinions and goals of the tribes that will be impacted.

Furthermore, although there has been no literature addressing the decision to put Redwood’s plant in an area surrounded by native tribes, there are similarities between this situation and “dirty recycling plants” in marginalized communities around the US.¹² Diesel trucks dump waste from many cities into these communities, causing them to become wastelands, as the fumes of the trash linger in the air. The locals are then forced to bear the burden of affluent communities’ trash, breathing in the polluted air in the name of recycling.

The concept of dirty recycling plants is hauntingly similar to the business model of the California EV to Nevada EV battery recycling plant. Although one might argue that Redwood’s location near the border is simply for convenience and proximity to California, I believe it is no coincidence that it has been established in an area with an abundance of native communities. Government officials want to divert the California EV owner’s responsibility to

more rural areas in Nevada and perpetuate a cycle of oppression of marginalized communities by making policies that don't fully consider the long-term consequences to these populations.

Acknowledge indigenous epistemologies

With the establishment of EV battery plants near indigenous communities, the concept of mapping land unlocks underlying issues. Where modern-day cartography is defined mainly by geography, indigenous mapping has been a means of defining land and water. The maps are defined by paths of moose, areas with an abundance of specific species of fish, and overall capture aspects of their land that define indigenous ways of knowing.¹³ When companies like Redwood look at maps to develop their infrastructure, they are looking at maps that fail to capture the essence of indigenous land. While there has been no literature on native communities' opinions on EV battery recycling plants, a similar example has been vocalized by the Tohono O'odham Nation, a tribe in Arizona led by Verlon Jose, who witnessed bulldozers in their land to build a transmission line for clean-energy. While John Podesta on Biden's Clean Energy Innovation and Implementation has said they "feel very solid that analysis [of usage of the tribal land] was done properly...and we need to build some things in America.", Jose expressed that while the tribe does not oppose renewable energy efforts, "This is our land...It should all be protected...But they didn't listen".¹⁴

The sentiment of "we need to build some things in America" has delegitimized indigenous connection to their land, knowledge, and identity. Native feminist theory addresses decolonization as a key goal of indigenous communities, and that realizing indigenous sovereignty enables the future goals that these communities have for themselves. My knowledge of these communities' goals is admittedly minimal, but these EV battery recycling plants are certainly opposing decolonization by stepping into the land of these tribes and further severing the connection that they have to the land. The land that these plants reside on might appear as an exciting technological endeavor. Still, the long-term impacts that such plants would have on the locals are restricting these tribes to a predetermined future: a future devoid of their land, their air, and their knowledge, a future that is not of their own making. While there exists no evidence of tribal leaders speaking up specifically against the EV battery recycling initiatives, we can draw parallels between this situation and the clean energy restructuring in Arizona. Redwood and state officials must truly work with native populations that will have to bear the consequences of the recycling plants or the connection to the land that these communities have will only be severed and delegitimized further.

Denying erasure and going beyond inclusion

Besides the push to place companies like Redwood to come to Nevada, there are many initiatives such as the Upper Midwest Inter-Tribal EV Charging Community Network to deploy more EVs and expand the charging network to "connect Tribal Reservations with job centers, economic centers, medical providers, and other critical services".¹⁵ Such initiatives appear to help native communities keep up with the latest EV technology, but it is important to question if plans to include these communities in the EV expansion agenda align with their interests. While I cannot answer this question, the desire to include native communities in our ambitions appears as admirable. However, similar to the situation for the Tohono O'odham Nation, an unwillingness to work directly with these populations to realize goals that align with their identity and knowledge is inherently harmful.

Perhaps introducing Redwood employment to local tribes will bring indigenous communities to a technological stage that they have no interest in being a part of. It could be exacerbating the modern settler-colonial mindset, where officials assist these communities in staying up-to-date with the country's technological progress, but at the cost of disregarding and erasing indigenous identity and epistemologies. In the early stages of EV battery recycling, it is unclear whether officials have taken the necessary step of allowing native communities an opportunity to share their opinions on the matter. Yet, if not addressed, the native communities will be stuck in a constant cycle of settler-colonial oppression, where companies monopolize their land and invalidate their identity in the name of technology.

DECOLONIZING EV BATTERY RECYCLING

Despite the negative impacts that establishing EV battery recycling plants may have on native communities, recycling EV batteries will help our society become more sustainable. While Redwood Materials focuses on recycling the batteries in a way that would allow us to produce new EV batteries, I propose focusing efforts on an alternate way of approaching the recycling issue that would aid native communities rather than perpetuate settler-colonialism.

EV battery recycling companies should seek solutions that supplement indigenous lifestyles. In 2022, the Department of Energy Office of Indian Energy reported that over 16,000 Tribal homes had no electricity access, which was 10 times higher than the national average at the time.¹⁶ Startups like B2U Storage Solutions have found a way to convert old EV batteries into solar storage capsules that charge up when the sun is out and provide energy at night time and amid power outages.¹⁷ Though providing solar storage and electricity to native communities wouldn't yield equal profits to repurposed EV batteries, we should—and definitely could—reach out to these indigenous communities to see if they would be interested in integrating this technology into their lives. Focusing the EV battery recycling industry towards giving communities around America equal access to electricity and working alongside indigenous populations could help mobilize this industry to enable indigenous end-goals and even restore their innate connection to the land if they so desire.

CONCLUSION

This paper addresses the negative impacts that the current EV battery recycling initiatives will have on native communities in Nevada, and can be generalized to rural and native communities all over the country. While we can critique the overlooked, or perhaps ignored, consequences of the EV battery recycling business model, this paper is a critique of our society as a whole: a society that idealizes technological progress for its excitement and economic prospects. As the engineers who will be building our future, we all must step back and evaluate the consequences of our actions; with each step we take, whose lives are we actually “improving” and at what cost?

Although at this point in our young careers, we might not be able to speak up and share our opinions on an executive's business decision, we can do our part in educating our peers. We shouldn't progress for the sake of progression, and when we do progress, we shouldn't progress at the expense of others. If we can foster conversations about topics like those this paper addresses, perhaps in due time, we will be able to create technology and make educated decisions that will truly bring about good without sacrificing the well-being of others.

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